

HUMIDITY ISSUES - ELECTRIC HEAT

If you have persistent condensation on windows or mold on ceilings and walls during the heating season, the following information may help you solve these annoying problems.

These winter problems usually occur because the humidity in the house is too high for the cool walls, ceilings and window temperatures. Maintaining the right humidity level in your home during the winter is a balancing act. You want to avoid the problems that accompany very low humidity. However, humidity levels must be low enough to avoid condensation problems. Housing specialists recommend a winter relative humidity between 30 and 40%, **depending on the outside temperature and humidity.**

A quick rule of thumb says humidity levels are too high if condensation persists throughout the day on tight, double glazed windows when outside temperatures are above zero. This does not include condensation on windows behind shades or drapes or small amounts of condensation after showers or cooking.

WEATHERSTRIP OR REPAIR

If the condensation is occurring on storm windows, this usually means that indoor air is leaking around the prime window carrying moisture with it which then condenses on the colder storm window glass. It is not because the storm window is defective. The problem can be cured by replacing the weatherstripping on the prime window. If the condensation is on the prime window, the first thing to do is to check for leaks in the roof, basement or plumbing that may be adding moisture to the house.

REDUCE SOURCES OF HUMIDITY

If there are no signs of leaking water, look for ways to reduce the moisture generated in your house. Avoid line-drying clothes indoors, vent clothes dryers outside, cover pots and pans while cooking and don't store firewood indoors. Often, new owners notice condensation and mold, while the previous owners had none. Changes in living habits are usually the cause. **You may shower more often or turn the bathroom fan off too quickly. Perhaps you work out of the home and the doors are closed all day. Shampooing rugs, painting with water-based latex paint, excessive numbers of indoor plants, wet laundry or towels or an aquarium, all contribute to additional moisture. An increase in the number of people in the house and the extra bathing, cooking, laundry and breathing will also increase moisture levels.**

VENTILATE

If you have done all of these and you still have cold weather condensation problems, try ventilating your house. During the winter, ventilation reduces humidity levels quickly. **Cold winter air holds little moisture.** When it enters the house and warms up, it can hold much more moisture. Moisture from the existing air diffuses into this new dry air and gives you a lower relative humidity level. In addition, ventilation exhausts some of the old moisture-laden air.

HOMES WITH ELECTRIC BASEBOARD HEATING or a DIRECT-VENTED GAS or WOOD-BURNING FIREPLACE, HAVE LITTLE OR NO FRESH AIR INTAKE. Without an internal fan, there is very little air movement in the house (unless the rooms have ceiling fans), and

moisture-laden air will travel to the coldest areas of the house, and may create a mold-friendly environment on walls, ceilings, window sills and in bathrooms.

Use existing exhaust fans in bathrooms and kitchens to provide ventilation for moderate moisture problems. Fans are more efficient if you crack open a window at the opposite corner of the house to provide replacement air for the exhausted air. You can install humidity controls to turn on fans when humidity levels go above a selected level.

If you live in a new very tight home, more ventilation may be needed. In this case, you might consider purchasing a whole house ventilation system. These systems which are referred to as air to air **heat exchangers or heat recovery ventilators (HRV's)** can provide continual supplies of fresh air while exhausting humid air. They also pass much of the heat from the exhaust airstream to the incoming airstream for additional efficiency.

You may also see condensation on poorly insulated sections of walls and ceilings. The corner between the ceiling and outside walls, the corner between two outside walls and the area under windows are often problem spots for this reason. Unvented closets on outside walls also present problems. Add insulation to solve these condensation problems. You could also increase the air circulation to the area. For closets and bathrooms, leave the door open; in other areas, fans may help force air against problem walls.

Dehumidifiers are not the best solution to excessive humidity problems. They consume energy and residential models do not drop humidity levels much below 50%.

Finally, you could turn up the thermostat. This increases the wall temperature and increases the air's moisture-holding capacity... warm air holds more moisture!

The following shows suggested humidity levels for a home that is heated to 20° C*.

Outside Air Temperature	Recommended Indoor Relative Humidity For A Household Temperature of 20° C*
-30° C or below	not over 15%
-30° C to -23° C	not over 20%
-23° C to -18° C	not over 25%
-18° C to -12° C	not over 30%
-12° C to -6° C	not over 35%
-6° C to +5° C	not over 40%