The Basic Components of Water Heating System and Their Functions

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Heat is a valuable form of energy produced from various sources and circulated using different means for different applications. The most common sources of heat include sunlight, combusted fuel, and electricity. Depending on the agent used to transfer heat, the performance of those sources may differ. Water and steam are popular agents of heat distribution in a thermodynamic system. They are typically used in industrial and residential boilers or water heaters. Their efficiency in transferring or dispersing heat is determined by other components comprising the system.

A water heating system includes a number of elements that work together to successfully produce and distribute heat. Typically, a certain standard of heat guides the process applied in a system, consisting of the work needed, amount of water used per time, and maintenance requirements. A home water heater, a sample of a simple water heating system, usually includes the basic elements, like fuel source, heater, pipeline system, and economizer. For heaters that use sunlight as fuel source, solar panels are installed atop the roof or at any open areas outside the house connecting to the main vessel.

Ordinary water heaters use heating oil, propane, or natural gas to make heat. These fuels are conflagrated to directly or indirectly send heat to the boiler to blaze the water inside. The required amount of heat changes basing 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 heating system in proportion to the size of the other components. Therefore, large water heating systems require large furnaces and bulky fuel sources.

The boiler placed side by side or above the heater is filled with tap water. Standard 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 enable the cyclic process. They use conduction or convection to transmit the heat needed to boil water.

Upon attaining the necessary heat, water then enters the pipeline network installed 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 sustains the heat even at distant points in the network before water finally cools down and goes back to the boiler.

An economizer that works on waste steam is now used for waste water heat recovery. This adds to the performance of the water heating system because water is preheated before it enters the boiler again. That way, fuel consumption and the waste products are lessened.

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