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Radiant Floor Heat

by Beach Barrett

Have you ever noticed how a house can feel cold in the winter even though the thermostat is set at 70 degrees? The air in the house may actually be 70 degrees, but it is attempting to heat all the surroundings to that temperature as well. The walls, floors and ceiling are colder than the air is and these surfaces are drawing heat away from the air and your body as well. On the other hand, imagine that the whole floor is heated to a gentle 75 or 80 degrees and like a warm heat lamp radiates a gentle all-pervasive heat to all the objects in the room – including your body. The results are a gentle, natural, quiet even heat: radiant floor heat.

Underneath the floor, be it wood, concrete, carpet or tile, warm water is flowing through ½” diameter tubes that quietly deliver the heat. This warm water is regulated and pumped by the heating system and heated by gas or oil boilers, electric water heaters, wood burning waterstoves or solar energy. The tubing that carries the water is a specially formulated very tough form of polyethylene that is commonly called “pex” tubing. This tubing when properly installed will last hundreds of years and is usually guaranteed for at least 25 years. Pex tubing has been manufactured for over 35 years and has been used in radiant floor heat systems in millions of homes in Europe and the US.

Radiant floor heat may be a new concept to most of us but it has been around, particularly in northern Europe for a decade and a half. The industry has had time to mature and the components that are available today are both very reliable and sophisticated. Today’s boilers are smaller, smarter and much more efficient than the cast iron monsters of yesterday. Some new models are as high as 98% efficient, which means that almost every bit of gas that’s burned goes into the house and not up the chimney.

Solar energy is a perfect match for radiant floor heat. This is because radiant heat is a low temperature form of heat, and the lower the water temperature, the more it can absorb heat from the sun. North Carolina has one of the most progressive solar credit plans in the country. The solar energy state tax credit will pay for 35% of the solar system and, in some cases, ease the cost of the heating system as well.

Radiant floor heating systems deliver the heat more efficiently too. In forced air systems the heat accumulates at the ceiling then works its way down. Radiant is down at the floor where it’s needed and little is wasted at the ceiling. As a result, radiant floor heat is 15 to 30% more efficient than a similar forced air system using the same fuel.

The bottom line in this case, though, is more than just efficiency: it’s comfort.

There is no better form of heat, just ask anyone who has it. Visit their home and

then you'll know why. You won't believe how tolerable the cold can be until you step on to a warm tile floor on a chilly winter morning, you might even begin to like winter!

For more information about Radiant Heated Floors contact the WNC Green Building Council at www.wncgbc.org You can find information on upcoming events, links and information on other modern building practices and energy-related issues. Please contact the WNCGBC with any questions at the Green Building Hotline (828) 232-5080 or e-mail info@wncgbc.org