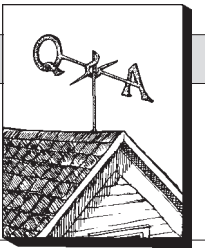

Air Barrier Basics

by Henry Spies

Is House Wrap Needed?

Q. *Can I lay wood clapboards directly over plywood sheathing, or do I need some kind of air barrier such as a plastic housewrap, rosin paper, or 15 pound felt? Will rosin paper absorb and hold moisture? Will the felt create a cold-side vapor barrier?*

A. Wood siding can be nailed directly over plywood sheathing without a house wrap, rosin paper, or building felt, but I would not recommend it.

Primarily, an exterior air barrier, whether it is a plastic housewrap, rosin paper, or asphalt impregnated felt, prevents air infiltration through cracks in the building shell that aren't usually sealed, such as the joints between the plate and the subfloor, around the band joist, and between the sheathing. If all the joints in the sheathing are taped, or if every joint in the sheathing is over a stud or plate and the sheathing extends past the mud sill (not just to the bottom of the wall plate), you don't need an extra air barrier. In these cases, the sheathing is the air barrier. But these conditions seldom occur.

Secondly, an air barrier provides some protection for the sheathing from water which may be driven through the laps in the clapboards by the wind or capillary action.

Finally, both rosin paper and building felt will absorb and safely release small amounts of moisture that move through the siding because of the daily heating and cooling cycle. Without an absorptive layer, this moisture can condense on the backside of the siding, and might cause the siding boards to cup and the paint to peel. Since plywood is somewhat absorbent, the temporary moisture storage provided by building paper is usually not necessary, but is desirable when siding over impervious materials such as foil-faced foam.

Plastic housewrap is not absorptive, but since it is moisture permeable, water vapor can diffuse through it, where it can be absorbed into the face of the plywood.

Asphalt-impregnated felt isn't an especially good vapor barrier, so you don't have to worry much about a cold-side vapor barrier. The glue line in the plywood is a much better vapor retarder, so if there is a danger of a cold-side vapor retarder, it is the plywood, not the paper or felt, that is the problem.

Builder's References

Q. *I need a source that I can go to as a builder the way a writer goes to a thesaurus. Do you know of a book of carpentry terms that lists the parts of a house, down to the smallest detail?*

A. I've yet to find any guide that lists every part of a house down to the smallest detail, or one that even addresses the wide variety of names that some can have. *Means Illustrated Construction Dictionary* (R. S. Means Co., Kingston, Mass.; 617/585-7880) comes about as close as any. But at about $80 it's not cheap. To use this, you have to know the word first, and then look it up to find out what it is. Most builders, on the other hand, know the parts of the house and want to know what to call them. For this, you might try *Architectural Graphic Standards for Residential and Light Construction* by Ramsey and Sleeper (John Wiley & Sons Inc., New York, N.Y.; 212/850-6000). This book is well-organized by topic and gives you annotated drawings and specifications of the parts you're looking for. At $85, this book is expensive, too.

Powder Post Beetles

Q. *I am working on an old oak timber-frame house which has been infested with powder-post beetles. The exterminators say the beetles are gone. How can I test the extent of the damage to the beams?*

A. There is no practical nondestructive test for the strength of wood that is already in a structure.

The damage must be evaluated on a case-by-case basis. In general, if the damage is in an area where the primary load is in bending, there must be enough undamaged wood at the top and bottom of the beam to withstand tension and compression, and enough in the center to withstand the horizontal shear. If the damage is near the beam ends, there must be enough undamaged wood to provide bearing.

The only safe thing to do is to reinforce the infested members so that you are not depending upon their original strength. ■

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