

Are **Dirty Coils** Putting Pressure on Your **Budget**?

Through ionization, the iMod inhibits bacteria and mold growth on air handler coils. iMod's bio-guard performance keeps a new coil clean longer or cleanses existing coils; saving energy through efficient heat transfer and reduced static pressure across the coil. This lowers fan power and other HVAC equipment stress (e.g. chiller pumps, compressors, etc.).



The Case Study

This 19-year-old facility has a chilled-water fed air handler that has been operating at maximum fan output for over 2 years because the coil is compacted at over 3.5" static pressure. The system is unable to achieve desired temperature and humidity control. Patient and employee comfort is being challenged.

Exhausting other options, the owner is faced with a costly (\$70,000) coil replacement.



Prior to pursuing the replacement:

GPS Air and Novant Health partnered to conduct a test to improve the efficacy of the coil.

The goal was to increase the efficiency of the system through remediation, with the installation of a GPS Air Coil Efficiency System.

Test Overview

The test setup included:



System: 28,000 CFM custom system
Filtration: Two stages, MERV 7 and MERV 15
Air Mix Ratio: 80% return air, 20% outdoor air
Fan Motor: 75HP Supply Air Fan Motor
Coil Dimensions: 7' x 11'

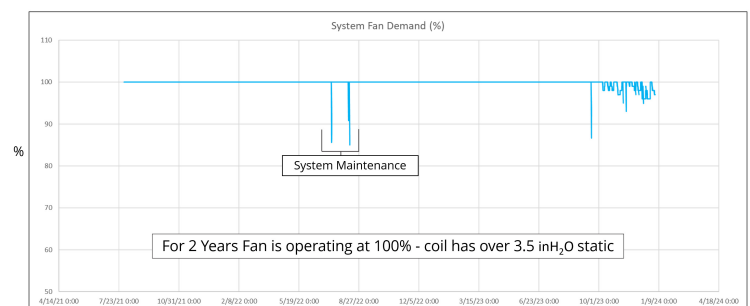
2 GPS Air iMod Bars installed
(1 at the top and another in the middle)

Pre-iMod Efficiency Condition

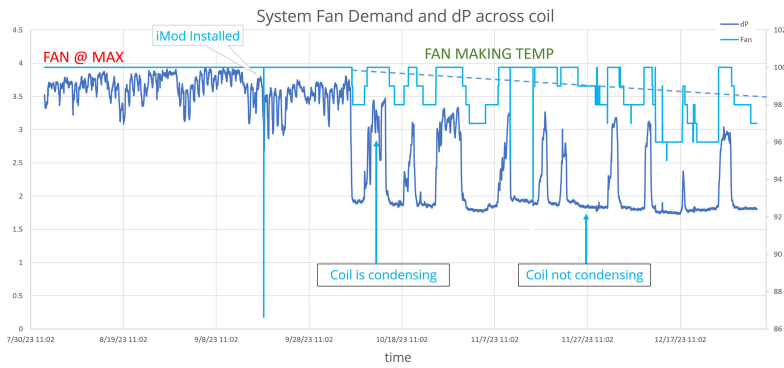
System fan demand (% of max) was used to determine if the coil heat transfer was restricting system performance.

For the 2 years prior to iMOD installation the system fan was operating at 100%, except during maintenance.

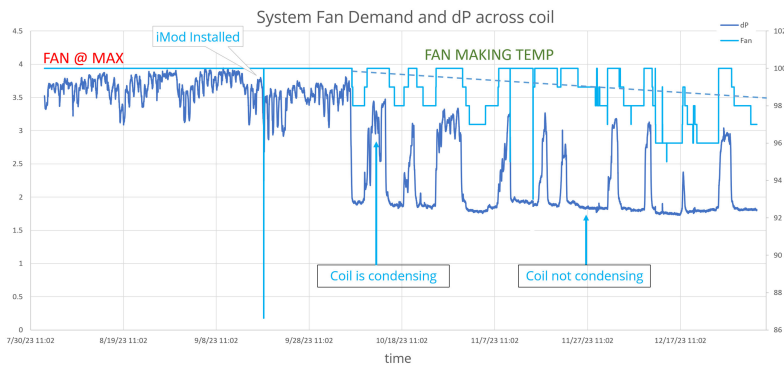
After iMod installation fan demand declined below max for the first time in 2 years.



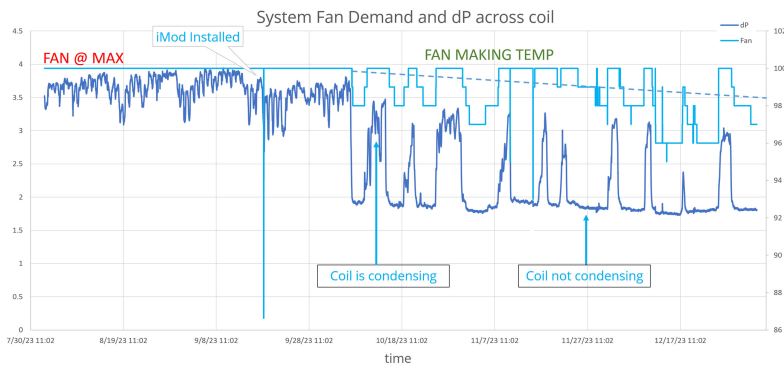
HVAC/Air System Configuration



Taken together, the fan speed began to decline as both the maximum and minimum coil pressure drop began to decline. This indicates a reduction of static pressure due to the coil biofilm being reduced after the iMod was installed.



Isolating for pressure across the coil, it is clear a decline is occurring both in max and minimum pressure.



Fan operation is now averaging less than 98% and continuing to decline as the system is achieving temperature and humidity setpoints. This is a major improvement as the fan was at 100% for 2 years indicating it was never able to achieve the setpoint.

Conclusion

Net energy savings is **60MWh per year**, or **\$7,000 per year**.

Net carbon reduction of **Over 95,000 lbs per year**.

AHU units of this size require an average investment of \$19,000 for an iMod, installed. By avoiding a coil replacement, the payback is immediate.

Assuming the coil was not at end of life, the energy savings and deferred coil cleaning save over \$9,000/year providing a 23-month payback.