

GREEN TECH THE SERIES COLUMN FOR JANUARY 7, 2015
HEADLINE: INDOOR HUMIDITY; AN ESSENTIAL TOOL

Probably one of the most misunderstood indoor air quality conditions is humidity; too much if you have excessive condensation on your windows and too little if, every time you reach for a door knob, you get a shock. I came across a study claiming that increasing humidity levels to 40 percent, or above, significantly reduces airborne viruses that cause flu infections. The study stated that, in a home with low humidity, over 70% of viruses can be transmitted through coughs. If the humidity in the home was over 40%, however, this number drops below 15%. On the flip side, outdoor temperature affects the recommended level of indoor humidity. If it's just above freezing outside then this 40% level is acceptable. However if the temperature is ten below zero, then the humidity should not be more than 25%.

Now before you go out and buy a house full of humidifiers, you should also look at the reasons behind needing humidified air and why it's a problem in the winter. Cold air cannot hold a lot of water vapour, so the colder the air the drier it is. Dry cold winter air enters your home through air leaks in the envelope, around windows and doors and even via your ventilation fans, such as those in your bathroom that vent to the exterior. The air that is being discharged must be made up from somewhere, since, if your home was completely air tight, which none are totally, you would quickly develop headaches from a lack of oxygen.

In order to live in our Canadian climate, the air must be heated and this only reduces the humidity even more, accentuating the discomfort. Finding a balance in air exchange is an ongoing challenge in every home; from the oldest with little or no air control, to the high efficiency home with a properly balanced air exchange system. These systems are commonly HRVs, but homes built to passive standards use equipment called energy recovery ventilation systems.

I often get asked, "What impact does a home have due to low humidity," and, other than humans, there are a lot of things affected. One thing that everyone notices is any real wood furniture, especially chairs and benches. Low humidity causes the wood to shrink and some joints will become loose. Real wood furniture constantly absorbs or desorbs water. Wood floors are also susceptible to low humidity. If you start to see gaps in the joints, this is a sure sign that the indoor air is way too dry. Books, old photo albums, stamp collections and, yes, musical instruments, are included here. Art galleries have huge air control systems. They

long ago learned that good oil paintings have to be protected. The paint can become brittle and is prone to cracks, especially if they are older and on a canvas backing. With all the electronic equipment we have today, over the long term, low humidity can damage internal components in televisions, computers and sound systems.

The benefits of properly humidified air are beyond the static electricity issue. Your skin will thank you, too, as cold air can cause dullness, flaking and accelerated aging over time. Nose bleeds from very dry air can certainly be eliminated along with the dry raspy morning throat. Snoring will increase in some people, moist air can help here. Proper humidity will help in the healing process anywhere from a simple cold to more serious health issues like the flu. House plants remove toxins in the air, a droopy collection of plants are a sure sign of a lack of long term humidity.

Now that we have discussed the pros and cons of properly maintained levels of humidity, how do you arrive at it? The first step is to find out just where your home air is. The instrument required is called a hygrometer or humidiguide and every home should have one. They are not expensive and are often packaged with a thermometer. The first consideration is who lives in the home. If you have young children, then a cool mist humidifier is the best choice and make up the larger percentage of whole house humidifiers. The other most common method is called a warm mist humidifier. These are the same as the cool mist in operation, with the only difference being that this unit boils the water to use the steam to add moisture. They are often used in individual rooms and commonly have a compartment for adding medication.

There are a number of different types of humidifiers ranging from stand-alone models, which are often called console humidifiers; individual room models and whole house humidifiers, usually fitted into the forced air duct system in a home. Console models range in size and are rated by the number of gallons per day, up to the amount of square feet of area to be humidified. Some are capable of humidifying a whole home and are most effective in an open concept home. Furnace models are available with drums, screens or a filter cartridge. The drum style has a water basin and the foam filter on the drum rotates when the furnace operates. Trickle or drip style are simply that, the water supply from your home slowly cascades over the filter as the air is forced through it. There are specialty models, some with no filter, ultrasonic models where a vibrating metal diaphragm dispenses the mist. Provided they are sized for the area, most work effectively when used properly.

Humidifiers need maintenance and routine cleaning to prevent mold or bacteria build-up. I admit to a dislike of the drum style furnace humidifiers, as many I see are not maintained. In such cases, mold floating on the water is common. If you have a console model, try and use distilled or demineralized water. Because it contains fewer minerals, it will reduce cleaning and bacteria growth. Most humidifiers have a filter of some kind and cleaning or replacement should be done on a regular basis.

It is a constant effort to maintain fresh, humidity to comfort levels and clean air in a home. As our homes become more and more air tight, this factor is increasingly important.

Questions or Comments: Cam Allen L.I.W. NHI ACI LEED Green Assoc
E-mail: cam@alltechconsultinggroup.com