Appliances, systems control home humidity

BY JAMES AND MORRIS CAREY
The Associated Press

What do creaking floors, condensation and sneezing have in common? Each can be related to the humidity level in your home.

And it doesn't stop there. Damage to wood floors and electronic equipment, increased dust, respiratory problems, throat and skin irritation, rot, pests, mold and mildew, dust mites and allergies are other common problems that result from indoor humidity levels that are either too low or too high.

Humidity is the amount of water vapor in the air and is caused by many factors. Cooking, bathing and doing laundry all produce water vapor and, thus, raise indoor humidity. Running your home's heating system can keep you warm during the winter, but it can cause your house to become too dry when heaters and cooler temperatures combine to lower the moisture levels in the air.

Dry home syndrome is common in older, less energy-efficient homes — homes that are not as tight as new homes; drafts can lower indoor humidity. The reverse is true with a tight, more energy-efficient modern home. The lack of free exchange of air can cause high indoor humidity levels.

An indoor humidity level less than 30 percent is too dry. Such a level can cause dry nose and throat and colds; wall paneling, wood trim and hardwood flooring can shrink and cause joints to open; cracks in drywall and plaster can develop; joints in wood furniture can become loose, and pianos can go out of tune. If you find yourself being shocked by static electricity as you move about your home, your home's indoor humidity is too low. Skin irritation and respiratory problems are other telltale signs.

Conversely, a home that is too wet — where the humidity is greater than 50 percent — can be a breeding ground for mold, rot, pests such as termites and cockroaches and condensation. Excess humidity can produce enough condensation to result in staining on ceilings and walls and cause flaking paint and peeling wallpaper.

In warmer climates, the combination of high humidity and heat provide the optimal environment for pests and mold. If you live in an area where termites are pervasive, you have a lethal combination that can, if you don't take preventive action, make your home one big science experiment.

While it's true that dryness is more common in the cold north, many homes throughout the country experience the same problems when the weather turns cold. However, more often than not, homes contain enough sources of indoor moisture (cooking, clothes drying, showering) to balance the moisture losses in winter and keep humidity at a comfortable level.

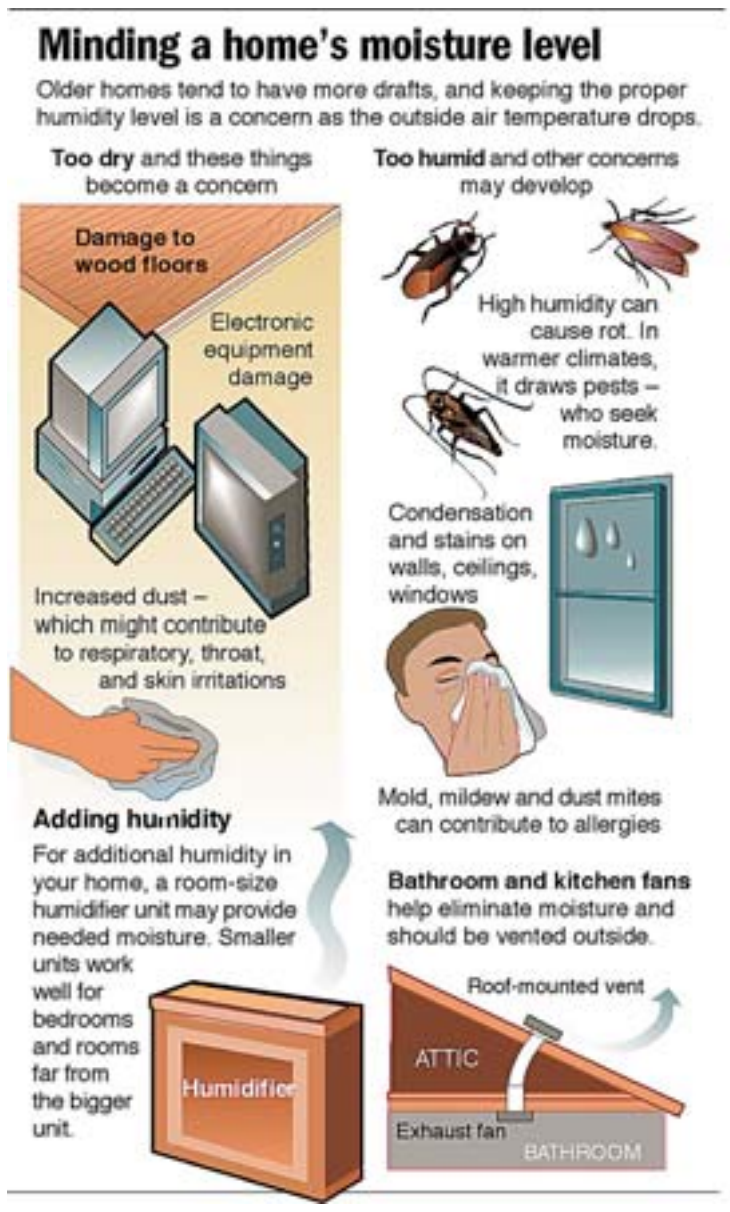
An effective means of dealing with dry home syndrome is to use either a portable or whole-house humidifier. The most common type is an evaporative humidifier wherein a reservoir holds cold water and dispenses it into a basin. A wicking filter absorbs the water from the basin and a fan blows air through the moistened filter. As the air passes through the filter, it evaporates some of the water there. The higher the relative humidity, the harder it is to evaporate water from the filter, which is why a humidifier is self-regulating (as humidity increases, the humidifier's water-vapor output naturally decreases).

Sometimes an evaporative humidifier will be hooked up to the heating and cooling system of a house or building. These systems work in a similar way. A metal mesh or screen is located in the duct coming from the furnace and-or air conditioner. Water from the building's pipes flows down the screen. As air coming from the duct blows across the screen, it picks up moisture.

If your home is too wet, you can lower the humidity by installing exhaust fans in the bathrooms, kitchen, laundry and any other space where water vapor is created. You may also need a dehumidifier, which in contrast to a humidifier removes moisture from the air. The usual technique to remove the moisture is to condense it onto a cold surface. Anyone who has poured a cold glass of iced tea on a hot, humid summer day knows that moisture will condense on the glass. When air cools, it loses its ability to hold moisture. In the case of the cold glass, the moisture in the air condenses right onto the glass. If the glass is left on a table long enough and if the air is very humid, a significant puddle of water will form.

You may have noticed the same phenomenon in an air conditioner. The moisture in the air inside the room condenses onto the air conditioner's cold coils. If it's a window unit, the water drips out the back of the unit onto the ground.

Excessive indoor humidity is removed with a dehumidifier which is essentially an air conditioner that has both hot and cold coils in the same container. A fan draws humid air over the cold coil of the air conditioner to condense moisture, which then drips into a collection container. Dry air passes over the hot coil to restore it to its original temperature. Air conditioned space should not need a dehumidifier since it acts as one.



For best indoor comfort and health, a relative humidity of about 45 percent is ideal. You can track your home's humidity with an inexpensive hygrometer. You might be surprised to learn how low it is.

Clearing the air: Purifying systems help your whole house breathe easy

BY PAT STEIN
Copley News Service

It may come as a surprise to learn that the Environmental Protection Agency often finds that the air inside the home is up to five times more polluted than the air outside.

And, experts say, no home is immune to air-quality problems — regardless of how clean it may appear. New homes tend to have higher concentrations of chemicals while older homes can be grounds for mold and mildew and are usually contaminated with dirt and dust.

Household air pollution can be hazardous to health — especially for people with asthma and allergies.

"Poor indoor air quality is a significant factor in aggravating asthma and allergies," said Dr. Anthony Montanaro, chairman of the Asthma and Allergy Foundation of America medical advisory committee.

The AAFA recommends controlling home air quality as an effective method to reduce allergy and asthma symptoms.

Common indoor air pollutants include pet dander, dust, pollen, paint fumes, carpeting, mold and tobacco smoke.

"The first step in improving indoor air quality is to remove the source of the pollutants. Don't allow smoking in the house and put the cat outdoors if someone in the house is allergic to pet dander," advised Paul Krantz, executive editor of BHG.com (Better Homes & Gardens online). "Be sure to have gas appliances checked to make sure they are working properly."

There are a number of ways to improve indoor air quality. One of the most basic is to improve ventilation to help dilute the concentration of contaminants, according to Krantz. He also recommends vacuuming and dusting frequently and using a pleated filter (available at home improvement stores) in your furnace unit.

Beyond these basic tactics, there are a number of systems available to help improve indoor air quality.

True HEPA portable air cleaning units, which range in price from about $40 to $200 at home improvement stores, are 99.97 percent effective in capturing airborne particles as small as 0.3 microns. (HEPA is the acronym for High Efficiency Particulate Air.) A micron is one one-millionth of a meter. (A human hair, by comparison, is 75 to 100 microns in diameter).

Honeywell air purifiers work by drawing air in through vents on the air purifier unit, then through a prefilter carbon medium and then through the main HEPA filter.

Portable Honeywell units that combine HEPA and carbon, potassium permanganate and zeolite filtration are effective in removing strong odors such as paint fumes and the smell of new carpeting as well as microscopic airborne particulate matter.

What type of unit to choose depends on room size. Units carry Clean Air Delivery Rate (CADR) ratings that are a good guide to selecting the right size unit, according to Dominic Piccininni, a Home Depot air-quality expert. A higher CADR rating indicates a greater ability to return clean air to a room. He points out that there is no difference between an "air purifier" and an "air cleaner" except for terminology.

Portable air purifiers require no installation and can be used in bedrooms, living rooms, family rooms, offices and kitchens. Krantz suggests that they work best in closed rooms.

While portable air purifiers are simple to use and relatively inexpensive, the Mayo Clinic suggests that whole-house systems are more effective in improving indoor air quality than free-standing units.

There are several whole-house air cleaning systems available, among them the PureAir system by Lennox Industries, which has earned the Good Housekeeping Seal. The Lennox system is installed into a home's return air ductwork. It attacks pollutants throughout the home. Using a combination of ultraviolet light and patented Photocatalytic Oxidation filtration technology it actually captures and destroys contaminants, including particles, bio-aerosols and odors/chemicals.

Field trials of the Lennox PureAir system in existing and new homes indicate that toxin levels dropped by approximately 50 percent in every home tested.

Units that help reduce humidity are helpful in reducing air pollution from mold and mildew, according to Krantz.

He also suggests avoiding the use of bleach or ammonia as household cleaners as they can release chemical pollution into the air.

"It's better to use vinegar and water," he said.