

What Is A Vapor Barrier And Do I Need One?



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Never a week goes by that I don't receive at least one call asking about vapor barriers. The question has been around so long that I sometimes just assume that everyone knows the answer, but that is not the case. So here is the answer. As always, let me keep it as simple as possible. A vapor barrier, as related to house construction, is anything that retards or prevents the moisture in the air from penetrating the adjacent surface.

Consider these facts:

Fact No. 1 – Warm air can retain more moisture than cold air. (Now you know why summer is so humid.)

Fact No. 2 – There are two forces – temperature and humidity levels – that cause the moisture in the air to move. If you place a damp wash cloth on the bathtub, it will probably dry within a few hours. The moisture moved because the room air was drier than the wash cloth. If you place that damp wash cloth outside on a 25-degree day, it will freeze dry because the water in the cloth is drawn out of the cloth and into the air by the lower temperature and lower humidity.

Fact No. 3 – Vapor barriers are not needed in a Doug Rye house.

Are you with me thus far? This really isn't rocket surgery (one of my favorite sayings).

Let's take a look at a house wall. Let's say it is 80 degrees outside and a constant 75 degrees inside the house. Outdoor relative humidity is 60 percent and indoor relative humidity is 50 percent. Not much difference in either, so the moisture in the air is just hanging around.

Then comes winter and the outdoor temperature is 30 degrees and the outdoor relative humidity is 40 percent. Since the moisture in the house wants to move toward a colder temperature and lower humidity, the moisture moves toward the outside. It starts moving toward any cold surface and any air cracks it can find to get outside. Bingo. It hits a cold

window and it turns to "sweat," I mean, condensation. The glass is a great vapor barrier and the moisture simply can't go any farther.

This is exactly like a cold glass of iced tea sitting in a warm room. I already know what your mother said: "Don't put that on the coffee table..." And you know the rest.

Have you noticed that the condensation stops as the iced tea warms to room temperature? Or have you noticed that you can prevent condensation by pouring the iced tea into an insulated foam cup? If there is no cold surface, there is no condensation.

We have been told for many years that walls in houses and buildings need a vapor barrier and that it should be installed toward the warm side of the wall. I have asked many times this question – "What if my house is in Miami, Fla., and it is warmer outside most of the time than it is on the inside of the house?" Should I place the vapor barrier on the outside of the house? I never received an answer, but I know what it is. Houses in the South really don't need a vapor barrier at all because typically there are not great differences between indoor and outdoor temperature and humidity levels, even in the winter. And houses in the North really don't need a vapor barrier if cellulose or foam insulation is used, which will prevent the wall or cavity from ever being cold. By the way, two coats of latex paint is a pretty good vapor barrier.

A vapor barrier, as related to house construction, is anything that retards or prevents the moisture in the air from penetrating the adjacent surface.

Most code officials and inspectors now understand the principle. However, you should check the codes in your area prior to any construction. And remember, "somebody" does care about you. See you next month.

Doug Rye, a licensed architect living in Saline County, Ark., is the popular host of the "Home Remedies" radio show and a promoter of energy efficiency building. To order Doug's video, call Doug at 1-888-Doug-Rye.

Thousands See Light on Energy Star® Change a Light Day

Gov. Mike Rounds proclaimed Oct. 3, as Energy Star Change a Light Day. By replacing at least one incandescent bulb with a compact fluorescent light bulb that carries the government's Energy Star insignia, South Dakota citizens can save energy, money and reduce greenhouse gases.

The Energy Star insignia designates products that meet strict energy efficiency criteria. These criteria have been set by the U.S. Department of Energy and the U.S. Environmental Protection Agency and are supported by the U.S. Department of Housing and Urban Development.

"Switching to energy-efficient lighting is an easy step we can each take to stretch our energy resources, save money, and protect our environment, all at the same time," said Gov. Rounds said when he announced the proclamation. "Therefore, I hope everyone will participate in the Energy Star Change a Light Day."

While the cost for a compact fluorescent light bulb that has the Energy Star insignia on its package will be higher than a regular incandescent bulb, the savings comes in the energy it saves in lighting your home and the longer life of the bulb itself. In fact, ENERGY STAR qualified light bulbs use at least two-thirds less energy than standard bulbs and last up to 10 times longer.

The cumulative benefits are also large. For example, if every household in South Dakota replaced just one bulb with an energy-efficient model, that

would cut the state energy usage by 15 million kilowatt-hours and save \$1.2 million in electrical bills. That is enough energy to light all the households in Pierre for 520 days.

Gov. Rounds joined with governors from across the country to promote ENERGY STAR Change a Light Day. They hoped to encourage Americans to take simple steps, at home and work, to help preserve our energy resources and reduce the risks of global climate change. Find out more at www.energystar.gov/changealight or call the South Dakota Department of Environment and Natural Resources at (605) 773-3153. More

information on CFL bulbs is also available through your local Touchstone Energy® Cooperative and at www.touchstoneenergy.coop.

At the beginning of October, South Dakota ranked sixth and Minnesota 27th on the 18second.org Web site which tracks CFL sales by state. Since the beginning of 2007, Minnesotans had

bought more than 1.57 million CFLs while South Dakotans had purchased nearly 370,000 CFLs, the site reported. Nationwide, more than 88.6 million CFLs have been sold.

In city rankings, Rapid City, S.D., ranked 27th at 76,000 CFLs sold, and Sioux Falls, S.D., rated 31st at 125,000 bulbs. Minnesota cities making the rankings were St. Cloud at 71st with 93,000 CFLs sold; Rochester, 90th, 86,000 CFLs sold; Duluth, 176th, 103,000 CFLs sold and Minneapolis-Bloomington, 250th with 894,000 CFLs.



Basin Electric's Groton Station A Top Plant

Basin Electric Power Cooperative's Groton Generation Station near Groton, S.D., was recently named one of *POWER Magazine's* Top Plants: six model gas-fired plants for 2007.

Dr. Robert Pelletier, editor-in-chief of the magazine and author of the article, said that Groton Station's "claim to fame" was the plant's commercial debut of General Electric's LMS100® gas turbine-generator, [which] "demonstrated top-notch operating flexibility in peaking, mid-range and baseload service, thanks to capabilities such as 10-minute cold start-ups and minimal impact on heat rate at partial loads." He also noted that "... Groton Generating Station earns recognition as one of *POWER's* Top Plants for the attention its design pays to reliability and resource planning."

The three-page article spotlighting the Groton Station appeared in the September 2007 issue of *POWER Magazine*.

You can read the article at http://www.basinelectric.com/NewsCenter/News/AboutUs/Basin_Electric%27s_Gro.html








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