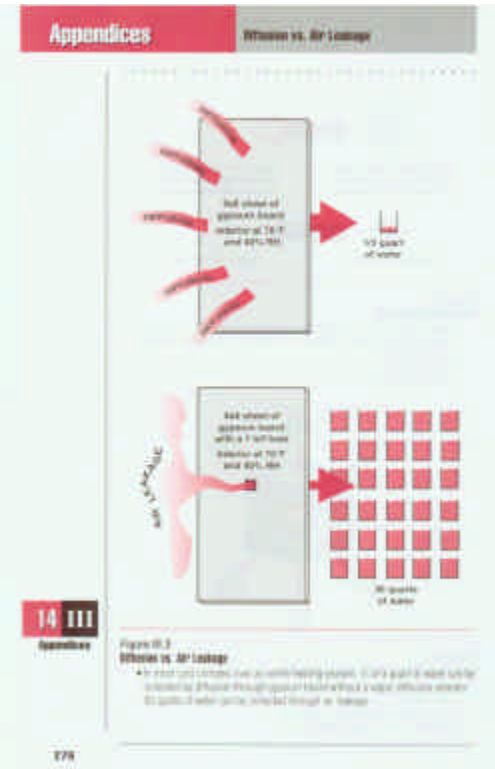
Vapor or Air ~ Barrier or Retarder
Codes ~ Comfort ~ Health & Safety:



Builders and Codes misunderstand the proper role of Air Flow and Vapor Diffusion retarders

Air flow *– not vapor diffusion -*
is the primary moisture transport mechanism.

We need an ***Air Retarder*** *not a Vapor Barrier*

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At 1/3 qt per 32 sq ft
Vs. 30 qts per inch of hole

Air moves ***414,720*** *times more moisture*
than vapor pressure.

To stop moisture, stop airflow!

Air Flow Retarder: impermeable to air flow, continuous, rigid, and durable

Vapor Barrier: Impermeable to vapor transmission -1 Perm

Graphic: *Energy Efficient Building Association, Builder's Guide, Cold Climate*
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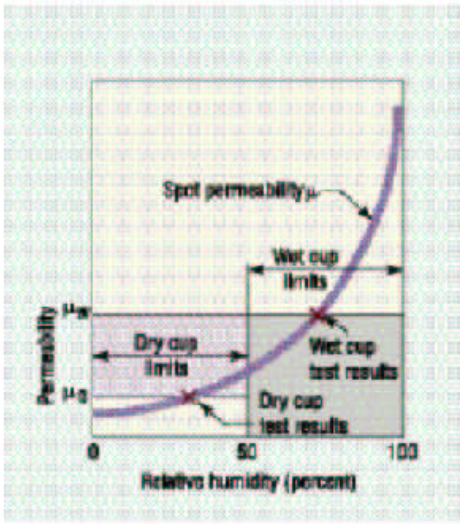

FIGURE1. A "smart" vapor barrier retards moisture in the winter and lets the wall "breathe" in the summer. In contrast to a simple plastic vapor barrie that has a perm rating of 0.1 perms year round.

IS YOUR VAPOR BARRIER SMARTER THAN YOU?

… What about vapor barriers? Doesn't code demand these? Code says install something that has a perm rating of one perm or less. The kraft facing on a fiberglass batt meets this requirement, but only when the RH the kraft facing sees is low—25 to 30 percent. What is interesting is that this kraft facing becomes vapor permeable as the RH it is exposed to goes up. In air-conditioned buildings, when the humidity is 50 percent - not a typical - the kraft facing is 10 to 20 perms. It's a "smart" vapor barrier. It retards moisture in the winter and lets the wall "breathe" in the summer. That dumb plastic vapor barrier has a perm rating of 0.1 perms—all of the time (Figure 1). We're talking two orders of magnitude in difference. Stay away from plastic-film vapor barriers, foil-faced fibrous cavity insulation, and especially foil-backed gypsum sheathing on the interior.

Moisture, Building Enclosures and Mold Part 1 of 2
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