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Water Conservation in the Home

Water is something most people take for granted whether it's for bathing, dishwashing, laundering, or brushing teeth. But water is a necessary resource that must be conserved.

Availability of water in the home now and in the future should be everyone's concern. Water is readily available, but the situation is changing with constant new demands on our water supply.

Water conservation in the home can help control pollution and diminishing water levels.

Practicing wise water-use methods in the home can benefit you and your community. Using less groundwater and surface water lessens the need for waste-water disposal and helps improve water quality and the environment.

A typical consumer uses from 50 to 75 gallons of water daily.

An individual can easily reduce indoor water consumption by about 30 percent through the installation of water-conserving devices. Such devices are low-volume fixtures that accomplish the same function as do higher volume conventional fixtures, only they use less water and energy.

Plumbing Modifications

Commode

Displacement devices such as bricks, bottles, or bags are low-cost modifications that are effective in reducing the flush capacity of a toilet. Each device displaces about one or two quarts of water and reduces the flush volume accordingly.

Place such devices in the lower right-hand corner of the commode as far away from the flush mechanism as possible. If bricks are used, wrap in a plastic bag to prevent decomposition. If you use plastic bottles or bags, they must be weighted and filled with water before installed.

The average family of four could save about 10 gallons of water per day through the installation of these displacement devices.

Another device, known as a "water closet dam," can block off the lower portion of your water closet and prevent the water located behind the dam from ever leaving the tank. Generally, devices such as these are installed in pairs, one dam on each side of the flapper valve. Properly installed, the dams reduce water consumption by about two gallons per flush. These dams are easy to install and cost about \$5 a pair.

A family of four could save about 25 gallons of water per day through installation of toilet dams.

Most commodes require about five gallons of water per flush. Today, many major plumbing appliance manufacturers are marketing low-volume commodes that use three gallons of water per flush. These low-volume commodes have been tested and perform as well as do the standard-volume models.

Faucet

Most faucets have aerators that mix water and air, resulting in a capacity of about four gallons per minute.

Low-volume faucet aerators mix water and air and cut consumption in half. These devices are easy to install. All that is required is to remove the old aerator and replace it with the new low-volume aerator. The cost is about \$2, and the average savings for a family of four is about 15 gallons per day.

Line inserts and flow-restrictor devices reduce the size of the cross-sectional area of the supply line while maintaining the same water pressure. This reduces to about three gallons per minute the flow of water through the pipe. Devices such as these may be as simple as a washer or they may be more complex.

The cost may vary from 50 cents to several dollars. A family of four could save about 10 gallons of water per day by installing these devices on the lines.

Shower

Major plumbing suppliers manufacture water-saving showerheads. Most have a design capacity of about three gallons per minute as compared to six gallons per minute for a conventional showerhead.

Most showers are about 60 percent hot water, and with a reduced flow through a water-saving showerhead, less hot water is consumed. As less hot water is consumed, less energy is required to heat that which is being used.

At 4 cents per kilowatt hour, it costs about one penny to heat one gallon of water. The average family of four could save about \$10 per month in their water and energy bill by installing low-volume showerheads that cost from \$5 to more than \$20 for the deluxe models.

Water Management

The following checklist is designed to help you see how effectively you are using water and to suggest ways to conserve.

Plumbing

- Install low-volume-flow-control devices on showerheads and tub faucets.
- Limit the amount of shower water or tub water by the way you use hot and cold water faucets.
- Cut off all water if you are going to be away from home on a vacation or trip.
- Check to see how much your home softening equipment regenerates and backwashes. It can use as much as 100 gallons of water each time it does this. You may want to cut down on the use of such equipment. Reserve the softened water for kitchen use, baths, and the laundry. Use unsoftened water for other purposes. This may require a bypass line but is advisable under most circumstances.
- Insulate hot water pipes to reduce the amount of water that must be run to get hot water to the faucet.
- If possible, locate the hot water heater as close as possible to the bathroom, kitchen, and laundry areas. It is sometimes better to have two small water heaters located in strategic places.

- Check faucets for drips. Make repairs promptly. At a rate of only one drop per second from a leaky faucet, this adds up to nearly 2,500 gallons per year. That is enough water for 160 full cycles of an automatic dishwasher.
 - Teach children to turn off water faucets tightly after each use.
 - Check toilet for continuing flow after flushing. Put a small amount of food coloring into the tank. If the color trickles into the bowl, there is a leak and repairs are needed.
 - Install toilet dams or displacement devices.
 - Place a quart plastic (not glass) bottle filled with one inch of sand or gravel plus water in your toilet flush tank to save one quart of water per flush.
 - When buying a new commode look for a "low-volume model." They do not use as much water per flush.
 - Put "gray" water (saved from cleaning, bathing, etc.) in the toilet (not the flush tank) when it needs flushing. Otherwise, if the system loses pressure, "gray" water in the tank could back siphon and get into your drinking water system.
 - Avoid using the toilet as a trash basket for facial tissues and similar items. Each flush uses five to seven gallons of water.
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Laundry

- Wash only full loads of laundry.
 - Buying a new washing machine? Shop carefully and look for these features.
 - Models that use less water.
 - Capacity to fill needs. Do not buy a larger machine than you actually need.
 - "Float fill" models that provide a more accurate control of the amount of water used than does a "time fill" machine.
 - Water level control so you can adjust the amount of water you use (depending on the load).
 - "Suds saver" models that save water for later loads.
 - Save hand-washing jobs and do them all together. If possible, use the same sudsy water for several items. Make one rinse do the job of two.
 - Check garments to make sure they need washing. Do not wash clothes more often than necessary.
 - Avoid buying new clothes that require separate washing.
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Personal Care

- Urge family members to take showers instead of tub baths when possible. If tub baths are taken, the amount of water should not exceed one-third of the tub capacity. Tub baths can take 30 or more gallons of water, depending on how high the water level rises. Showers use 5 to 15 gallons of water.
- Cut down on the number of showers or tub baths taken. Replace some of them with sponge baths using a small amount of water in a lavatory.
- Limit shower time to three minutes or less.
- Relax with massage, stretching, or exercise instead of showers.
- Turn off shower water while you lather hair or apply soap to body.
- If possible, close bathtub drain during shower so all the water stays in the tub. Use this water to flush the toilet.
- Turn off water while you shave and/or brush teeth.
- Encourage children to change into play clothes after school so school and play clothes can be

worn several times.

Food Preparation

- Save water used to wash produce and to do other kitchen chores. Use for cleaning and similar chores.
 - To get warm water, turn hot water on first, then add cold water as needed. You get warm water quicker this way and save water.
 - Reduce the use of garbage disposals (which can use as much as four gallons of water per minute) by disposing of food waste in the trash.
 - Use only the amount of water necessary to cook foods such as vegetables and stews. You will preserve nutritional value as well as save money.
 - Cook foods over low heat in pans with tightly fitted lids to reduce evaporation of liquid.
 - Serve more one-dish casserole meals in which vegetables are cooked without adding water.
 - Use a tea kettle to heat water and avoid loss of water through evaporation.
 - Time foods that must boil to avoid too much evaporation.
 - Select the proper sized pans for cooking.
 - Use a pressure cooker to save water and time.
 - If possible, cover or wrap foods with foil during baking to cut down on evaporation.
 - Save leftover vegetable juices for reconstituting soups, cooking raw or frozen vegetables and stews, and making gravy. Use the juices within a day or two.
 - Use leftover fruit juices for drinking and making gelatin salads.
 - Store drinking and meal-preparation water for a short period of time (24 hours or less). Use clean plastic or glass jugs with tight-fitting lids. Keep in the refrigerator.
 - Chill water in bottles in the refrigerator to avoid running water. Shake bottle before serving to incorporate air in the water so that it does not taste flat.
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Dishwashing

- Cut down on the number of utensils used in preparing food and on the plates and glassware used with meals.
 - Wash only full loads of dishes in the dishwasher. A dishwasher uses between 12 and 20 gallons of water per load.
 - Avoid unnecessary rinsing of dishes that go into the dishwasher. Scrape if necessary.
 - If washing dishes by hand, use one pan of soapy water for washing and a second pan of hot water for rinsing. Wash the least-dirty dishes first.
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Household Cleaning

- Wipe up small spills as they occur to avoid frequent mopping of floors.
 - Regularly vacuumed carpets and rugs will not need to be shampooed as often.
 - Do at one time all household chores that require water.
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Houseplants

- Water indoor plants only when needed.

Outside the Home

- Lower your standards and wash the car less often.
- Drive your car onto your lawn before you wash it. Water the grass as you wash your car.
- If water supply permits use of outdoor pool, cover the pool when it is not being used to prevent evaporation.
- Clean the swimming pool filter often. You will not have to replace the water as often.
- If water is rationed or otherwise restricted, lawns and annuals should receive the lowest priority for outside watering. Trees and shrubs are more expensive to replace and should receive any available water.
- "Mulch" to retain moisture in the soil. Mulching also helps control weeds that compete with garden plants for water.
- Try "trickle" or "drip" irrigation systems in outdoor gardens. These methods use 25 to 50 percent less water than do house or sprinkler systems.
- If you are using a garden hose or sprinkler, water the garden infrequently but thoroughly. Do not let water run down a driveway or the street.
- Use a broom, not the hose, to clean the garage, sidewalks and driveway.

Water-Use Habits

	Typical Usage	Water-Saving Habits	Devices Installed and Cost
Showering	25-50 gallons (5-10 gal per minute, 5-minute shower)	wet down, soap up, rinse off (5 gallons)	1 low-flow showerhead/ \$12.00 1 shower flow restrictor/ \$1.50
Tub Bathing	35 gallons full	low level (10-12 gallons)	shut-off valve
Toilet Flushing	6-7 gallons/flush; avg 5 flushes per day.	tank-displacement or half-flush devices (20-35 gallons)	1 set of toilet dams \$8.00 1 plastic bottle \$0.00
Teeth Brushing	2 gallons (tap running continually)	wet brush, rinse briefly (1 pint)	3 faucet aerators or flow restrictors (for all faucets; bathroom/kitchen) \$4.50
Handwashing	2 gallons (tap running)	fill basin, rinse briefly (1 gallon)	
Shaving	3-5 gallons (tap running)	fill basin, rinse (1 gallon)	
Dishwashing	20 gallons (tap running)	wash, rinse in sink (5 gallons)	
Clothes Washer	36-60 gallons (full cycle) 40-45 for top load washer	do only full loads	Total Cost \$26.00
Outdoor Watering	5-10 gallons per minute	be sensible, seek local lawn/garden expert advice (Extension Service)	

* Installation of devices and present changes in water-use habits can reduce water consumption 30 to

50 percent. Savings in water and energy costs quickly pay for installation of services.

References

USDA Extension Service. "Water Conservation Checklist for the Home."
Program Aid Number 1192.

North Carolina Agricultural Extension Service: "Water Watch: Water Management Checklist for the Home." HE-213; "Water Watch: Saving Water and Saving Energy." HE-251; "Water Watch: Focus on Residential Water Conservation." HE-250.

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