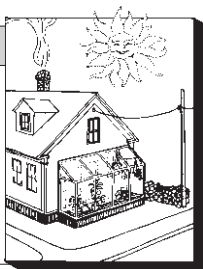


Crawling Up the Learning Curve

by Alex Wilson



A substantial percentage of space in *New England Builder* is devoted to the “fuzzy” areas of building design and construction: attic ventilation; how tight houses should be; where vapor barriers should go; optimum-value engineering; vapor-permeable air barriers; foundation drainage problems, and more. These are exciting topics for builders, issues that can occupy hours of conversation.

These topics are most prevalent in the area of energy-efficient construction. This is understandable when you consider that the techniques and materials have been in use for a decade at most, and often for much less time.

The long-term performance of new materials and techniques cannot adequately be demonstrated through short-term laboratory tests. Even in real buildings, problems may not surface for 20 or 30 years.

Unfortunately, the building industry hasn’t had the luxury of 20—or even 10—years of testing. Public demand for reduced energy consumption after the energy crisis was too great. Even after several years of dropping or steady oil prices, 69 percent of the home buyers in a 1985 NAHB study listed energy efficiency as the number-one consideration in purchasing a new home.

As a result, some techniques and materials have come into use without us knowing what the long-term effects might be. There have been mistakes. The longevity of many houses has probably been shortened in the interest of energy efficiency.

Tighter houses cause higher humidity levels, for example, with increased risks of condensation, moisture damage, and rotting. Indoor air pollution has become a concern, along with the safety of many building materials. The lifting of roof trusses, buckling of siding materials, and frost heaving of foundation walls have all been brought to our attention—with energy-efficient construction a frequent contributing factor.

In some cases it is not new techniques that are causing problems, but old techniques being used under new conditions. Unvented vinyl siding is fine—if there’s no insulation in the wall cavity in which moisture can condense. But once the walls are insulated this can become a problem. Whether you blame the insulation or the siding, the home owner ends up with the problem if the walls start rotting.

Leaving the vapor barrier out of insulated wall systems was usually all right as long as the house was loose. But as we tightened up houses with weatherstripping, caulking, and sealing of bypass leaks, household humidity levels rose, and vapor barriers became necessary.

Publications such as this one have tried to keep up with new ideas. But sometimes I hear from frustrated

builders who throw up their arms after going through the latest magazine. *What should I do?* they wonder. *One month I’m told where to put vapor barriers; & next month I’m told I don’t need one.* And it’s true. One article says how important attic ventilation is, while another says it may not be necessary or may even be causing problems. It’s hard to know what to believe and how to build energy-efficient houses that will last a generation or two.

Those builders who are most conscious of energy efficiency, and most anxious to try the latest technique, are often the first to be hit with callbacks for condensation “raining” from a cathedral ceiling or other problems.

We are still on a learning curve. We will continue to see materials and techniques introduced that are not adequately tested in the field. Some will quietly go the way of the double-envelope house—a technique that had both physics and economics working against it. Others, such as the often recommended technique of putting foil-faced insulation on the outside of buildings, will go out kicking and screaming, but will disappear nonetheless.

As you read about the problems—and the learning—that are occurring in the field, don’t become disenchanted. Publications such as this one could always ignore the controversial issues and wait until all the facts were in before covering a topic. But you’d have an awfully long wait—and that would be far more of a disservice to the industry.

We can’t afford to wait until all the answers are in, but we also need to be cautious about jumping on the latest bandwagon. I, for one, am not about to leave out the vapor barrier and rely instead on an airtight layer of drywall and gaskets around the framing plates.

You have to use common sense. If you’ve been reading Bill Lotz’s articles for four years, you should know by now that the tightest skin on the wall should be on the inside, with increasingly more permeable layers as you move out through the wall. You should be able to pick out those ideas that are safe. Most of all, you should keep reading and learning on the construction site. It’s the only way to keep crawling up the learning curve. ■

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