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DEPARTMENT OF ENERGY WEBSITE****

You Must Prevent Moisture Accumulation

There is always some moisture in the air around us. An indoor relative humidity of about 50% is usually considered a healthy level because it is comfortable for humans and because many molds and mites are unlikely to thrive in that environment.

When is Moisture a Problem?

Even though you need some moisture in the air you breathe, too much moisture in your home can cause problems. When moist air touches a cold surface, some of the moisture may leave the air and become liquid, or condense. If this happens on a cold pane of window glass, you will see the water run down and collect on the window sill, where it may ruin the paint or rot the wood trim. The water may even freeze, producing frost on the inside surface of the window. If moisture condenses inside a wall, or in your attic, you will not be able to see the water, but it can cause a number of problems. For example, mold and mildew grow in moist areas, causing allergic reactions and damaging buildings. Structural wood may rot and drywall can swell (see Figure 1). If moisture gets into your insulation, the insulation will not work as well as it should, and your heating and cooling bills will increase.

How Does Moisture Come into Your Home, and How Does it Move Around Inside the Building?

The most obvious way that moisture enters your home is through *rain*, either falling on a leaky roof, wind-driven against a poorly-sealed wall, or collecting against (and eventually leaking through) the walls of your basement or crawlspace. Roof leaks are usually noticeable and must be repaired immediately. Rain coming through a wall may be less apparent, especially if it is a relatively small leak and the water remains inside the wall cavity. These kinds of leaks may occur around window or door frames, so it is important to replace any missing or cracked caulking. Rain seeping through the ground into your basement or crawl space may appear as damp, moldy walls or may be handled by a sump pump. In any event, you want to be sure that all rain coming from the roof, gutters, or across the landscape is directed well away from your house.

You also *generate moisture* when you cook, shower, water your indoor plants, use unvented space heaters, do laundry, even when you breathe. More than 99% of the water used to water plants enters the air. If you use an unvented natural gas, propane, or kerosene space heater, all the products of combustion, including water vapor, are exhausted directly into your living space. This water vapor can add up to 5 to 15 gallons of water per day to the air inside your home. If your clothes dryer is not vented to the outside, or if the outdoor vent is closed off or clogged, all that moisture will enter your living space. Just by breathing and perspiring, a typical family adds about 3 gallons of water per day to their indoor air.

Because air always contains some moisture, *any air movement carries moisture with it*. Did you know that your house breathes? We inhale and exhale through our noses, but your house inhales through one air pathway and exhales through another. Usually houses inhale around their bottom half and exhale around their top half. These air pathways include all available openings, both small and large. Back when homes had central fireplaces or open furnaces, the chimneys took care of most of the exhaling. Now, however, much of that job is handled by small leaks through your walls, floors, or ceilings. Remember that if any air is leaking through electrical outlets or around plumbing connections into your wall cavities, moisture is carried along the path.