

Radiant Floor Heating

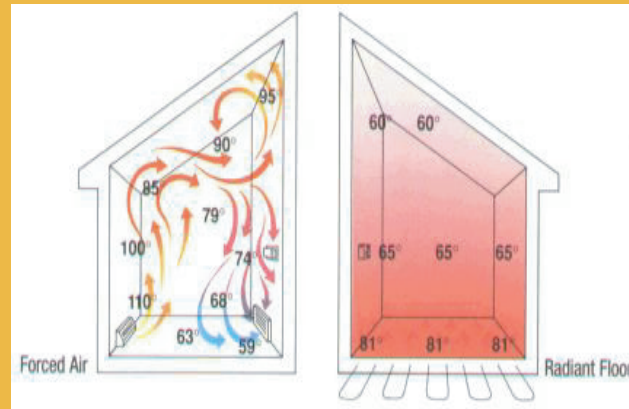


Giltsland
Farm,
Maine.
(Hydronically
heated)

What is Radiant Floor Heating?

Radiant floor heating is the general term for the heating of your home through a routed system within your floor by means of electricity, water, or air. The process is easy to install within any home and is not only cost efficient but energy saving to. This technology has been used in over thousands of homes creating a silent heating system that is draft free and is today being considered one of the most efficient and best ways to heat a home.

Conventional heating systems such as forced air systems rely on the expulsion of heat through a vent. This leads to heat escape from the intended occupant by the heats rising to the ceiling immediately. The room slowly becomes heated only through the heated air bumping through the room and downwards. In the radiant heating systems (no matter what type) the heat is coming from the ground and "radiates" upward first reaching the occupant and then up and into the home. The heat is not actually heating the air in your home but rather directly heating the home owner. This leaves a feeling of comfort throughout the whole home no matter where you are and with this form of heating you obtain an energy saving of up to 52% yearly compared to conventional systems.



Electric Radiant Floor Heating: With this method of radiant heating the floor is laid with a copper wire that is spaced no further than 2 inches apart and never crosses over. By spacing the wire out you ensure an even heating of the floor and so an even heating of the home. The wire is connected to a thermostat which easily connects to your homes power source and is then laid over with a flooring material. The recommended materials are wood and tile for their ability to conduct heat well. With the thermostat you are able to control the flow of electricity into your home and so control the temperature.

Hydronic Floor Heating: Like electric radiant heating the hydronic process is run beneath the floor of a home but instead of electricity the heat transporter is water. Because the system uses water, instead of wire polyethylene tubes or rubber tubes are run beneath the floor. These tubes are coated so decay and heat loss are omitted. They are then connected to the homes boiler system and are controlled by a thermostat through the boiler. Most conventional systems operate at 130-160 degrees while the hydronic system runs at 85-140 degrees meaning the life of the boiler is increased. The cost of installing the hydronic systems tubing ranges from 4 - 6 dollars per square foot and is becoming cheaper with the decline in prices of metal tubing such as copper.

Radiant Air Heating: This system is the least efficient and least used. Like the other radiant systems a route is made beneath the floor except the route is of air ducts. These ducts are connected to your homes heating system and air is sent through the ducts heated in hopes of radiating through the floor. The reason this particular system is not used is because air is not a good carryer of heat and so by the time the air is circulated through the ducts it has lost much heat and unable to carry enough to heat the home.

Bibliography: "Information Resources" retrieved feb. 8th, 2005 www.eere.energy.gov
"Radiant Floor Heat" retrieved feb. 8th, 2005 www.radiantdesigninstitute.com
Banhidi, Laszlo (1991), **Radiant Heating Systems** : Pergamon