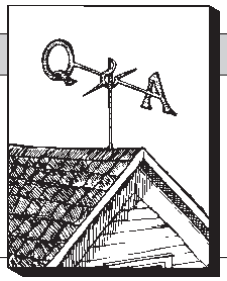
# Retrofit Vapor Barriers




*by Henry Spies*

**Q.** *My company specializes in tight, well-insulated additions for older houses. How important is the vapor barrier in our additions, given that the rest of the house generally has minimal insulation or, at best, blown-in insulation with no vapor barrier? Is the foil facing adequate, even when we put 10 inches of fiberglass in the roof or ceiling? The addition walls usually have 3 1/2 inches of foil-faced fiberglass with one inch of phenolic or polystyrene foam on the inside of the studs. We usually put 8 to 10 inches of fiberglass in the floor over a well-vented crawl space.*

**A.** The vapor retarder (barrier) is important in each part of the structure that can be isolated—which comes down to each stud space. The wall conditions in the rest of the house have nothing to do with the conditions that may exist within the wall or ceiling of the addition. There may be some relationship in the attic or crawl space where the spaces are connected. In those instances, the old section should be brought up to the specification of the new, if possible.

If the old attic has neither a vapor retarder nor moisture problems, the new section still should have the vapor barrier, because the addition may affect the moisture flow in the old section as well. For instance, if an addition replaces a leaky wall, the resulting structure may have a much lower infiltration rate than the original structure.

I never consider the foil facing on batt insulation to be an adequate vapor retarder because of the way it inevitably gets installed. A foil-faced foam board on the interior, however, could serve as the vapor retarder if the seams were taped.

With regard to the crawl space, our recommendation is to lay a polyethylene ground cover and to insulate the crawl-space walls—rather than the floor. A dry crawl space shouldn't need venting, particularly in the winter. Insulating the floor prevents the radiant cooling that otherwise will occur between the floor and the soil during the summer.

## Latex vs. Oil

**Q.** *When should you use latex and when should you use oil-based paint on the interior and on the exterior? Is there any field-tested scientific data to counter the usual prejudices and opinions?*

**A.** I am sure all paint manufacturers maintain paint fences in areas with adverse climates to test their products, but the results are proprietary and highly guarded. By the time a consumer group runs tests of appropriate duration (even accelerated "weatherometer" tests), the product currently on the market with the same label has probably changed. Considering the recommendations of both paint and siding manufacturers, latex seems to be the universal recommendation for new work, primarily because of its ability to permit water vapor to pass through in small quantities. Latex is normally recommended for interior work as well, except when oil-based paint is used to provide a vapor retarder. Oil-based enamels, either gloss or semigloss, often have better "scrubbability" than their latex counterparts, where that characteristic is important.

## Heat Pumps in New England?

**Q.** *Do heat pumps make sense in New England coastal areas where natural gas is not available?*

**A.** Heat pumps may make sense, depending upon fuel costs and the need for air-conditioning. While heat pumps can deliver Btu's of heat for about half the annual operating cost of an electrical-resistance system, the initial cost is difficult to justify if there is no need for summer cooling as well. if the price or availability of competing fuels is such that electricity is the only feasible choice, then a cost comparison can be made directly. Unfortunately, as is usually the case in the building business, the answer has to be based on someone's crystal ball as to the cost and availability of various fuels in the future. I hope your crystal is clearer than mine.

## Ghost-Line Mystery

**Q.** *We've had a problem with some stressed-skin-panel roofs. The shingles are buckling slightly between the panel ends, making ghost lines up the roof. What's causing this?*

**A.** There are three possibilities, and the ghosts may be the result of any one of them, or a combination. A prime possibility is that the joints between panels are not sealed vapor-tight on the bottom. This would allow water vapor from the space below to rise between the panels and condense on the back of the roofing, causing it to swell, either from the moisture or from frost formation. The second factor is shrinkage. If the panels shrink as they dry, this could cause a buckle in the roofing at the joints, because the roofing will not shrink as much. The third possibility is differential movement between panels, which may be caused by shrinkage, temperature differences, or load differences. ■

*Henry Spies is with the Small Homes Council-Building Research Council of the University of Illinois. Questions for this column should be sent to him at* New England Builder, *P.O. Box 5059, Burlington, VT 05402.*