

and plywood underlayment that would have been used otherwise. Relatively cheap tiles at \$2.50 per square foot versus commercial carpeting at \$3.33 per square foot make these economics work. The minor changes needed in the deck-and-beam floor due to the added dead load of the concrete were also considered in the calculation.

As for mass walls versus mass floors on upper levels, the economics depend heavily on what finishes are chosen, and whether the mass wall is on the exterior where it needs to be insulated. Design and marketing considerations may override simple economics. For example, direct-gain mass floors should not be carpeted or covered with furniture as the clients may intend.

Wood-Covered Slab

Q. I am considering both ceramic tile and wood as finish floorings over a radiant slab similar to those featured in *Solar Age*, 5/82. The tile flooring would cost three times as much as wood. Would the heat from the slab dry out or warp the wood? Also, how would the insulating effect of the wood affect the slab's performance?—Thomas B. McCormick III, Berkeley, Calif.

A. Dan Lewis of KLR Engineering, Keene, N.H., ran a computer simulation on a 1500-square-foot house with 200 square feet of collectors supplying a radiant slab floor. Adding an R-2 carpet and pad to the floor raised the home's auxiliary heating load by 9 percent or about 1 million Btu's. A thin wood floor installed with mastic should have even less of a performance penalty. The 90°F to 100°F temperatures of the slab won't harm the wood but you should check on the temperature range of the adhesive.

Puncturing Insulation

Q. How do you keep brick veneer construction airtight and well insulated when the ties from the brick to the wall studs puncture the rigid foam insulation board and the vapor barrier?—Harold Murray, Bowie, Md.

A. With a high-density rigid insulation such as extruded polystyrene or foil-faced polyisocyanurate, the ties can be placed on the surface of the foam sheathing and nailed through into the studs. This is in accordance with FHA Bulletin 71 for single- and two-family residences. In especially windy conditions, it may be advisable to increase the number of ties or use higher-density insulation. Another option is to nail the ties directly to the studs between each 24-inch course of rigid insulation. In any case, the vapor barrier on the warm side of the wall will not be affected.

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