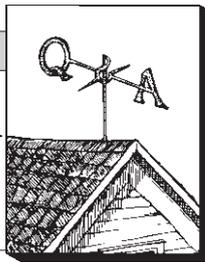


Radiant Heating in Wood Floors

by Hank Spies



Q. *I have seen ads for hydronic radiant heating that attaches to the underside of wood flooring. How effective is this, given the insulating effect of the wood? Also, who makes the product?*

A. It is possible to do a good job of heating from within or under the floor if a house is well-insulated and does not have large glass areas. A radiant system, either floor or ceiling, is incapable of countering the cascade of cool air that flows down from large glass areas, and a convector or small fan-coil unit is usually installed beneath the glass to supplement the radiant heating. An underfloor hydronic unit is sold by Wirsbo (a Scandinavian company), whose U.S. office is at Box 2025, Rockford, IL 61111; 815/282-1141. However, a special system is not really needed, in that generic tinned tubing can be installed between the floor joists to do the same thing. The floor system is then insulated below the radiant units. Such installations have been around for more than 20 years. The insulating effect of the wood floor and any floor covering will affect the operating temperature of the water necessary to provide adequate heat. You may need to have rooms with uncarpeted floors on a separate zone to keep them from overheating and cooking the occupants' feet.

An electric heating system, made of resistance circuits on a plastic sheet base, is available from Eswa Heating Systems, 4380 Viewridge Ave, Suite D, San Diego, CA 92123; 619/268-3431. It is designed to be installed between floor joists or on the bottom of ceiling joists to provide similar low-level radiant heating.

Radiant heating systems often provide equal comfort conditions at slightly lower thermostat settings than conventional systems because they heat the furnishings and occupants before heating the air.

Heating an Open Plan

Q. *In a well-insulated home with an open plan, how do you size the upper and lower ducts and blowers to maintain uniform temperatures while heating and cooling? My heating contractor wants individual supply and return registers in each space. With two open balconies, cathedral ceilings, and an open stairway on a 1½-story home, it seems that the open space could serve as one duct system, especially in a thermally efficient home.*

A. It is very difficult to maintain uniform temperatures in a house with cathedral ceilings and open stairwells or balconies. The supply system should extend to each space because of the balancing that will be necessary with the change of seasons. Both high and low supply registers should be used in the open area because in the winter it will be necessary to introduce most of the heated air low

in the space to allow circulation by convection. Conversely, in the summer, the cooled air should be introduced at or near the ceiling to allow it to settle through the conditioned space. One return system could serve the entire open area, but a separate return grille and duct should be installed in any room, such as a bedroom, which can be closed off from the open area. Probably the best location for the return grille in the open area is near the ceiling and at least five feet away from the nearest supply duct. In the winter, the warm air bubble at the top of the space will be recycled through the duct system to the low outlets. In summer, the warm air will be taken through the cooling coil and reintroduced at the ceiling to fall to the occupied area.

Is Roofing Felt Needed?

Q. *Should 15# felt be laid on a plywood roof deck before laying asphalt shingles? Is there a chance that the felt will trap moisture and rot the plywood?*

A. No liquid water should ever get to the felt if the shingles are properly installed. I have never seen the plywood rot unless there was a leak or condensation problem, neither of which have anything to do with the felt. The felt is installed for two purposes—to provide temporary protection to the roof until the shingles are installed and in the case of a blow-off, and to prevent any pitch that may ooze out of the plywood from attacking the asphalt base of the shingles.

Restoring Untreated Shingles

Q. *We are working on a six-year-old house with untreated red-cedar shingles on the walls installed over building paper and sheathing. The shingles are darkening, and some are cupping. What can be done to restore them?*

A. The darkening is due to weathering and the movement of extractives in the wood because of moisture. The only thing that can be done to restore the original coloration of the shingles is to use a stain which matches the original color. Similarly, the only thing that can be done with the cupped shingles is replace them. The cupping could be caused by several things, the most likely being moisture on the back of the shingles. You do not indicate what sheathing material was used, but if it is a plastic foam product, that is the probable cause. The grain of the shingles could be part of the problem as well. ■

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