

IN-FLOOR RADIANT HEATING



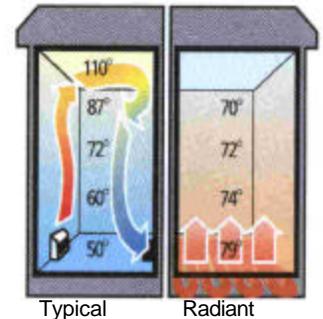
As a greater number of homeowners are using new and innovative concrete systems to construct their homes, they are also investing in “**In-Floor Radiant Heating**”. This heating system provides the homeowners with an extremely comfortable home because it delivers heat in a way that the human body is exclusively designed to appreciate.

In-floor radiant heating typically consists of a hydronic system that uses hot water to warm your house. Unlike conventional forced air heating systems, radiant heating utilizes tubing placed in the concrete floor to disperse heat throughout the room.

The recent increase in the use of this heating system is due in large part to the type of comfort it offers. Conventional heating systems first heat the air in the room, which is then circulated via convection currents throughout the home. The bodies direct contact with the heated air then provides the warmth to the occupants. However, with an in-floor radiant heating system, the heat is not used to warm the air in the house, instead the heat moves directly to the objects in the room. A common explanation of the difference between the two heating systems is the example of warming your hands in front of a crackling fire (radiant heat) versus warming your hands with a hair dryer (convection).

Typical advantages of in-floor radiant heating systems include:

- Room temperatures can be set lower for the same level of comfort because the radiant in-floor system heats your lower extremities first.
- Radiant heating systems also result in less stratification of the heat in a room, providing a much higher degree of body comfort.
- Reduced heat loss around windows and doors due to the fact that the air in the room is carrying less heat.
- Radiant heating systems do not greatly affect the moisture content in the air.
- Radiant systems also greatly reduce the dust circulation associated with forced air systems.
- In-floor radiant heating systems in conjunction with cast-in-place concrete greatly reduce sound transmission between floors and eliminate the sounds of squeaky wooden sub-floors.
- Finally, the heat retaining ability (thermal mass) of the concrete sub-floor in conjunction with the efficiencies of the in-floor radiant heating system typically result in 20% to 30% savings in yearly heating costs.



In-floor radiant heating systems typically consist of three main components: the heat source, usually a conventional hot water boiler; the control segments which consist of thermostatically controlled manifolds for different areas of the home; and the in-floor tubing which is embedded within the concrete during the construction process. The control systems, in conjunction with the spacing of the in-floor tubing is used to heat individual rooms within the house to levels set by a thermostat within the room.



While in-floor radiant heating systems can be retrofitted into existing homes, the ideal conditions are to plan for and design the heating system before beginning construction on your new home. In addition, the design of the heating system will depend on the layout of your house and the flooring materials that will be used. It is best to discuss the specifics with a professional installer. For more information on this innovative new trend in custom home construction please contact the RMCAO at homeowner@rmcao.org.