Tankless Water Heaters: What You Should Know

March 2009

Background

Long used in commercial applications, tankless water heaters are gaining in residential popularity with new home and remodel construction in response to claims of increased energy efficiency as well as a desire to minimize space requirements of utilities within the home. However, as this type of water heater has become more popular, water systems in the North Alabama area have begun learning of customer problems.

Madison Utilities, like many of our neighboring water suppliers, produces the water in our service area from groundwater well sources. While the water is treated at one of our two Water Treatment Plants, a certain amount of mineral hardness common to all groundwater in this region remains (you may view our most recent Water Quality Report on our website). This hardness is not a health concern, but it can be the culprit of scaling that may occur in household plumbing or around faucets. When the temperature of the water rises, the conditions become even more favorable for the "hardness" to precipitate out of solution, that is, for scale buildup to increase.

In conventional water heaters where water is heated and stored in a tank, scaling that may be produced often settles to the bottom of the tank and may never cause operational concerns over the life of the tank. However, with the newer "tankless" models where water is heated "on demand", this scale may build up on the heat exchanger coils within the unit causing an eventual automatic shut down and error code if the coils begin overheating. According to the manufacturers, this type of buildup is typically corrected by draining the unit and then flushing it with a cleaning solution (often a vinegar and water preparation). There is also typically an in-line screen filter that should be checked periodically for debris. Your owner's manual should provide the proper instructions.

If you have questions about Madison's water quality, you may contact Jeff Taylor at 461-0845 x 115, or via email: jtaylor@madisonutilities.org

Possible Solutions

Manufacturers of these units are currently testing different alternatives for either pretreating or conditioning hard water in the home so that these types of failures due to scaling can be minimized. Currently, there appear to be four general categories of solutions:

1. Whole house water softening units – removes all hard water minerals on incoming house line, although some people do not like the "feel" of softened water when showering, for example;
2. Electronic scale inhibitors – strap on pipe before tankless unit to emit a charge to keep hard water ions in solution, but can be costly;
3. Polyphosphate addition systems – small cartridge type installation on line just before tankless heater, has reasonable cost but filter/cartridges must be changed at least annually; OR
4. Magnetic systems – little data available on efficacy of these systems.

Each home and system may be different, so homeowners should research with care and understand both short and long term costs before purchasing any one "solution."

What are your choices?

- Understand the type of unit in your home by reading the manufacturer's Owner's Manual and provide the periodic maintenance suggested in a hard water environment, either do-it-yourself with a flush kit or through a licensed plumber
- Provide a means of combating scale buildup prior to your tankless heater via one of the solutions noted above
- Contact your plumber or tankless water heater manufacturer for more information