

## Bathroom Design from an Environmental Perspective

### How to save water (and money) in your bathroom



Bathroom showers, toilets, and sinks account for approximately 75% of the water used in each American home. It is important for all of us to do more to save water, both to protect our world's natural resources and to lower the economic

impact of wasteful water usage. Bathroom design with a few simple and inexpensive concepts in mind can save so much water that if every person in the United States made these modifications, our country would save 10 trillion gallons of water per year. At an estimated cost of \$.002 per gallon (the average cost in the United States, although prices differ from city to city), that would save our economy 20 billion dollars a year!

Everyone can do a little more to protect our natural resources, and reading this article will give you a good idea why and how.

Designing an environmentally friendly bathroom is surprisingly easy and affordable. If you are building a new bathroom, the most important purchases are dual-flush toilets, faucet aerator, and adjustable or low flow showerheads. If you have an existing bathroom, updating your toilet will be slightly expensive, but replacing your showerhead and adding a faucet aerator will be cheap. Even the expense of replacing a toilet should pay for itself over time because it could lower your water bill by as much as \$75 per year. You can reduce the amount of water an older toilet uses by placing a half gallon plastic jug in the tank. Once you have the adjustable flow showerhead, you should set it to use the lowest amount of water pressure that still allows you to have a relaxing and enjoyable shower.

Older bathroom toilets generally use about 5 gallons of water per flush. Most modern toilets use about 1.6 gallons per flush. On the other hand, a dual-flush, ultra low flow toilet can use as little as .5 gallons per flush. The average person flushes a toilet 8 times per day, so a family of four can save 13,000 gallons of potable water per year by using a dual-flush toilet instead of a standard modern toilet, and 52,000 gallons of water compared to the older toilets that still exist in many homes. If everyone in the United States used a toilet like this, we would save 3.9 trillion gallons of potable (drinkable) water per year. What an amazing saving this would be for our countries natural resources. And of course, by installing a toilet like this, you will save money on your monthly water bill.

In Denver, Colorado and Phoenix, AZ, tap water costs about \$.001 per gallon. In Tucson, AZ, tap water costs about \$.0025 per gallon. The average cost of water in California is about \$.004 per gallon. The difference in the cost of water is

primarily because of the lack of a major river flowing into Tucson. Phoenix has 3 rivers to draw water from the Salt River, Colorado River, and the Gila River. On the other hand, Tucson and other cities in Arizona have to draw their water out of the ground. Not only does this mean that the water is expensive, but it also means that the natural resource is bound to run out. So clearly, for economic reasons and environmental purposes, it is important for our country to be conscious of saving water.

Lets take a look at some other ways that we can save water in the bathroom:

If your bathroom was designed before 1992, your showerheads probably put out 5 gallons of water a minute (GPM). Multiply this by the number of minutes you're in the shower, and the water usage adds up rapidly. After 1992, showerheads became legally required to put out no more than 2.5 gallons of water (you can find an adjustable showerhead that puts out as little as 1.0 gallons of water per minute and still offers an enjoyable shower). The average person uses a shower for 10 minutes per day, so switching to a low flow showerhead can save a family of four about 58,000 gallons of water per year, and our country as a whole would save 4.3 trillion gallons of water per year. If you reduced the length of your shower from 10 minutes to 8 minutes, you could save even more water!

Bathroom sinks:

Standard bathroom faucets use 2.5 gallons of water per minute. Turning off the water while you brush your teeth (2 minutes) should save you approximately 5 gallons of water per day, or 1825 gallons of water per year. Installing a faucet aerator is the easiest way to reduce bathroom faucet water use; they usually reduce the flow of a bathroom sink from 2.5 GPM to 1.5 GPM.

Other ways to save water include making sure that you do not have a leaky toilet, turning off the faucet while you wash your hands, filling up the wash basin to rinse your razor before you shave instead of running the water, and being generally conscious to keep the water off unless it is absolutely necessary to have it running.

Water heater location and pip insulation:

Placing your water heater as close as possible to your kitchen and master bathroom will lower the amount of time you must run a faucet before the water gets hot.

Leaky toilets:

You can test your toilet for a leak by adding food coloring to the tank. If the toilet leaks, color will appear in the toilet bowl within 15 minutes.

Other ideas for saving water in your household:

- | Keep your eye out for dripping faucets. You can fix a dripping faucet by replacing washers. If your faucet drips at a rate of 1 drop per second, expect to waste 2500 gallons per year.
- | Check for leaky toilets
- | Take a look at your water meter while no water is being used in your house. If it goes up, you obviously have a problem! This can also help you locate underground service leaks.
- | Do not use your toilet as a trash can. Throw trash in the trash! Extra flushes waste water

- | Keep water pitchers around to collect water that runs while you wait for the water to heat up. You can use this as drinking water or to water your plants!
- | Keep drinking water in the refrigerator instead of letting the tap run while you wait for cool water.
- | Consider installing an instant water heater on your kitchen sink so you don't have to let the water run while it heats up. This will reduce water heating costs for your household.
- | If taking a bath, begin filling the tub with the drain already plugged, don't wait for the water to warm up before plugging the drain. Instead, adjust the water temp while the tub fills. Take a short shower instead of a bath. While a five minute shower uses a 12 to 25 gallons, a full tub requires about 70 gallons.

The average person uses 100 gallons of water per day for everything from drinking to bathing to garden maintenance. The average household water bill is \$300 per year. So lets save some money and protect our environment!

Dual flush toilet: The left button is for a low flush, the right button is for a full flush



Bathroom faucet aerator: This will decrease water usage in your bathroom faucet from 2.5 GPM to 1.5 GPM



Low flow bathroom showerhead:

