Water Heating System: Its Basic Components and Functions

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Heat is a valuable form of energy generated from various sources and circulated using different means for different applications. Combusted fuel, sunlight, and electricity are some of the most usual sources of heat. Depending on the agent used to transfer heat, the performance of those sources may vary. Water and steam are popular agents of heat distribution in a thermodynamic system. They are often used in industrial and residential boilers or water heaters. Their efficiency in transferring or dispersing heat is influenced by other components which comprise the system.

A water heating system includes a number of elements that work together to efficiently generate and distribute heat. Typically, a certain standard of heat guides the process employed in a system, including the work needed, amount of water used per time, and maintenance requirements. A home water heater, an example of a simple water heating system, usually contains the basic elements, like fuel source, heater, pipeline system, and economizer. For heaters that use sunlight as fuel source, solar panels are put up atop the roof or at any open areas outside the house linking to the main vessel.

Typical water heaters utilize heating oil, propane, or natural gas to produce heat. These fuels are conflagrated to directly or indirectly transmit heat to the boiler to blaze the water filled in it. The measure of heat required changes depending on the amount of water and on the size of the system. The rate of heat production may also depend on the size of the furnace relative to the size of the other components. Therefore, large water heating systems require large furnaces and voluminous fuel sources.

The boiler placed side by side or atop the furnace is filled with tap water. Typical water heating system distributes constant amount of water. Reusing condensed steam or cooled water is the most economic technique of hot water distribution. Direct contact water heaters are filled with water and are shut off to the nozzle by a connecting path to the system to permit the cyclic process. They use conduction or convection to transmit the heat needed to boil water.

Upon getting to the needed heat, water then enters the pipeline network built in the house, particularly within the walls and ceiling. From the direct contact water heater that heated it, it travels in speed after being pumped into the pipes, which maintains the heat even at distant points in the network before water finally cools down and goes back to the boiler.

An economizer that operates on waste steam is now utilized for waste water heat recovery. This adds to the efficiency of the water heating system because water is preheated before it gets in the boiler again. That way, fuel usage and the waste products are lessened.

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