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## GREEN BUILDING: Clean, affordable water not something to take for granted

By Sara Emerick

WNC GREEN BUILDING COUNCIL

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A sufficient, clean drinking water supply is essential to life, but millions of people throughout the world continue to not have access to this basic necessity. After decades of work by governments and organizations to bring potable water to the poorer people of the world, the situation is still dire. We are fortunate to live in a place with the infrastructure to support our water needs and be able to afford it.

On average, each person in the United States uses about 80 to 100 gallons of water per day. The largest use of household water is flushing the toilet, followed by taking showers and baths. We are starting to see more toilets and showers that use less water. Many local governments now have laws that specify that water faucets, toilets and showers only allow a certain amount of water flow per minute.

Those who pay the city of Asheville know the cost of water being flushed down the toilet. Low-flow toilets use a maximum of 1.6 gallons of water per flush compared with about 3.5 gallons of water used by an older toilet. Low-flow showerheads use about 2.5 gallons of water per minute compared with between 4 and 5 gallons per minute used by conventional heads. Low-flow faucet aerators can cut the water usage of faucets by as much as 75 percent, down to as low as one-half gallon per minute.

It's not just low-flow, it's the law. In 1995, the National Energy Policy Act mandated the use of toilets that use no more than 1.6 gallons of water per flush. Since then, low-flow plumbing fixtures, including toilets, faucet aerators and showerheads, have been developed and save substantial amounts of water compared with conventional fixtures while providing the same utility.

Your shower uses about 22 percent of the total water you use in your home (if your home is average). A good portion of that water takes a detour through your water heater, raising your energy bill on its way to soaking your head. You can assume that with an old standard showerhead, a five-minute shower would use about 30 gallons of water. If you have more than one person in your home, or you take longer showers ... well, you do the math.

Other ideas to save water and money are to reuse gray water and harvest rainwater.

Gray water is any water that has been used in the home, except water from toilets. Dish, shower, sink and laundry water compose 50 percent to 80 percent of residential "waste" water. This may be reused, with proper treatment, for other purposes, especially landscape irrigation.

Roof water or rainwater harvesting is a technique that has been used since antiquity. In the industrialized countries of the world, sophisticated rainwater harvesting systems have been developed with the aim of reducing water bills or to meet the needs of communities or individual households in arid regions. Rainwater catchments in their simplest form are referred to as rain barrels where the rainwater is used for irrigation.

The reason rainwater harvesting is rarely considered as a valuable water source is often lack of information —

both technical and otherwise. In many areas where rainwater harvesting has been introduced as part of a wider drinking water supply program, it was at first unpopular, simply because little was known about the technology by the end users. In most cases the technology has gained popularity as the user realizes the benefits of a clean, reliable water source at the home. It is a technology that is flexible and adaptable to a variety of conditions.

This is the opinion of Sara Emerick, an intern with the WNC Green Building Council. Contact her through the council at 232-5080 or e-mail [info@wncgbc.org](mailto:info@wncgbc.org).

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