
Solar Radiant Heating?

What is Radiant Heating?

Radiant floor heating is an excellent method of heating a space using hot water. The concept uses conduction as well as radiation to heat your body instead of the air. Air, being a terrible conductor of heat is much harder to heat and not to mention requires a lot of energy to heat. By heating the floor and thus heating anything touching the floor a lot less energy is required.

The method is simple. Consider how the sun heats the earth. The sun's energy radiates to the earth where it is absorbed by the earth and released as heat. A radiant floor heating system works in the same manner – heat radiates upwards from the floor. Floor heating works by circulating warm water through plastic tubing under the floor. This causes the floor to radiate heat thus warming a space and its occupants very comfortably and efficiently.

Radiant Floor Heating Benefits

1. **No Cold Spots:**

Heat radiates from the entire floor thus, you get a warm floor and even heat without any hot or cold spots.

2. **Silent:**

There is no noise produced by radiant floor heating. The water flows through the tubes in the floor heating the space thus creating no noise whatsoever.

3. **Clean & Healthy:**

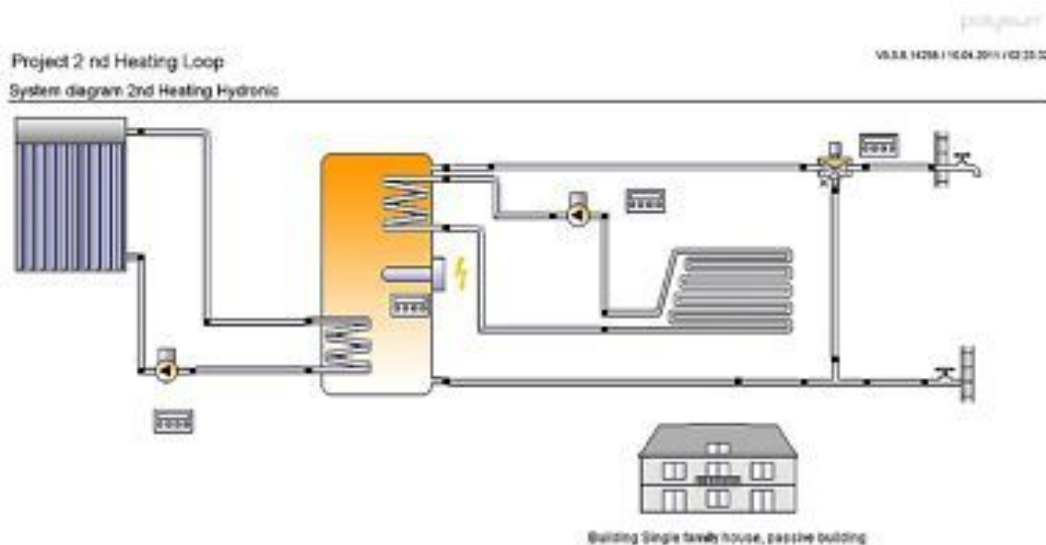
Radiant floor heating does not utilize radiators, ducts or fans to blow the heat. This eliminates air born allergens, germs and dust from spreading throughout the house. It also eliminates the need for air vents in the floor or the walls thus creating a cleaner look.

4. **Efficient:**

The radiant floor heating system operates at a low temperature (around body temperature) and thus requires less energy than a forced air heating system. The heat is also evenly distributed and thus reduces the length of time required to feel the warmth of the system.

How It Works

A solar thermal system can be used to pre-heat water for use in radiant or hydronic floor heating systems. Solar pre-heat works for radiators and in-floor heating. The water, which is in a continuous loop, is directed to a solar heat exchanger tank where it is heated by solar energy before it enters the boiler. This reduces the amount of energy used by the boiler by 20-40%.



Solar Heating Sizing Guide

Domestic Hot Water: 10 tubes per person

Radiant Infloor Heating: 20 tubes per 200 sq. ft. area

Swimming Pool Heating: 2-4 tubes per 10 sq. ft. area at 30-50% Coverage

Hot Tub Heating: 50-75 tubes for up to 450 gallons

This is a general guide but there are several factors that affect the efficiency of a solar thermal system:

- Insolation Level

- Shade

- Collector Orientation

These factors must be taken into consideration when designing the system.