Solve your oversized system problems with the Rawal APR Control

too humid?
too cold?
too hot?

Rawal APR Applications

COMFORT/IAQ

RELIABILITY

ENERGY EFFICIENCY

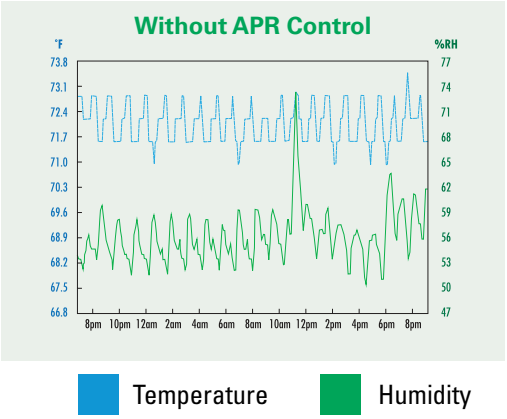
What it does for you

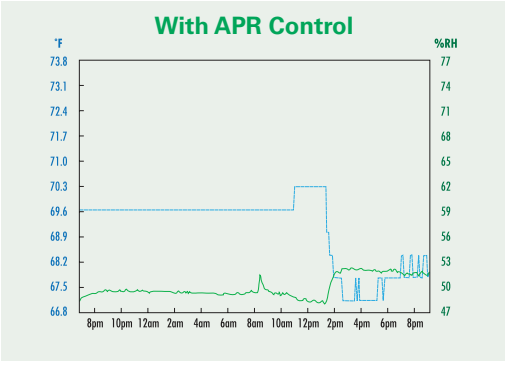
- Constant area temperature
- Stabilized humidity control
- Longer equipment life
- Reduced likelihood of equipment failure
- Reduced operating costs
- GREATER COMFORT

How it does it?

- Modulating capacity
- Continuous dehumidification
- Eliminate excessive cycling
- Elimination of coil freeze
- Greater energy efficiency
- Constant temperature and Stabilized humidity

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.





RAWAL DEVICES, INC

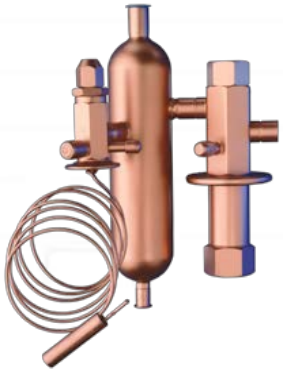
Toll-Free: 800.727.6447
TEL: 781-933-3304
www.rawal.com

Classroom Application

Comfort/IAQ

Reliability

Energy Efficiency



Unit Ventilators are designed to provide precise temperature control for classrooms by keeping the air circulating in the room while adding fresh air and maintaining a comfortable temperature for students. The problem is that in many cases these units are sized based on peak design conditions (which include occupancy, solar load, and thermal gain and ventilation). Changes to any of these variables, such as occupancy or renovation will cause the system to be oversized. This creates a number of issues, the most important being poor humidity control. There are often additional complaints that airflow noise off the unit ventilator in the classroom can disrupt the learning environment.

Recently the Nodaway Valley school District made renovations to their facilities which created some issues on their existing R-22 (direct expansion) Unit Ventilators. The school district faced a number of problems; the renovations caused a majority of the units to be oversized. These oversized units were short cycling and causing high humidity in the classrooms. This meant they would either have to replace the units or ***find a better way to control the capacity***. Replacing the units would have been a massive and expensive undertaking, so they took an alternative route and installed the APR Control, which gave the systems “continuous capacity modulation” and the ability to match the changing load. This resulted in extending the runtime, while keeping the active portion of the coil below dew point for better dehumidification. Additional benefits the APR Control will provide include system and circuit protection from coil frosting, liquid slugging, and inadequate maintenance budgets.

Before the Nodaway Valley school District renovation they had encountered noise from the unit ventilators. To address this problem a fan speed control was installed to reduce airflow. The fan speed control prevented teacher complaints about noise in the classroom because the air was no longer whistling through the grate. However, an additional problem would have been created if the APR Controls had not been installed; discharge temperature off the evaporator coil would have dropped significantly, causing the (inactive) hot water heating coils to freeze and burst.

Installing the APR Control, we were able to eliminate and prevent a broad spectrum of possible complications that arise from using direct expansion unit ventilators in classroom and school environments.

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