

How Heating a Home Affects Your Health



WHITE PAPER





Scientific studies have shown that many Americans spend ninety percent of their time indoors. Considering sleep time, eating and leisure time at home plus a full time office environment for work it easily adds up. The Inside Story, a report by the Environmental Protection Agency (EPA) suggests that many indoor home environments have air more polluted than outdoor air environments, even in large industrial cities.

Common indoor home pollutants and biological pollutants include dust, mold spores, fungi, pollen, pet dander such as minute scales from hair, feathers and skin, dust mites and insects, and infectious agents like bacteria and viruses. These pollutants promote poor indoor air quality, affecting the health of inhabitants. They can even cause surface damage to a home's interior and exterior.

Biological pollutants – those which are live organisms or were once live organisms – are in all homes. We can't avoid them. They travel through the air, often invisible. Depending upon the severity of their presence, biological pollutants can cause allergic, infectious or toxic reactions.

Most homes in the United States have heating systems designed to heat air with a furnace and force it through a network of ducts five to seven times a day on average. In colder climates the furnace runs many more times on any given day. The forced air is a perfect vehicle for the many airborne pollutants in homes, constantly spreading them throughout the ductwork and in to every room.

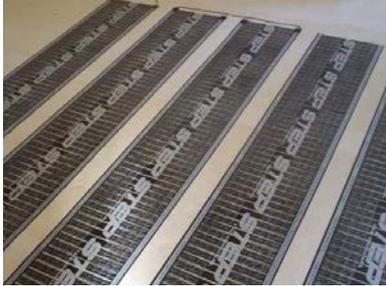
The EPA states that allergic reactions may be the most common health issue with a home's indoor air quality, aside from the spread of infections. The use of furnace filters, and changing them monthly, reduces some of the pollutants. But there is a Catch 22. Using a high-quality furnace filter that captures a good amount of pollutants puts excessive pressure on the furnace fan, and may shorten its life. Use a low-quality filter and you have marginal filtration.

The unfortunate result for many families is increased infectious sicknesses and allergies ranging from mildly uncomfortable to life-threatening. Symptoms include watery eyes, runny nose, sneezing, coughing, wheezing, difficulty in breathing, headache and fatigue. In fact, asthma has increased 59 percent since 1970 with nearly 10 million Americans suffering from asthma. Asthma in children under age 15 is up 41 percent in the same period with 2.6 million children affected by pollutants. Asthma deaths since 1979 is up 68 percent. An annual average of 4,400 deaths occur every year.

With statistics such as these from the EPA it is clear that indoor air quality is directly correlated with respiratory illnesses. There is a very effective, energy-efficient option to home heating that does not blow pollutants throughout the house. It is radiant floor heating.

Unlike forced air heating systems that heat the air and warm the home from the top down, radiant heat comfortably warms a home from the floor. Forced air heat can make the upper levels in a home "stuffy" or uncomfortable in order to allow our feet on a lower level to be warm. That is not energy efficient. The temperature profile is flipped with radiant heat. With the entire floor acting as a radiator all objects in the room are warmed. With the heat closer to your body and warming your feet you are comfortable at a lower thermostat setting. The energy required to create and maintain a comfortable temperature at our feet is significantly less than compared to forced air.

While forced air is less energy efficient to heat a house compared to a low-voltage radiant heating system, there are situations where forced air is a better alternative. Areas not having proper insulation may not achieve the desired floor and ambient temperature with radiant heat. The forced air system will still not be cost-efficient, but it will warm the area.



Radiant heating systems, like STEP Warmfloor (pictured above), provide heat from the floor up

Radiant heating systems, like STEP Warmfloor®, are fail-safe when properly installed. The semi-conductive material is self-regulating and cannot overheat. The system uses SELV (Safety Extra Low Voltage) transformers that come with primary and secondary circuit breakers. And with STEP Warmfloor radiant heat there is no danger of gas lines or fuel as with other furnaces.

Radiant heat minimizes mold growth because it reduces the type of humidity that fosters mold and fungi growth. That, with the fact that it does not blow allergens throughout the house as forced air systems do, is a health benefit for the young, elderly and those suffering from allergies, asthma and cardiovascular disease.