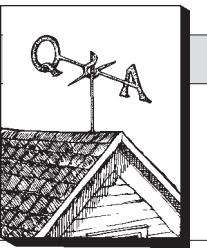
Insulation or Vapor Barrier?

by Hank Spies



Foam on the Inside

Q. *Can rigid foam board be used on the inside of a wall as both insulation and a vapor retarder? If so, how should it be detailed?*

A. I think the inside of the exterior wall is the best place to install foam insulation board. If it is to be used as a vapor retarder, it must be an extruded foam or a foil-covered foam board. The joints and any holes in the surface must be sealed with tape, just as you would with a polyethylene vapor retarder. The joint between the floor and the foam can be sealed with caulk or the gasketing used for airtight drywall installations. The simplest approach is to apply foam board over the inside face of the studs after the wall cavity is filled with insulation, and then screw the drywall to the studs through the foam, using longer drywall screws.

I know of several houses built this way more than 10 years ago, and they have performed exceptionally well.

Caulk on Cedar

Q. *I have heard that silicon caulk should not be used with cedar trim. Is this true? If so, why?*

A. Silicon caulk is not the best choice to use with any wood trim. It works best in sealing the joint between two pieces of non-porous material, such as ceramic tile, metal, or glass. The oil in cedar will reduce the adhesion of silicon caulk, which should be applied to clean, dry surfaces. An acrylic or urethane-based caulk works best where one of the materials being sealed is wood.

How the caulk is applied is even more critical than the type of caulk used. The caulk should be applied so it bonds to two faces across a gap. That way, movement of the materials will place the bead in tension or compression, rather than peel the caulk away from one of the surfaces. A three-sided fillet of caulk in a corner will almost always fail.

Venting a Diamond Hip

Q. *How should a "diamond" hip roof (one with four hip rafters rising to a point) be ventilated?*

A. I would recommend continuous soffit vent on all four sides, and hooded roof vents near the peak on three slopes. The front-facing slope usually does not have a vent, for appearance. If there's a cathedral ceiling interior, holes can be drilled through the hip rafters to access the three other vents, provided you don't compromise the strength of the rafters. While this arrangement does not provide equal high and low venting, it is about the best that can be done. The stack effect, created by having all of the vents in one area, is usually enough to move sufficient air. It is essential that there be an air barrier and vapor retarder in the ceiling, and that all exhaust fans be vented through the roof or out the walls, to minimize the attic moisture problem.

Roof Nail Pops

Q. *A year ago, I removed an old wood shingle roof and replaced it with asphalt shingles. In many places, we replaced sections of the old board sheathing with new rough-sawn lumber. Now, the 8d common sheathing nails holding the new 6- to 12-inch-wide boards are popping up. Several nails have worked through the new shingles. What might be causing this problem, and how can it be corrected?*

A. The problem was probably caused by using green rough-sawn lumber. Rough-sawn lumber is rarely dried. It will shrink during the first year or two, leaving nail heads sticking up from the surface of the boards. If the nails were not fully driven below the surface, this will be enough to cause a problem. The boards may also have cupped somewhat as they dried from the inside, pulling some of the nails, then flattened out as the outside dried with time, leaving the nail heads sticking up.

As far as repair is concerned, the nails can be driven down with a small punch, and the resulting hole in the shingle sealed with roofing cement. An alternative is to sandwich the top shingle between two putty knives — one slipped beneath the shingle and over the nail head and a second one on top of the shingle — and strike the top knife with a sharp hammer blow. This will re-drive the nail at least as far as the top of the second layer of shingle without damaging the weather face.

Next time, use dry lumber and ring-shank nails. ■

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