How Tankless Water Heaters Work?

It's the holiday season and your peaceful suburban domicile is overflowing with houseguests. You need a nice, hot shower to soothe your nerves, but you're in line behind your in-laws and cousins. In times like these, you'll be glad you installed that new tankless water heater in your garage. The idea behind a tankless system is that it heats the water as you need it instead of continually heating water stored in a tank. Tankless heaters have been the norm in much of Europe and Japan for quite some time, but they haven't gained popularity until recently in the United States -- largely due to the green movement. If you're a good candidate for a tankless system, you can save a substantial amount of money every year on your monthly bills while at the same time conserving natural gas. Tankless heaters also last about five to 10 years longer than a tank heater, take up much less space and provide you with an unlimited amount of hot water.

In order to understand how a tankless water heater works, it's important to know how a standard tank heater operates. In a traditional heater system, there's a large tank that holds and heats water. In order to give you hot water when you need it, the tank continually heats the water to maintain a constant temperature. The energy used to keep the water hot even when it's not being used is called standby heat loss.

Tankless systems avoid standby loss by heating incoming water only as you need it -- they're also referred to as "on demand" water heaters for this reason. The elimination of the standby heat loss is what makes a tankless system more efficient.

In order to get you that piping-hot shower when you want it, a tankless water heater uses a powerful heat exchanger to raise the temperature. A heat exchanger is a device that transfers heat from one source to another. There are heat exchangers in your air conditioner, refrigerator and car radiator. In this case, it transfers heat generated by electric coils or a gas-fired burner to the water that comes out of your faucet. This exchanger is activated by the incoming flow of water. So when you turn on your hot water tap, the incoming water circulates through the activated exchanger, which heats the cold water to your preset temperature. All you need then is some soap and shampoo and you're ready to wash, rinse and repeat.

Natural Gas

Natural gas is a naturally occurring hydrocarbon gas mixture consisting primarily of methane, with other hydrocarbons, carbon dioxide, nitrogen and hydrogen sulfide.[1] Natural gas is an important energy source to provide heating and electricity. It is also used as fuel for vehicles and as a chemical feedstock in the manufacture of plastics and other commercially important organic chemicals.

Natural gas is found in deep underground natural rock formations or associated with other hydrocarbon reservoirs in coal beds and as methane clathrates. Petroleum is also another resource found in proximity to and with natural gas. Most natural gas was created over time by two mechanisms: biogenic and thermogenic. Biogenic gas is created by methanogenic organisms in marshes, bogs, landfills, and shallow sediments. Deeper in the earth, at greater temperature and pressure, thermogenic gas is created from buried organic material.

Before natural gas can be used as a fuel, it must undergo processing to clean the gas and remove impurities, including water, to meet the specifications of marketable natural gas. The by-products of processing include ethane, propane, butanes, pentanes, and higher molecular weight hydrocarbons,

hydrogen sulphide (which may be converted into pure sulfur), carbon dioxide, water vapor, and sometimes helium and nitrogen. Natural gas is often informally referred to simply as gas, especially when compared to other energy sources such as oil or coal.

Portable Water

Drinking water or potable water is water safe enough to be consumed by humans or used with low risk of immediate or long term harm. In most developed countries, the water supplied to households, commerce and industry meets drinking water standards, even though only a very small proportion is actually consumed or used in food preparation. Typical uses (for other than potable purposes) include toilet flushing, washing and landscape irrigation.

Over large parts of the world, humans have inadequate access to potable water and use sources contaminated with disease vectors, pathogens or unacceptable levels of toxins or suspended solids. Drinking or using such water in food preparation leads to widespread acute and chronic illnesses and is a major cause of death and misery in many countries. Reduction of waterborne diseases is a major public health goal in developing countries.

Water has always been an important and life-sustaining drink to humans and is essential to the survival of all known organisms. Excluding fat, water composes approximately 70% of the human body by mass. It is a crucial component of metabolic processes and serves as a solvent for many bodily solutes. The United States Environmental Protection Agency in risk assessment calculations previously assumed that the average American adult ingests 2.0 litres per day.However, the United States Environmental Protection Agency now suggests that either science-based age-specific ranges or an all ages level (based on National Health and Nutrition Examination Survey 2003-2006 data) be used. Drinking water of a variety of qualities is bottled. Bottled water is sold for public consumption throughout the world.