The Concept of Radiant Heating

Heat is a form of energy resulting from the motion between particles of matter. Temperature measures the intensity of heat and is also related to the degree of motion between particles of matter.

What is radiation?
Radiation is the transmission of electromagnetic rays through space. These rays have no temperature, only energy. Every material or object with a temperature above absolute zero emits these rays in all directions until they are deflected or absorbed. Radiant heat is probably the most comfortable and energy efficient form of heating. This form of heating has been around for a long time. The Roman Empire was known for its luxurious baths with hot water springs that circulated warm water under the marble floors.

Radiant heat transfer is caused by a warm surface giving up its heat to a cooler surface - your body. This radiant energy travels through space without heating the space itself. It only turns into heat when it contacts a cooler surface. With radiant heat, every object in the room becomes warm and contributes to your overall comfort. Temperatures are higher at floor level and decrease toward the ceiling. The warmth starts at your feet where it is most desired.

Radiant floor heat is silent and unlike forced-air heat, there is no noise from a fan or airflow through ducts. It requires minimal maintenance and operates more efficiently than any other heating system while offering superior comfort. Radiant heating will also improve the indoor air quality. It is known to decrease the dust mite population by 50-80%. It does not dehumidify the air and is dust free and cleaner. These systems take a while to get started and they keep the place warm long after they are turned off.

This explains why radiant heat is the concept behind many underfloor heating systems in use today.