A Guide To Radiant Heat

The reasons for and the benefits of Step Warmfloor Radiant Heat

Q: What is radiant heat?

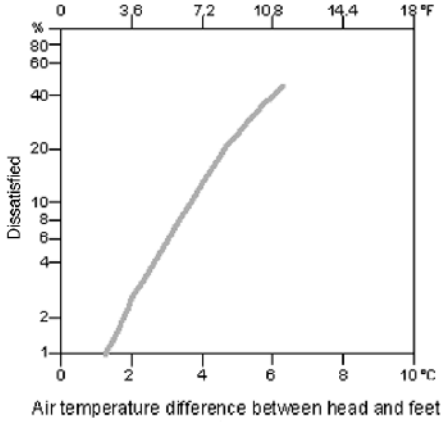
A: Radiant heat is more comfortable than traditional heating methods because radiant systems warm the floor and objects in the room. This prevents your body from losing heat to cold objects in the room. This is due to the scientific fact that heat energy is always drawn to cold objects. When we stand on a cold floor or next to a cold wall, we feel cold. This has nothing to do with the air temperature and everything to do with the fact that heat is being lost from our bodies to warm up the cold objects around us. This heat loss is controlled with radiant heating.

Q: What are the determining conditions for acceptable thermal comfort?

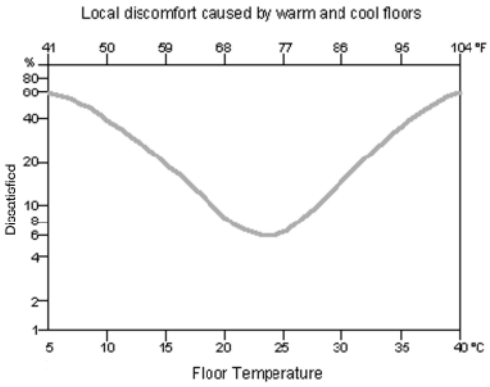
A: As documented by ANSI/ASHRAE Standard 55-1992-R, local thermal comfort is determined by the vertical air temperature difference between the feet and the head, by an asymmetric radiant field, and by a local convection cooling (draft), or by contact with a hot or cold floor.

Thermal stratification resulting in the air temperature at the head level being warmer than at the ankle level may cause thermal discomfort. Thermal stratification in the opposite direction is perceived more favorably by occupants.

Local thermal discomfort caused by vertical temperature differences.

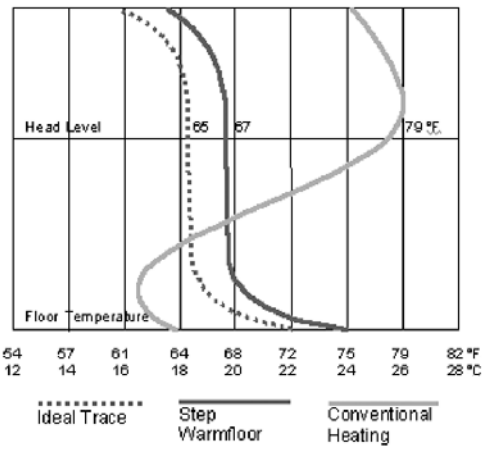


Occupants may feel uncomfortable due to contact with floor surfaces that are too warm or too cool. The temperature of the floor, rather than the floor covering, is the most important factor for foot thermal comfort. Optimal floor temperature is 75 F (24 C).



Q: What makes Step Warmfloor so comfortable?

A: With Step Warmfloor, heat is kept where it is needed – at the floor. This keeps you more comfortable (even at a lower temperature setting) because when your feet are warm, you feel warmer. Also, Step Warmfloor reduces thermal discomforts due to drafts. The heat distribution in a room is optimal when the temperature is higher at the floor than at the head level.



Q: What are the benefits of Step Warmfloor?

A: Following are a few properties of Step Warmfloor:

- Step Warmfloor is the most energy efficient heating available because the material itself is self-regulating and only draws the energy it needs to maintain an even temperature on the whole surface. The heating element cannot overheat.
- Step Warmfloor is a low-voltage system and can be regulated to the ideal chosen temperature level making it more efficient than an on/off system.
- Studies from the "Sick Building Syndrome" show a direct relation between indoor climate and symptoms such as fatigue and headaches. Research shows that thermic indoor climate is also related to productivity. The level of comfort with radiant heat at lower temperatures increases productivity by 20-30%.
- Indoor Air Quality is directly correlated with respiratory illness. The last thing you want your mechanical system to do is to distribute dust, mold spores, pollen, and other particulates throughout the structure. Because radiant heat does not blow allergens, it helps those with allergies and asthma find dramatic improvement to their symptoms.
- Radiant floor heat minimizes mold growth because it reduces the type of humidity that fosters mold and fungi growth.
- Step Warmfloor can be used as the primary heat source of a building or can be installed in areas where extra heating or floor warming is required.
- Step Warmfloor can be installed in a new construction and is ideal for home remodeling due to the thinness (3/64") of the material.
- Step Warmfloor is easy to install and can go over/under any floor coverings.
- Radiant heat is the best way to comfortably heat a concrete slab. Basements can become warm, usable spaces with radiant floor heating.
- Not only will Step Warmfloor heat keep you more comfortable than any other heating system, but also it will reduce your energy costs (by 30 to 60%) and increase the value of your home.

STEP™ warmfloor

The Other Radiant Heat