

Water Conservation Tips



Evaporative coolers can be major summertime water users. Here's how to be waterwise while keeping your cool:

- Instead of turning on your cooler when it's 79 degrees outside, wait until it is 85 degrees. Your cooler will use 50% less water.³
- Turn on the water pump a few minutes before turning on the fan to give the cooler pads a chance to become saturated.
- Open a window 1-2 inches in the rooms you want to cool. This will draw cool air into the rooms and give warm air a chance to escape.
- In the evenings or when it's not quite so hot outside, run your cooler fan without running the water pump. You'll get nice, cooling airflow without using any water at all!
- Also run just the fan on rainy and high-humidity days when your evaporative cooler is significantly less efficient.
- To keep your cooler from wasting water, check it monthly for leaks during the summer season.

¹ Ed Phillips, Arizona Almanac
² Brian Wilson, New Mexico Office of the State Engineer
³ Water Conservation Alliance of Southern Arizona

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A Waterwise Guide to Evaporative Coolers



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What Is Evaporative Cooling?

Evaporative cooling isn't a new concept. In fact, it's the oldest known method of cooling hot, summer air to make living spaces more comfortable. Ancient Egyptians hung wet material so the wind could blow through it to create a cooling effect. If you've ever been chilled when getting out of a swimming pool, you've experienced the effect of evaporative cooling.

How Does An Evaporative Cooler Work?

Today's evaporative coolers (also known as "swamp coolers") provide a practical, energy-efficient way to cool air temperatures in the low-humidity climates found throughout New Mexico.

Warm air is cooled as it passes through porous pads that are kept moist by water dripping on their upper edges. A blower wheel pulls outside air through the wet pad, and the cool, humidified air is then circulated through the house. In the process of cooling the air, evaporative coolers provide an additional benefit of removing dust and pollen that can cause allergies and asthma attacks.

Evaporative coolers provide a very effective way to cool hot air, particularly when the relative humidity (the moisture content of the air) is low. An evaporative cooler works best in the hottest time of the day, because relative humidity drops quickly as temperature increases. Studies show that a typical evaporative cooler uses only about one-third the energy of a refrigerated air conditioner, yet when relative humidity is 30 percent, an evaporative cooler can cool air from 90 degrees to a comfortable 74 degrees.¹

How Much Water Do "Swamp Coolers" Use?

Water requirements for an evaporative cooler will vary with the size of the house, its orientation toward the sun, window area, type of landscaping, proximity to hard surfaces and other structures, lifestyle of the occupants, local climate, how many hours the cooler runs, and water quality. In an average weather year, a 1,500 square-foot home in Santa

Fe might use 2,980 gallons of evaporative cooling water (based on the evaporative cooler running 696 hours). The same sized home in Albuquerque would use 7,261 gallons (1,130 cooling hours), while a similar house in Las Cruces would use 12,457 gallons (1,718 cooling hours).² In an unusually warm year, these water requirements would be significantly higher.

Virtually all models of evaporative coolers now available recirculate the water that drips from the pads, resulting in an efficient use of water. (Older, less water-efficient evaporative coolers might not have a pan to catch and recirculate water. These coolers should be replaced with recirculating coolers.)

Some coolers have a "bleed-off valve" to drain a portion of the recirculating water to prevent excessive mineral buildup on the porous pads. Bleed-off water can increase overall evaporative cooler water use by 50% or more, which would increase total evaporative cooler water use to 4,470 gallons per year in Santa Fe, 10,892 gallons in Albuquerque, and 18,686 gallons in Las Cruces. A more water-efficient alternative to continual bleed-off is a "dump pump," which empties the cooler pan at regular intervals to reduce mineral buildup.



Evaporative Cooler Maintenance Made Simple



Your evaporative cooler needs a tune-up each spring and periodic inspections throughout the cooling season. By performing the basic maintenance and diagnostic steps listed below,

you can ensure that your cooler will be as water and energy efficient as possible and provide you with the best cooling performance.

SPRING START-UP

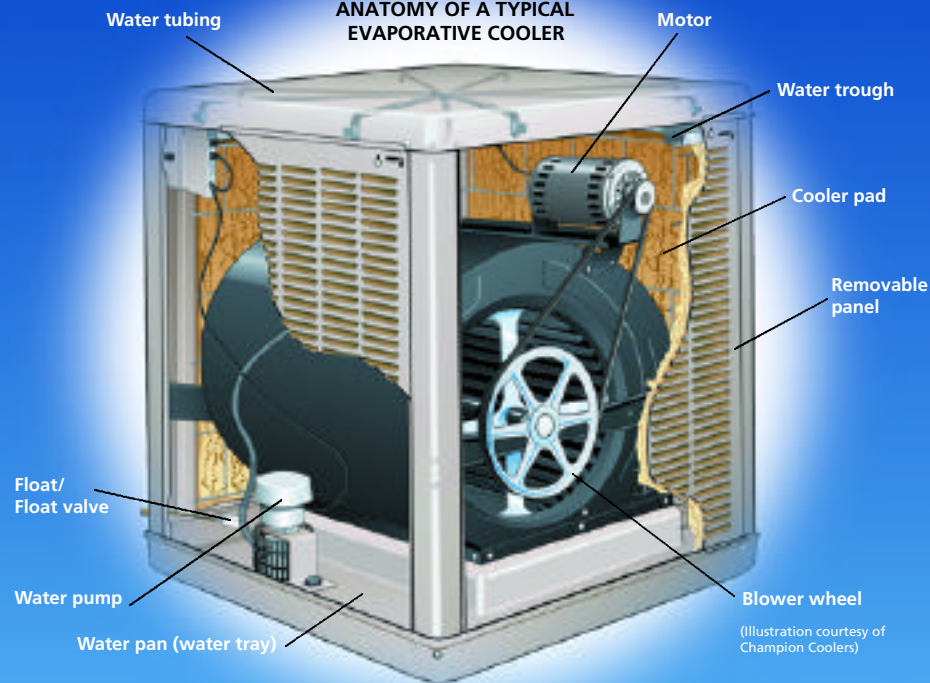
Spring maintenance is essential to make sure your evaporative cooler will do its job during the hot summer months. Most coolers can be maintained by do-it-yourselfers with common household tools.

- Remove external weatherproof covers.
- Remove the cooler pad holders. Remove and discard the old cooler pads. Scrub the panels to remove any debris. Scrub out the water trough at the top of each panel, making sure that each hole in the trough is free of debris.
- Clean out any debris in the water tray (at the bottom of the cooler). Check the water tray for rusted areas and cracks that may leak, and coat the tray with submarine paint.
- Install new cooler pads per manufacturer's directions. (The cooling efficiency of your evaporative cooler is dependent upon the pads. Old pads get coated with mineral deposits and won't absorb as much water.)
- Connect the water line and turn on the water supply. Water should begin to fill the water pan.
- When there's sufficient water in the pan, turn on the water pump and make sure the water flows freely through the tubing and onto the water trough at the top of each panel. Water should evenly saturate each pad.
- Check the water level and adjust the float arm, if necessary. (See detailed instructions in the next section.)

SUMMER INSPECTIONS

To make sure your cooler is operating at its peak efficiency, check it monthly. Some manufacturers recommend replacing the cooler pads at least once during the course of the cooling season. Check your pads for mineral buildup and replace if necessary. Clean out the water pan periodically to ensure maximum cooler efficiency. Check the cooler and the water lines for leaks that waste water!

ANATOMY OF A TYPICAL EVAPORATIVE COOLER



(Illustration courtesy of Champion Coolers)

- Check that the float now rises high enough to turn the float valve off.
- After the cooler has run for 30 minutes, check the new water level in the water tray. Continue to make float arm/float adjustments until the proper water level is reached.

Replace the float valve (if necessary).

- If the float valve continues to let water into the tray no matter how high the float arm rises, it's time to replace the float valve.
- Turn off the water supply to the cooler.
 - Remove the old float valve and replace it with a new one. (Float valves are commonly available at hardware and home center stores.)
 - Turn the water supply on and adjust the float to achieve the proper water level (about 1/2 inch below the top of the overflow pipe).

Periodically check water lines, connections and water tray.

- Make sure all connections are tight and leak-free.
- Check all water lines for leaks. Replace any damaged lines.
- Check the water tray for rusted areas that may leak.

FALL SHUTDOWN

- Turn off the water supply and drain the water tray.
- With a wire brush or putty knife, gently scrape out any debris and mineral buildup from the water tray. (Vinegar can be used to dissolve the mineral deposits.)
- Disconnect the water line from the cooler to prevent freeze damage.
- Cover your cooler during the winter to prevent cold air from entering your house.

