

# Overcoming Newsroom's Indoor Environmental Challenges with APR Control®



**ABSTRACT:** This case study describes

using the APR Control to solve ambient sound and excess humidity levels, allowing for uninterrupted production at a New Hampshire based TV affiliate.



## INTRODUCTION

As New Hampshire's only nationally affiliated television station maintaining a news operation, this station's ownership is heavily involved in broadcasting national and state election coverage, debates and primaries. Having such a prominent role in the election process and primaries, station management placed a high value on the facility's mechanical systems to ensure proper HVAC function with "whisper-quiet" operation, facilitating seamless news production. However, covering the U.S. presidential election this year while also experiencing erratic staffing levels due to the COVID pandemic, variations in occupancy have negatively impacted the conditioned space.

## PROBLEM

While the station's ownership intended to install a state-of-the-art chilled water system, budget considerations led to lower first-cost installation of a single-zone VAV (Variable Air Volume) system, with the goal of higher energy efficiency and meeting strict noise criteria (keeping decibel levels to a minimum). That required the mechanical systems to be functioning "at a whisper" -- from compressors to fan noise and adequate airflow velocity through the diffusers. Even with this single-zone VAV system in place, the discharge air (DA) temperature had a tendency to fall well below design, resulting in low compressor run time and coil icing. Low discharge air temperature created condensation on the outside housing of the air-handling unit. The lack of capacity control in the system contributed to humidity condensation, especially on the cold concrete floor of the newsroom. Once the HVAC systems were operating, those performance issues continued to show up and the need for capacity modulation became glaringly apparent!

*The original basis of design required capacity modulation, yet the alternatives were limited. Some of the most highly touted technology exceeded the noise criteria, even under optimal circumstances.*

## SOLUTION: The APR Control

The APR Control by Rawal Devices was recommended as a solution for the system by an experienced NH mechanical contractor. As a means to achieve similar performance to the original chilled water option, the APR Control was installed to provide the critical DX circuit capacity control that the chilled water system might otherwise have been able to provide. Through its ability to truly load match, the APR Control solved their problems at a small fraction of the original system's installed cost.

The APR Control transforms any single-stage or multi-stage DX system into a variable-capacity system. Our APR Control delivers a cost-effective way to extend AC equipment's cycle of operation and continuously matching capacity to changing load conditions for stable temperature and humidity levels.



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