

April 26, 2010

Ms. Abigail Daken,  
U.S. EPA

Dear Ms. Daken,

I am writing to you in response to the April 19<sup>th</sup> Stakeholder presentation of the Draft 1 Version 1.0 Climate Control specifications. Specifically, I wish to comment on the question posed regarding the need to include independent humidity and temperature control (slide 21).

Independent temperature and humidity control is of prime importance when a home is vacant for extended periods during humid conditions. Such conditions exist in a large percentage of the heavily populated east and south but are not uncommon in other areas of the country. For example, there are millions of homes that stay vacant for up to 6 months in the southern states where excessive humidity must be prevented.

Without independent humidity and temperature control the thermostat must be set low enough to insure that the HVAC equipment will turn on when the humidity setpoint is exceeded. When the temperature rises the system will stay on even when the humidity is below the setpoint. This can waste a tremendous amount of energy.

I will give an example. Without independent control the thermostat may have to be set to 80 degrees in the vacant "Away" mode and the humidistat at 62%. The temperature must be set low enough to insure that the system will dehumidify when the humidity is high but the temperature is moderate, conditions that can occur often. Most manufacturers currently turn off the system when the temperature falls 3 degrees below the thermostat's setpoint regardless of the humidistat calling for dehumidification. This is done to prevent excessive cooling that could cause condensation in walls and other areas. When the temperature rises but the humidity is below the humidistat's setpoint the equipment will operate and keep the home at 80 degrees.

Now consider a thermostat that allows independent setting of the thermostat and humidistat. The humidistat is set to 62% as before but the thermostat is set to 85 or 88 degrees. There could still be a safe minimum temperature to prevent excessive cooling just as in the above example. However, when the temperature rises above 80 degrees and the humidistat's setpoint is not exceeded the system turns off until the temperature exceeds the thermostat's setpoint of 85 or 88 degrees (for simplicity I did not include the effects of differential settings).

The energy saving of cooling the house above 85 or 88 degrees compared to above 80 degrees is very large.

Some may argue that vacant homes in high humidity areas are a small segment of the market. I do not believe that, see data on humidity in cities across the country (<http://www.cityrating.com/relativehumidity.asp>).

For the above reasons I urge the EPA to include independent humidity and temperature control in the specifications. Also note that while HVAC equipment sometimes include an additional dehumidifier the overwhelming majority of homes with air conditioners do not, therefore the Climate Control thermostat must be able to control the air conditioner to provide dehumidification.

Yours truly,

Gabe Torok  
Consultant