

The Battle for the Thermostat

Are you succeeding with “The Battle for the Thermostat” – the psychological element involved in raising and lowering the thermostat...the feeling of control, and how it impacts comfort? In this article, we’re providing an interesting perspective into some of the various aspects of Thermostat troubleshooting.

Even in buildings, where everything has been designed and installed to perfection...the systems need some variability, the ability to change capacity in response to seasonality trends and, even more so as buildings and their systems get older.

Thermostat Battle

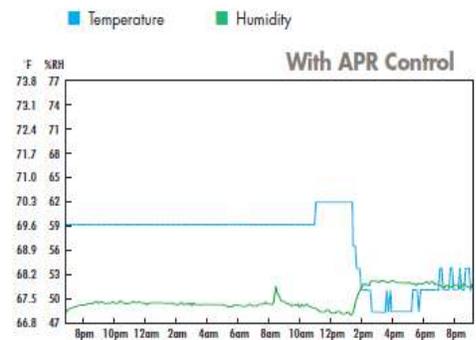
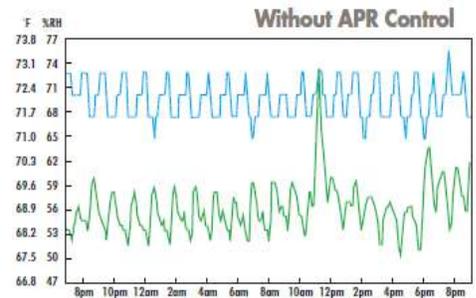
- 1) The thermostat causes the compressor to cycle ON and OFF in an attempt to maintain space temperature in a narrow band as dictated by the thermostat setting (plus/minus 2 degrees typically on a simple light commercial system’s thermostat);
- 2) A system designed for 95 deg. F will operate less efficiently when the outside (ambient) temperature is lower than design ~ meaning more frequent cycling, not necessarily less energy efficient; and,
- 3) In any region of the world where humidity is relatively low and stable, there isn’t much of a concern that a cycling system might lead to a build-up of humidity in a conditioned space. But in most other environments...humidity build-up and an uncomfortable environment is reasonably assured.

Cycle Timing

If you read my column regularly, or have spoken to us about an application for the [APR Control](#), you’ll recognize that I am often ‘hammering’ on “cycle timing.” Others refer to the same concept as The Duty Cycle – how long the compressor actively runs ON versus the time from ON (start) to ON (start) as dictated by the thermostat. I have chosen to address this subject yet again because we strongly believe this is where the APR Control can best help your customer and the systems that require the service team’s attention.

The APR Control provides more consistent temperature and humidity control.

These graphs show actual temperature and humidity readings from two rooms with identical load characteristics at the Sheraton World Resort, Orlando, FL. Both rooms had identical GE 9,000 BTU/hour DX PTAC units. One unit was fitted with an APR Control; the other was not.





I wanted to hammer on about how important cycle time is to the operation and effectiveness of the air conditioning systems to ensure that it is understood that this is at the core of what we *do...the core of the air conditioning system's function, is this problem of managing the cycle time!*

Thermostat Success=Humidity Control?

The longer the ON time (especially in relation to total cycle time), the more likely the system will be able to manage space humidity. The APR Control can improve the active time for cooling and dehumidification vs. the off time when there is no active dehumidification or cooling: this results in more comfortable environments and perception that a system is working "right," right?

Minimize Your Callbacks

If a simple addition like the APR would be seen by the end user as a small cost to the project, could minimize the perception of an uncomfortable space, would it not be an obvious choice...an easy addition? In what way would such an addition further minimize the need for return visits (otherwise known as callbacks) to the jobsite because the tenants feel the space is cool and humid, ultimately feeling uncomfortable!

If your customer's complaint is battling the thermostat with new equipment, upgrading or retrofitting an existing system, and are still having problems managing the cycle time, please don't hesitate to call us at 800-727-6447 or email at sales@rawal.com.



Richard Rawal
President
Rawal Devices, Inc.