



## Moisture Control in Your Home, Part 1: The Basics<sup>1</sup>

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Effective moisture control is an important part of home maintenance. Too much humidity can result in mold growth and indoor air quality problems and can cause allergic symptoms in some people. Mold can also damage your valuable possessions and can even harm the structure of your house.

Mold spores need three things in order to grow: moisture, nutrients, and warm temperatures. Many mold experts agree that the most effective way to control mold growth is to control moisture. But how does moisture enter our homes? How can we find out if our homes are “dry enough” to be free from mold? And how can we control moisture in our homes?

### How Moisture Gets In

Moisture can enter your house from the outside, either as liquid or as air. When moisture is in the air, we call it “vapor.” Water vapor can come into your house through any opening: doors, windows, and even small cracks and crevices. We cannot see or touch the vapor until it changes into liquid.

We also produce moisture inside our houses through the activities of daily living. Each person

produces about three pints of water every day just by breathing. In addition, we create indoor moisture through cooking, dishwashing, showering, and doing laundry.

Leaks and plumbing problems can also produce moisture. Research done by an insurance company cites washing machine hoses, shower tile grout, and water heaters as the top three sources of water damage in homes (Lankarge, 2003).

### Measuring the Moisture

In order to understand moisture issues, we need to understand relative humidity (RH). RH is an important measurement to know because it tells us how moist the air is. When relative humidity reaches 100%, water vapor in the air changes into liquid water. This is called condensation. When condensation settles on surfaces such as floors, walls, ceiling, or furniture, mold can grow.

There are two things that affect relative humidity: the amount of moisture in the air, and the temperature of the air. RH increases when the amount of water vapor in the air increases *or* when the air temperature drops. To understand why a drop in a

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temperature can increase relative humidity, we need to know that there is a maximum amount of water vapor that air can hold before the vapor starts to condense. This maximum amount changes as the air temperature changes. The warmer air is, the more moisture it can hold. The colder air is, the less moisture it can hold.

You can easily measure the RH in your home using a moisture or humidity meter. You can buy a small and inexpensive one (\$10-\$50) at your local hardware store. Experts recommend keeping indoor humidity below 60% RH. Ideally, it should be between 30% and 50%.

## Controlling the Moisture

To control moisture problems in your home, you must find and eliminate the sources of the excess moisture, and you must dry up existing water and moisture. Otherwise, your moisture problems will keep recurring.

### Look for the Source of the Problem

Find out where the moisture is coming from. Is your plumbing leaking into walls, ceilings, or floors? Are stopped-up drains causing standing water?

Check washing machine hoses, shower tile grout, and water heaters for leakage. One mold expert says that these are the top three sources of water damage in houses, based on research findings by an insurance company and an insurance council (Lankarge, 2003). The expert recommends that homeowners check these three areas once a month.

Check for any excessive air leakage. If outside air can flow into your house, outdoor moisture also can flow into your house. Windows, doors, electric outlets, and window air conditioning units all can leak moisture into your home. Leaky windows are easily noticed because water will stream down the window. The windowsill may also be rotten because of the leak. Weatherstripping and caulking may be needed.

Check your air conditioner. Make sure that the filter is not clogged and that the evaporator cooling coils are not iced over. Look for water that may be

flowing back into the room (for instance, from the condenser of a room air conditioner).

### Remove Moisture Build-Up

Once corrections have been made, a clammy house can best be dried out by heating and cooling by turns.

Turn on the heat. Use a high temperature setting (80°F) so the unit will not cycle off too often. This will draw moisture out of the furnishings.

Then follow with air conditioning. Use a low setting (65°F) so the unit will not cycle off too often. Allow the air conditioning to operate for two or three hours before resetting to normal.

If the moisture level is still not sufficiently reduced, repeat the heating/air conditioning cycle.

### Prevent Future Moisture Problems

To minimize the risk of future moisture problems, follow these guidelines when opening windows, using exhaust fans, and using air conditioning.

- Before opening your windows to bring in outside air, check the weather report to find out the predicted dew point or forecasted nighttime low temperature. If this will be 55°F or below, natural ventilation can be used.
- Use exhaust fans for short periods for odor and moisture removal. Remember, though, that during humid weather, outside air may hold more moisture than inside air. Ten minutes of fan operation will remove most of the moisture from the air after bathing or showering.
- During humid weather, run your air conditioning regularly rather than opening windows.
- Use the slowest air conditioner fan speed available on your air conditioner.

## For More Information

For more information on moisture control, refer to FCS 3257 (Moisture Control in Your Home, Part 2: Room by Room Tips).

## References

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