(TAPE #503)

HUMIDITY IN MINNESOTA HOMES

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Before heating fuel prices started rising in 1973, most Minnesota homes were naturally "ventilated" with plenty of fresh dry air in the winter by unplugged drafts. But energy conservation measures have changed all that, sealing houses more tightly with caulk and weatherstrip. And the more tightly a house is sealed, the more humidity will tend to build up. Typical problems with excess humidity include steady condensation on windows or dampness in closets or corners. There are several ways to prevent excessive humidity, however, and still have an energy-efficient house.

You should begin by looking for ways to reduce sources of moisture, such as turning off all your humidifiers, cooking with covered pots, reducing the length of showers, allowing dishes to cool before opening the dishwasher, and venting your dryer outside. More permanent improvements include installing an enclosed shower stall and a bathroom exhaust fan. The fan unit should preferrably be mounted on an inside wall with the exhaust duct running down into the basement, then to the outside. This method will prevent unnecessary loss of warm air. An exhaust fan for your cooking area should be installed in a similar way if possible.

Before installing or increasing your use of exhaust fans, try a dehumidifier. Run it in a warm place like the kitchen or bathroom for 3 to 4 days. Since the dehumidifier converts humidity into liquid water, it produces useful heat for your home. For each gallon of liquid water, the dehumidifier will produce over 10,000 BTU's of heat.

If you still have too much humidity, you could open a kitchen window during meal preparation, or a bathroom window during showers. Opening windows, however, may only push humidity into other rooms and use more heat. It is not as energy efficient as other methods.

A new type of dehumidifier is designed to be combined with your water heater. When water is drawn from the heater, a thermostat in the tank signals the dehumidifier to begin working. Since humidity is being produced when hot water is drawn for showers, dishes, or laundry, the dehumidifier will be running when it is most needed. For efficient operation, bathroom and kitchen exhaust ducts should be installed to bring the humid air to the dehumidifier.

This new appliance goes by the name of a "heat pump water heater". It will be most effective if your basement is tightly sealed and well insulated, or if the heat pump section is in a warm humid area.

To avoid condensation on your windows, you may need to keep your indoor relative humidity at less than 20 percent during very cold weather. With triple-pane windows, you can allow humidity to go higher, up to 40 or 50 percent, without causing water damage to window sills.

If only a few windows are showing condensation, it may be that these windows need improvement. If this seems to be the problem, ask for tape #501 on Window Condensation.

In extremely tightly built houses, indoor air pollutants may become a problem as well as humidity. If you notice constant stuffiness or odors in your home, you may have a need to remove air pollutants. Exhaust fans will do the job, but a more energy-efficient method has recently been developed for air-tight houses. Ask for tape #504 on Air-to-Air Heat Exchangers.