

Article requested from <http://masterhandyman.com/>

By Glenn Haege  
(All rights reserved)



Publication date: 10/27/2007

## Tankless water heaters have their shortcomings

As the temperature drops, the thought of a nice, hot shower gets more and more appealing in the morning. The problem is showers use a lot of hot water. If there are teenagers in the house, an astronomical amount of hot water can be used in a very short time.

If your family starts running out of hot water on a regular basis, the natural assumption is that it is time to upgrade to a tankless system. After all, no money or energy is wasted storing hot water, and an on-demand system gives the family a limitless supply of hot water when it's needed, right?

Well, sort of. As Mark

Radliff, president of Hartford and Ratliff, (800) 466-3110, [www.hartfordandratliff.com](http://www.hartfordandratliff.com)) and past president of the Michigan Plumbing & Mechanical Contractor's Association explains it, if you had a tankless water heater and turned on the shower so that the water was comfortable, you could leave the shower running, walk out of the house and not come back for 9 months. At the end of that time, the water in the shower would still be the same temperature.

Unfortunately, if you had two showers running and somebody turned on a washing machine or dishwasher, this would not be the case.

The amount of hot water delivered by a tankless water heater depends upon the size of the unit (the BTUs), the temperature of the water supplied to the water heater and the temperature rise required of the heater.

Most tankless water heater manufacturers use a very unrealistic temperature rise when computing performance. A single source (one appliance) tankless water heater like the Bosch Aqua Star 125 is rated at 4.6 gallons of heated water a minute as long as it only has to heat the water 45 degrees.

Michigan is a northern zone state. The ground temperature of our water supply varies from 37 degrees to 51 degrees. That means that this water heater will furnish 4.6 gallons of 96-degree water in the summer and 4.6 gallons of 82 degree water in the winter. No one would step into 96- or 82-degree water unless they wanted to take a cold shower.

If you want hotter water, delivery rate goes way down. Raising the temperature to 90 degrees in the winter could lower the delivery rate to about the same 2.5 gallons of water per minute used by a standard showerhead. Heaven help the poor shower taker if someone in the kitchen or another bathroom turns on a hot water tap.

People will say that this just means we should convert to low-flow showerheads. I use low-flow showerheads in hotels all the time. When I do, my body doesn't even feel like it is getting wet. I can't recommend something that I don't want to do.

State Industries has a nice usage chart in their Aurora On-Demand Residential Gas Water Heaters brochure. They suggest, "If one kitchen faucet, one shower and a washing machine are all in use during your busiest period," a family needs their biggest residential water heater, the GAX-236. If another shower were added, the family would need two GAX-236 tankless heaters.

According to Mark Ratliff, two of the big tankless units are the recommended solution he gets from all the major tankless manufacturers.

If you got this system for your house, the contractor would have to install two heavy-duty gas lines and two vents. In the real world, buying and installing two, heavy duty, 199,000 BTU whole house residential tankless water heaters, costs at least \$7,000, Ratliff said.

He contends that a family requiring 3 or 4 showers going at the same time could get more bang for the buck by installing a combination of one whole house, 199,000 BTU tankless water heater working in tandem with a 52-gallon, conventional electric water heater and a Grundfos re-circulating pump. The installation cost of this combo system would be about \$4,800, Ratliff said. This is expensive for my taste, but a big savings over the two tankless water heater alternative.

The combination would give the family a peak demand supply of 200 gallons of hot water in the first hour when they needed it most. The electric water heater remains in the background with an extra 52 gallons of hot water supply any time the tankless water heater can't meet requirements.

Since electric water heaters are so well insulated, they only lose about 1 percent of their heat a day, so energy loss is minimal.

The problem with this set up is that the water heaters have to be connected in a very sophisticated way. Two companies that do a great deal of tankless water heater installation in our area are Hartford & Ratliff, (800) 466-3110, [www.hartfordandratliff.com](http://www.hartfordandratliff.com); and Rooter MD, (800) ROOTER MD, [www.rootermd.com](http://www.rootermd.com)).

Personally, my wife and I use an old-fashioned boiler to give us all the hot water we need. My publisher at Master Handyman Press and his wife get all the hot water they need with a conventional, rapid recovery, 50-gallon natural gas water heater.

But hey, we are dinosaurs. Tankless is the wave of the future. If you've got the urge, more power to the people (and their water heaters).