

Warm by Design

Ways to keep your home comfortable, no matter how cold the season

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After designing a complex plan for a house, detailing numerous connections and working with builders during the long construction process, I sometimes walk into the completed and furnished home and find myself surprised at how warm and cozy it is. But, creating that feeling isn't an accident. To make a home feel comfortable and warm during the cold of winter you need to do two things well: Create the right type of heat inside your home and stop that heat from escaping outside.

When considering how to keep your home warm, it's important to remember a simple concept: Warm air will always move toward cold. This means the heat you generate in your home will want to escape through the exterior walls, roof and floor to reach colder outside air. (Conversely, in hot climates the warm air outside will seek out your home's cool, air-conditioned interior.) If you want to keep the heat inside your home, you have to slow the heat transfer to the outdoors.

Heating from the Ground Up

One of the best ways to keep your heat indoors is to design your home so it absorbs the heat you generate and then radiates it back into the home. Radiant floor heating systems are

designed precisely for that purpose. This does not mean radiant floor heating is necessarily your best option for heating, but it does have two clear advantages over other systems.

The first advantage is the nature of radiated heat itself. Not only does a radiant heating system emit warmth, it warms the objects the heat reaches, causing them to absorb some of that heat, too. It's like sitting near a fire. When you're in front of the flames, your skin—not the air around you—gets warmed.

With a radiant heating system, your feet and other items in your home touch the warm floor, absorbing the heat, while the actual air temperature remains constant, even cool.

By contrast, a forced air system warms the air, not your body's mass. So you may be breathing warm air, yet have cold feet. And no matter how much heat is being generated by the furnace, you may still feel chilly and uncomfortable.

The second advantage of radiant heating systems lies in the materials from which the systems are built. To enhance the effectiveness of radiant heating systems, manufacturers make them from dense materials, such as concrete, stone, tile and wood. These materials have high levels of thermal mass, meaning they have the ability to retain heat when they are warmed and slowly release the heat back into the home when the heating system cycles off. This eliminates dramatic fluctuations in the heating load and slows the time it takes for heat to leave the home. Log homes are ideal candidates for radiant heating systems, since thick log walls have natural thermal mass and effectively absorb and radiate heat.

If your home does not have a radiant heating system, you can create additional warmth by using other materials that absorb heat. Carpeting will naturally make a floor feel warmer, as will area rugs, if you prefer wood or stone floors to wall-to-wall carpet.

Warmed by the Fire

Of course, fireplaces and stoves have long been valued for their ability to create heat. But to make the most from one of these heat sources, you need a system that's well-designed. If you want to install a factory-built fireplace or stove, look for one that has a built-in fan and ducts that increase heat circulation. Also, look for a system that's built from dense materials, such as soapstone. It will absorb and radiate considerably more heat than a fireplace that has a steel firebox and a stud-and-drywall covering. Likewise with a stone hearth. Because of stone's capacity to absorb heat, it will continue to radiate warmth for a long time after the fire has gone out.

Whether you choose a fireplace or stove, make sure your system has its own fresh-air intake. Otherwise, it will consume the oxygen in your home, which lowers indoor air quality and creates negative pressure, drawing in the cold air from outside.

The Role of Windows

Obviously, windows also play a large part in the balance of heat gain and loss in a home. They let in the sun's rays during the day, warming your home, but because of their relatively flimsy structures, they also let heat escape out at night.

To increase indoor heat gain during the day, you should design your home so that a large percentage of your windows face south. To reduce heat loss at night, you should opt for well-built and well-insulated windows. At the very least, consider double-glazed windows with thermal breaks in the window jambs and a spacer between the two sheets of glass. Triple-glazed windows are also on the market and give you even more heat-loss resistance. And some

manufacturers take window insulation a step further by offering windows with argon gas between the layers of glass.

Glass with a low-emissivity (or Low-E) coating is another option. This coating, which is applied to an inside layer of double-glazed windows, allows the sun's heat to pass through, but once inside, the coating keeps the heat from escaping back outside. As a bonus, Low-E windows also reduce the sun's ultraviolet rays in your home, preventing colored fabrics and carpeting from fading. There are different types of coatings available, so check with your window manufacturer for options and performance ratings.

To further reduce heat transfer, you can install quality window coverings. Today, you can find a wide range of interior window treatments—from blinds to draperies—that insulate against heat loss in the winter and heat gain the summer. In the coldest regions, you might even consider exterior shutters.

Color, texture and the size of your logs help create a feeling of warmth that can't be beat, but thoughtful consideration of how to hold the heat you generate will make your log home cozier than you can imagine.

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