

# Hardwood Floors Over I-Joists

**Q.** *Are there any problems with installing hardwood floor over wood I-joists?*

**A.** *Howard Brickman responds:* If the I-joist floor is built correctly with 3/4-inch-thick tongue-and-groove plywood, the performance of the hardwood floor will be just the same as a floor laid over a properly built dimension-lumber floor system. It doesn't make any difference whether the I-joists are on 19.2-inch or 24-inch centers; that's a function of the plywood. What is crucial is that you use T&G plywood, which eliminates unsupported edges.

A continuous-span wood I-joist floor, where single I-joists span from wall to wall over a center girder, has one advantage over a sawn lumber floor (where the joists typically break over the girder). The continuous span eliminates the gap that often opens in hardwood floors right over the center girder.

Based on my experience as a flooring contractor, wood I-joists certainly feel different during installation. It's like laying a floor on a snare drum: There's no deflection in the floor, but there's no mass either, since wood I-joists eliminate about 40% of the mass of solid-sawn joists. But as for the performance of the installed floor, it's just the same.

**Howard Brickman** is a flooring contractor and consultant in Norwell, Mass.

## Attaching Metal Roofing

**Q.** *When installing metal roof panels, should you screw or nail, and should the fasteners go through the flats or the ribs of the roof profile?*

**A.** *David Keener responds:* Our company

definitely recommends screws over nails for attaching metal roofing to the purlins. Screws are much stronger than nails in terms of pull-out strength, they don't back out as readily as nails, and it's possible to get a better seal with screws than nails. Screws should always be installed in the flat of the panels. This may appear to be incorrect because it places the screw in the waterline. This isn't a problem, however, because the screws used for installing metal roofing have neoprene washers that compress to form a good seal.

You shouldn't put the screws through the ribs for several reasons. First, one of two things will probably happen when you try to compress the neoprene washer. Either the crest of the rib will dent or the washer won't compress properly. In either case, you will get a poor seal. Second, you will need long screws, which will cost more than short screws. Third, a long screw will be like a little lever because it is sticking up so high with its shank unsupported. As the metal roof expands and contracts, it is likely that, over time, the screw will snap off.

If for some reason you should decide to use nails, put them through the top of the main ribs. This is because a nail doesn't seal as well, so should be kept out of the flat. Like the screws, the nails must have a neoprene washer under the head to provide a seal.

**David Keener** is an engineer with Fabral, a maker of metal roofing and siding in Lancaster, Pa.

## Radiant Heat Efficiency

**Q.** *My hvac sub tells me that hot water radiant heat is "more efficient" than tradi-*

*tional forced hot air. Is this true?*

**A.** *Larry Drake responds:* When applied to home heating systems, the term "efficiency" most often refers to the actual energy used, as reflected in the monthly utility bill. One of the main arguments for the reduction in utility costs of radiant heat over a convected air system is that occupants will feel comfortable at a lower air temperature with radiant heat. Unfortunately, scientific studies don't always support this. Various studies have put the energy consumption of radiant heat at anywhere between 52% less to 10% more than conventional air systems. Nevertheless, there is a substantial body of circumstantial evidence from contractors in the field, who often hear reports from radiant customers on how much more comfortable they are at lower thermostat settings. Unofficial side-by-side comparison testing within the radiant heat industry has also demonstrated utility savings.

Exact energy-efficiency numbers are elusive because of the tremendous number of variables involved. Two houses can be built side by side with everything exactly alike except for the heating system. A comparison can then be made through the heating season demonstrating the energy efficiency of one heating system versus the other. But the results, while interesting and informative, cannot then be applied generally to all installations (which is unfortunately too often done).

I advise radiant heating contractors to tell customers that radiant heating systems can provide energy savings up to 30% over conventional hot air systems in most cases. Houses with high ceilings, large windows, poor insulation, high air infiltration, or a combination of these factors are more likely to have greater energy savings.



**Larry Drake**, of Hiram, Utah, is executive director of the Radiant Panel Association.

**GOT A QUESTION?** Send it to On the House, JLC, RR 2, Box 146, Richmond, VT 05477; or e-mail to [jlc@bginet.com](mailto:jlc@bginet.com).

