Getting Comfortable with Relative Humidity and the Home

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Indoor humidity levels can be problematic almost everywhere. Determining the proper target humidity level while maintaining energy efficiency can be vexing.

Humidity-related problems are generally worse during the winter in the North and during the summer in the South, but, there are some year-round problems anywhere. Indoor humidity levels can be controlled by just opening windows or running the furnace or air conditioner more, but these options increase your monthly utility bills and waste energy.

There is not just one ideal indoor humidity level. If you are referring to personal comfort, a target of 40 percent to 45 percent relative humidity is good. Most people are comfortable with a relative humidity ranging from 30 percent to 50 percent and can tolerate 20 percent to 60 percent. When the relative humidity is in the proper range, you can set your furnace or central air conditioner thermostat down or up respectively and save energy.

When the relative humidity level gets too high, there can be serious health problems related to allergies, dust mites, mold and mildew growth and other harmful microbes. Being at the other extreme with the relative humidity too low, a person's mucus membranes may dry out, increasing their susceptibility to colds and respiratory illnesses. Also, some nasty microbes prefer excessively dry air.

In order to understand how to control indoor humidity year-round, it is important to understand the term "relative humidity" or RH. Warmer air can hold more water vapor (moisture) than colder air. If the air at 75 degrees has a RH of 50 percent, it means the air is holding 50 percent of the maximum amount of water vapor it can hold at that temperature.

If that same air drops to 50 degrees, that same amount of water vapor may now be 70 percent RH of the maximum amount the cooler air can hold. When the air gets cool enough, next to window glass during the winter or the refrigerator door seal during the summer, it reaches a point when it can no longer hold that much water vapor. This is called the dew point. This is when the windows or the refrigerator door sweats or it starts to rain outdoors.

You can purchase an inexpensive hygrometer at most hardware and home center stores to measure indoor relative humidity. Since you are having humidity-related problems, your best gauge of the proper relative humidity is when the problems are alleviated or, at least, tolerable.

For example, if you have old single-pane windows on the north side of your home, you would have to get the relative humidity level to an uncomfortably low level to avoid all window condensation on cold winter nights. On the south side, it may not be possible to stop all mold and mildew in the bathroom even if you run the vent fan and your central air conditioner almost continuously.

The keys to maintaining a comfortable and efficient indoor humidity level are to control the sources of moisture and to ventilate them efficiently. The average person gives off one-quarter cup of moisture per hour just from breathing. If you exercise at home, it can be much higher. Cooking for a family of four produces five cups of moisture per day. A shower contributes one-half pint and a bath contributes one-eighth pint.

Exterior sources are leaky roofs, plumbing, windows, doors, etc. Once you have taken care of these problem areas, check the slope of the ground around your home. It should slope downward slightly away from your house walls. Even with the best new windows, soggy soil around your home allows excess moisture to migrate indoors year-round.

Installing new efficient replacement windows or exterior storm windows is the best method to control a window condensation problem efficiently. This also saves energy during the summer cooling season. With more efficient glass, you should be able to close insulating window shades at night to save energy. With old windows, closing shades exacerbates condensation problems.

Install new bathroom vent fans with humidity sensors. These come on automatically and run until the humidity level drops. With a manual switch, you have to either turn it off prematurely when you leave for work or let it run all day. Check the seal around the clothes dryer duct leading to the outdoor vent.

Install a new furnace/heat pump with a variable-speed blower and compatible thermostat to allow it to run in an efficient dehumidification mode during the summer. Make sure the damper handle on the central humidifier is set for the proper season. Use electric countertop cookers and vegetable steamers in the garage instead of in the kitchen during the summer. I use an outdoor solar-powered steamer on sunny days.

Send inquiries to James Dulley, Cooperative Connections, 6906 Royalgreen Dr., Cincinnati, OH 45244

Kolbeck Takes Office; Johnson Named Chair at S.D. Public Utilities Commission

South Dakota's newest Public Utilities Commissioner, Steve Kolbeck, was sworn into office in December. Gov. Mike Rounds appointed Kolbeck to the PUC post before the usual January date due to the early resignation of former PUC Commissioner Bob Sahr.

"It is an honor to be elected to this position by the people of South Dakota and an honor to be appointed to the Commission early by Gov. Rounds," said Commissioner Kolbeck. "I greatly appreciate the vote of confidence and I pledge to work hard for the people of this state in my position as PUC Commissioner."

"I would like to welcome Commissioner Kolbeck to the Commission and look forward to serving with him," said Chairman Dusty Johnson. "I think that he, Gary and I will make a good team and I am excited about the things that we will be able to get done for South Dakota in the next few years."

"Steve is a bright, thoughtful man and I am certain he will be a dedicated commissioner," said Vice Chairman Gary Hanson. "His understanding of and experience in the telecommunications field will serve him well. He brings new ideas and a thoughtful approach to the work of the Commission. And his commitment to consumer protection is genuine."

Kolbeck most recently worked for Alliance Communications in Garretson where he was involved in various aspects of the telecommunications business. He has had several positions in the telecom business beginning with Northern Telecom, now Nortel Networks. He also worked for AT&T in Sioux City, Iowa, and SDN Communications in Sioux Falls.

Steve Kolbeck

Dusty Johnson

Gary Hanson

Kolbeck's experience in local government includes two years as a Brandon city councilmember. He attended Northern State University and Mitchell Technical Institute, graduating with an associate of applied science degree in telecommunications.

Kolbeck is a native of Salem. He and his wife, Stacy, and their four children reside in Brandon. The family plans to move to Pierre in the coming months.

Commissioners are elected to the PUC for six-year terms. Hanson was elected in 2002; Johnson was elected in 2004.

Visit the commission's Web site at www.puc.sd.gov for more information on the PUC.

Sahr Joins East River Electric

Bob Sahr, the former chairman of the South Dakota Public Utilities Commission, recently began his new position as general counsel for East River Electric Power Cooperative, a Madison-based power supplier.

"Bob's strong background in energy and telecommunications issues will be a great asset to East River's management team," said General Manager Jeff Nelson. "With East River involved in extensive construction, economic development and communications programs, our new general counsel will provide us with important services."

Sahr was appointed to the Public Utilities Commission in 2001. The Pierre native was elected to a four-year term in 2002, served as chairman and did not seek re-election in 2006.

Bob Sahr

As a public utilities commissioner, Sahr supported efforts to increase the use of renewable energy, including the cooperatives' efforts to develop the state's first wind farm at Highmore. He was also involved in a variety of power supply, transmission, telecommunications and consumer-advocacy issues. He broadened his knowledge of energy and telecommunications issues as an officer for two regional organizations comprised of state utility and regulatory commissioners.

Contacting Your Lawmakers

Below is the contact information for state lawmakers in South Dakota and Minnesota:

South Dakota

By Mail: Legislator's Name
Legislative Post Office
500 East Capitol Ave.
Pierre, SD 57501

By Phone: House Lobby: 605-773-3851
Senate Lobby: 605-773-3821

By E-mail: To e-mail a legislator, go to http://legis.state.sd.us/email/LegislatorEmail.aspx and choose the lawmaker you wish to e-mail.

Minnesota

Web site: www.leg.state.mn.us/

By Phone: House: 651-296-2146
Senate: 651-296-0504

By E-mail: Legislator's e-mails are posted on the Minnesota State Legislature Web site at www.leg.state.mn.us/leg/legdir.asp