

Letters

Why the Paint Peeled

To the Editor:

After reading your article in the June issue of *New England Builder* titled, "How Insulation Can Peel Your Paint," I feel compelled to offer additional input to these frequent problems of homeowners.

I have held various positions at the Masonite Corporation in Towanda, Pa., over the past 11 years, including work in the quality-assurance department, handling customer complaints and giving support to our sales force in the eastern third of the U.S.

Due to this work experience, plus being the owner of an older home that previously suffered from "peeling paint," I have several comments to make concerning your article.

Why wasn't attic ventilation reviewed in these 150 problem houses? Given a choice of how to remove moisture from a house, I have been most successful in solving wet wall problems with effective attic ventilation. After these houses were insulated, did any have their attic ventilation inspected and, if required, increased to 150 square inches of effective ventilation for every 150 square feet of attic floor space (60 percent at the eaves)? Most older homes are not properly vented even before insulation.

Why proper ventilation? Given a path of least resistance, water vapor will always take the easiest path, which, in my opinion, should always be through the attic. This removes the concerns with wet walls and peeling paint. Without adequate attic ventilation, vaporous moisture (in Cleveland, Ohio), will flow from inside the house toward the outside.

Failing to include attic ventilation in your article is a serious error. I normally find the articles in *New England Builder* well written and factual. I think you seriously missed the target with this one.

W.J. Young
Masonite Corporation
Towanda, Penn.

Each home in the research project underwent a detailed audit in which the following were investigated:

- Interior moisture levels and sources
- Type of heating system and its effects on air-pressures and air exchanges in the building
- Attic construction, ventilation levels, moisture content, and insulation
- Wall construction and moisture content inside the wall and in the exterior materials
- Lifestyle assessment (occupancy load, type, changes)

The research showed that moisture from either inside or outside the building could lead to the problems described if the drying potential of the wall was sufficiently reduced by insulation. (Moisture from inside the

building was transported by air movement and vapor diffusion to the siding, building paper, and sheathing, while exterior moisture from rain and dew was transported by capillary action and gravity.)

Our conclusion is that even where interior moisture levels are low, siding problems can still occur due to exterior moisture—over which the occupants have no control. No amount of interior or attic ventilation, nor a perfect air barrier or perfect vapor retarder, would prevent the problems that were due to external moisture. Furthermore, we observed that interior moisture levels were often mistakenly blamed for problems. In fact, only about half the problems were from interior moisture; the rest were from rain and dew.

With regard to your comments on using attic ventilation to reduce moisture levels inside a home, it is important to realize that such a strategy will only be effective in poorly insulated attics with leaky ceilings in moderate climates. The reasons are as follows:

For attic ventilation to be effective, the ventilation air must be able to pick up moisture that gets into the attic by air leakage or diffusion. The colder air gets, the less able it is to hold and pick up moisture. If cold exterior air is brought into an attic, it will be able to pick up appreciable amounts of moisture only if it is warmed by heat escaping through the attic ceiling. Consequently, attic ventilation is much more effective in poorly insulated ceilings than in well insulated ceilings. It also follows that attic ventilation is more effective in more moderate climates where the ventilation air entering the attic is warmer.

Furthermore, for attic ventilation to remove moisture from the living space, the moisture in the house must first move into the attic. For any appreciable amount of moisture to move into the attic, the ceiling must be full of holes.

I cannot endorse your recommendation to rely on attic ventilation to control interior moisture levels for these reasons:

(1) Most cold-climate homes today have high enough levels of attic insulation (R-30 plus) that attic ventilation is not effective at removing moisture.

(2) Most homes today have ceilings that are not leaky enough to lower interior moisture levels. But enough leakage often occurs through the remaining holes to lead to rotting wood in the attic.

The strategy I recommend is to keep moisture out of the attic with a tight ceiling, and use an exhaust fan inside the house to flush interior moisture.

Remember, however, that controlling interior moisture will not necessarily stop the peeling of paint from insulated walls.

—Author Joseph Lstiburek

Editorial

RADON ALERT: Don't Bury Your Head in the Sand

According to EPA estimates, radon exposure in homes causes 5,000 to 20,000 lung-cancer deaths in the U.S. each year. That pales by comparison to the 130,000 deaths annually from smoking cigarettes. And it's still well below the 45,000 annual highway deaths. But if the EPA estimates are correct, the radon problem is significant and scary.

But whose problem is it, and whose responsibility is it to correct it? First and foremost, it's the homeowner's problem. The homeowner must assess the risks and the costs and decide on a course of action. Second, it is becoming a public problem. The EPA program for research and education is growing and, if legislation before Congress passes, the cost of radon repairs will soon be subsidized by the government in the form of tax breaks. And finally, welcome or not—it is fast becoming a builder's problem.

The amount of radon in the ground and where precisely it is likely to leak out of the ground are facts of nature. Unfortunately, they are hard facts to uncover, and it's harder still to predict the radon levels in a house before it is built. But how much of the radon available in the soil makes its way into a house is influenced by how the house is built: its foundation details, drainage systems, and special radon-ventilation schemes. This puts the builder or home designer in the unique position of being able to manage the flow of radon into a house.

In fact, most of the successful radon-removal techniques developed so far have been pioneered by technically minded builders—not by physicists, engineers, or radiation scientists. And the most successful techniques involve basic good building practices with a few twists. If the stuff smelled bad or was colored green, said one researcher, it would be no more difficult to deal with than a leak in the roof. Perhaps an overstatement, but not far off the mark.

What then should a contractor do?

There are two basic stances you can take. One is to say: Hey, it's not my problem. I didn't put the stuff there. I'm not going to try to remove it. I don't want the responsibility or the liability.

There is merit to this argument,

since once you start messing around with radon and making representations to an owner that you're an expert who is tackling the problem, you are assuming liability.

The other tack is to take the bull by the horns, learn everything you can about the stuff and do what you can to make houses safe. You will learn that much can be done at modest cost (under \$500)—particularly in new construction (see the article in this issue). Educating your clients and working with them as a knowledgeable professional will reflect well on you personally and on the building industry in general.

As a direct benefit, your radon expertise may even win you jobs. I know of at least one large job that was won by a builder (despite a bid way above the others) because he was the only one of three bidders who knew that radon was not something that oozes out of your drinking water or comes out of your concrete as the others suspected.

In fact, according to William Ethier, NAHB's associate legal council, "The best way to reduce radon liability is to reduce radon." But don't be foolhardy. Radon mitigation is a new science and art based on preliminary research. Ethier cautions that you should use the appropriate contract language so as not to turn your good-faith efforts at radon reduction into an invitation to sue. Talk to your lawyer on this one.

Finally, remember that all the evidence is not yet in. To date, the risk estimates are based on studies of uranium miners and lab animals. Studies attempting to look at radon-caused illness in the general population are just beginning to appear and several are underway. (Two have found elevated lung cancer rates in the Reading Prong region.)

Hopefully, when all the evidence is in, we'll find that the risk from lower-level household exposures leans toward the low end of the EPA risk estimate.

For now, though, let the building industry take the lead on the radon issue and proceed with knowledge and reasonable caution. Show consumers what professionalism means. Whatever you do, though, don't stick your head in the sand. It's not good business, and it's just not safe down there any more. ■

—S.B.