

# U P D A T E

A PERIODICAL FOR THE HOMEOWNER

## Relative Humidity

Expressed as a percentage, the term "relative humidity" refers to the quantity of water vapour in the air relative to the amount of water vapour it could hold at a given temperature. The relative humidity can range from zero to 100 percent. Above 100 percent (the dew point), the air mass can hold no more water vapour and condensation occurs in the form of dew, frost, rain, ice or snow.

Human beings are comfortable within the range of 20 to 85 percent relative humidity, but studies show the optimum range is between 30 and 55 percent. Inadequate humidity can cause static electricity and dry, scratchy throats. Excessive humidity can lead to mould growth and excessive condensation on cool surfaces such as windows. For health and comfort reasons, however, consumers often want humidity that cannot be tolerated in our housing without causing severe frosting/condensation on windows. These problems in turn lead to homeowner complaints.

**You know you need humidity when...**  
 Your hair is dried out and charged with static electricity. (parched air steals moisture from wherever it can.) Your nose is stuffy and dry, your throat sore, especially when you wake up in the morning... and, you don't have a cold. Your thermometer shows exactly the temperature you want, but you are not warm. (proper humidity keeps you warm Furniture creaks and groans under normal loads: joints separate. Upholstery, draperies and curtains feel dry, wear fast. at a lower temperature.)

A **humidifier** is a device used to add moisture to the air of a dwelling. The operation of a central humidifier

is designed to humidify one room in 24 hrs. They generally hold one to two gallons. One intended to humidify an entire house will have 10 to 12 gallon water reservoir. Keep in mind that you won't need to use the humidifier during the summer months. Operating the unit can damage air conditioning coils. In summer turn off the unit and clean as per manufactures instructions can be controlled by a room or furnace mounted humidistat. Where systems are installed, the homeowner should be cautioned that they must be well maintained, or they can become sources of mould and fungi. Humidifiers on central furnaces have a tendency to leak over time, which could rust the furnace heat exchanger.

There are three main types of evaporative humidifiers.

### Rotating Drum Type

In rotating drum humidifiers a drum wrapped with a water absorbent evaporator pad rotates, picking up water from a reservoir. As air passes through the pad it absorbs the moisture. This type of



humidifier is installed on the return air plenum and connected to the supply air plenum with a flexible duct. Water is supplied through a 1/4 in. flexible tube connected to the nearest cold-water pipe.

### Spray Type Humidifiers

These humidifiers work by breaking water up into fine mists. The mist is then

converted to a vapour which is absorbed by the drier room air. Spray type humidifiers consist of a chamber containing a spray nozzle system, a recirculating water pump, and a collection tank. As the air passes through the chamber, it comes in contact with the water spray from the nozzles.

### Flow Through Type

These units operate by passing water through an evaporator screen mounted on the cold air plenum. Water that is not used by the unit is drained off through a plastic pipe to the floor drain. These units have water present only when the furnace is operating therefore are dry when not needed. This limits the amount of bacterial growth.



With this type of humidifier it is recommended the evaporator screen be replaced yearly.

The **disadvantages** of furnace mount units is that homeowners tend to neglect them. Their wicks and sponges become clogged with messy hard water deposits often rendering the unit ineffective.

### Choosing the right size

Consider the size of the area you wish to humidify, and how well insulated that area is. Output is measured in gallons of water per 24 hr. Period.