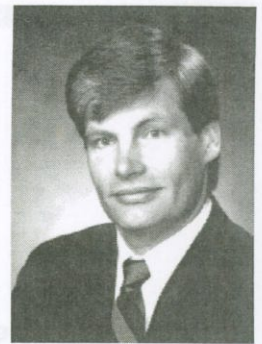




atlas air

CLIMATE CARE.

AN ENGINEER'S OPINION



Special Issue

Humidity concerns for a healthy home

This special issue of *An Engineer's Opinion* deals with the subject of humidity, its management, and the effects of unbalanced humidity on your family's health and home.

We spend a lot of time and energy on managing the temperature of our home but almost none on ensuring that we maintain optimum humidity levels. The result is that every house, new or old, loose or tight, is susceptible to problems from failing to manage humidity.

On the one hand, an excessively humid indoor environment provides a breeding ground for molds and other biological contaminants, which can lead to serious health problems. A survey by Health Canada found that 38% of Canadian homes have either excessive dampness or molds. The Canadian Mortgage and Housing Corporation (CMHC) feels so strongly about this problem that they have concluded, "people should not live in moldy houses".*

On the other hand, indoor air that is too dry can also result in a range of adverse health effects, such as headaches, itchy skin, and nosebleeds, and various medical studies call for us to add humidity in the air to avoid upper respiratory infections. Excessively dry air can cause an annoying build-up of static on furniture, clothes, and hair. We also need humidity to maintain the beauty and life of hardwood floors, furniture, and artwork.

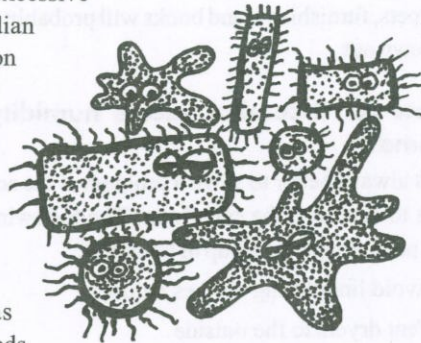
Fortunately, as in other areas of life, there is a happy medium. Acceptable or comfortable humidity levels will actually vary from season to season, from house to house, and even between rooms in the same house. Generally, the optimum humidity level in the home is between 35% and 55%. Individual sensitivities and needs will determine which end of this range is best for your particular home and family.

The purpose of this newsletter is to clarify the mysteries of moisture and humidity, provide answers to a number of

commonly asked questions about humidity, and give helpful advice on what a person can reasonably do to minimize the health effects that moisture extremes can cause.

What are the sources of humidity in my home?

Humidity is the amount of moisture or water vapor in the air. It can come from any number of sources. People and pets produce moisture when they breathe or perspire. Plants produce moisture. We add water vapor through routine household activities such as cooking, showering and bathing, laundry, and dishwashing. Moisture can also enter the home from leaks in the roof and walls, from the surrounding soil, through a basement or crawlspace, and through uncontrolled air leakage.



How do I know if I have a moisture problem?

If you have too much humidity in your home, it will show up as condensation on windows, wet stains on walls or ceilings, a moldy bathroom, musty smells (particularly in the basement), frost buildup in the attic, and allergic symptoms in family members. If you have too little humidity, you may notice chapped skin and lips, scratchy nose and throat, breathing problems, static and sparks, problems with electronic equipment, and cracks in wood floors or furniture.

How does excessive humidity cause health problems?

All living things need moisture to grow, but some organisms particularly thrive in very moist environments. Of these, molds are the leading cause of health problems associated with excessive humidity. Other moisture-

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An Engineer's Opinion

An Engineer's Opinion is published to assist homeowners in creating the healthiest, most comfortable environment in their homes at the most reasonable cost. If you have questions, criticism or input, we want to hear them. Please write or call me personally.

Roger Grochmal, P.Eng.,
President

*Clean-Up Procedures for Mold in Housing. 1993. Canada Mortgage and Housing Corporation, Ottawa, Ont. p.1.

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Should I have a humidifier?

In the winter, if you suffer from any of the symptoms mentioned earlier (chapped skin and lips, scratchy nose and throat, static and sparks, or cracks in the floor), then you should seriously consider installing a humidifier. Before you run out and buy a humidifier, you should be aware of the danger that certain types of humidifiers pose to your family's health. Any humidifier with a standing water source is a potential breeding ground for some very toxic bacteria, such as those that cause a disease known as Humidifier Fever. The safest option is a flow-through style humidifier that is installed in the furnace. As its name suggests, the water supply constantly flows through the humidifier, and any water that is not vaporized goes down the drain.

loving, pathogenic pests include mildew and other types of fungi, dust mites, some bacteria, and viruses. When airborne, these organisms can be inhaled into the lungs. Allergic reactions are the most common problem associated with biological agents. People with asthma are especially susceptible to problems with allergies. Their very sensitive airways can react to various allergens and irritants, making breathing difficult. Many biological contaminants also cause infectious diseases, which can readily spread among family members, especially if air circulation is poor. Finally, some molds can induce toxic reactions. Young children and elderly people are particularly at risk for these health problems.

What can I do to get rid of molds?

Even if you eliminate condensation and lower humidity levels in your home, existing molds can persist and continue to release spores. The best strategy is to physically remove the mold. Use pure chlorine bleach to clean moldy surfaces. Use a mixture of one part chlorine bleach, two parts water, and a little detergent to clean nearby surfaces. Leave cleaned surfaces to dry for 15 minutes and then rinse well. Use gloves and protective glasses and remember to ventilate well. If you suffer from allergies or asthma, it is best if you have someone else do the clean-up for you. Badly mildewed carpets, furnishings, and books will probably need to be thrown out.

How can I combat excess humidity in my home?

It is always better to solve a problem at the source than it is to deal with the symptoms. The following are tips for preventing a build-up of humidity:

- Avoid line-drying clothes indoors
- Vent dryers to the outside
- Cover exposed earth in a crawlspace with heavy polyethylene, sealed and weighed down
- Slope soil away from foundations

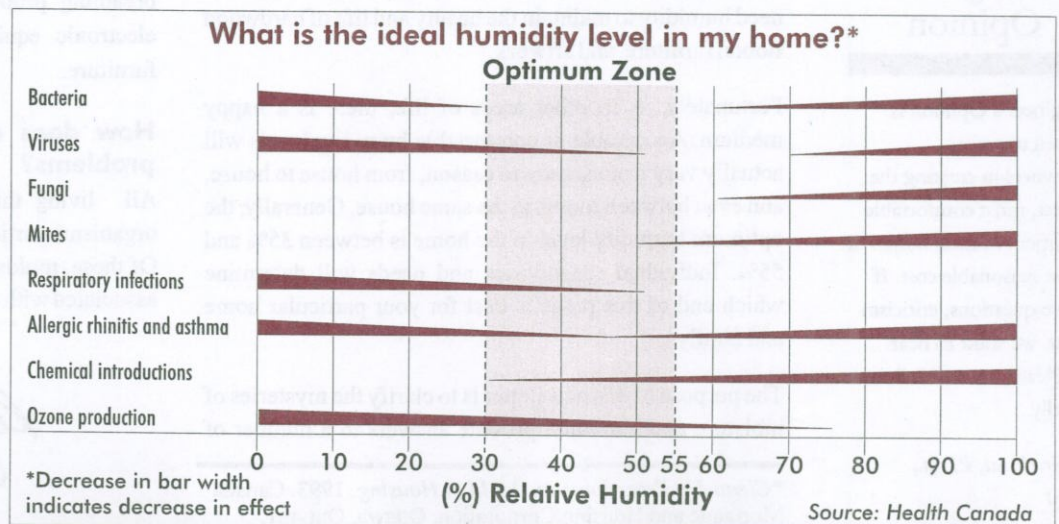
- Patch any foundation leaks
- Don't dry firewood indoors
- Operate bathroom exhaust fans during a bath or shower, and make sure fans are vented to the outdoors
- Add insulation to cold surfaces
- Use a range hood when cooking

How can I tell if my home needs professional help?

If indoor humidity levels are high and moisture sources can't be reduced any further, then your home will probably require professional help from a qualified HVAC contractor who has experience with indoor air quality problems. Such a contractor will assess the indoor environment of your home for moisture problems, taking into account the type and condition of your current heating, cooling, and air quality equipment. The following equipment may be recommended to solve any humidity problem in your home:

- **A heat-recovery ventilator (HRV).** An HRV increases the fresh oxygen in your home by providing continuous ventilation without wasting a lot of energy. HRVs work by first extracting the heat from indoor air before it exhausted outside, and transferring this heat to the fresh, in-coming air.
- **An air conditioner and/or dehumidifier.** Either of these (and sometimes both) is a must for controlling humidity in the summer.
- **An ultraviolet air purifier.** This will kill any mold that becomes airborne and removes odours, and should be seen as a complementary strategy to humidity reduction and mold removal.

For a number of years now, Atlas has been helping homeowners to solve their indoor air quality problems, including those stemming from excess humidity. If you suspect a humidity-related problem in your home, please don't hesitate to call us with your questions.



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