



## Case Study - Major Hotel Complex Implements AERISGuard™ HVAC Performance Solutions GreenRoom Program

The AERIS Atlantic GreenRoom Program reduced operating costs by significantly improving room air flow quantity, quality and temperature response time.

### Background

Maintenance Engineers at a major Mid Atlantic Hotel complex were experiencing significant problems with low air flow in their guest rooms. The inability to keep up with heating/cooling loads in the rooms was causing customer complaints. In addition the fan motors were overheating and failing.

### Methodology

AERIS Atlantic worked with the hotel management to reserve a block of rooms for evaluating the AERISGuard GreenRoom Program.

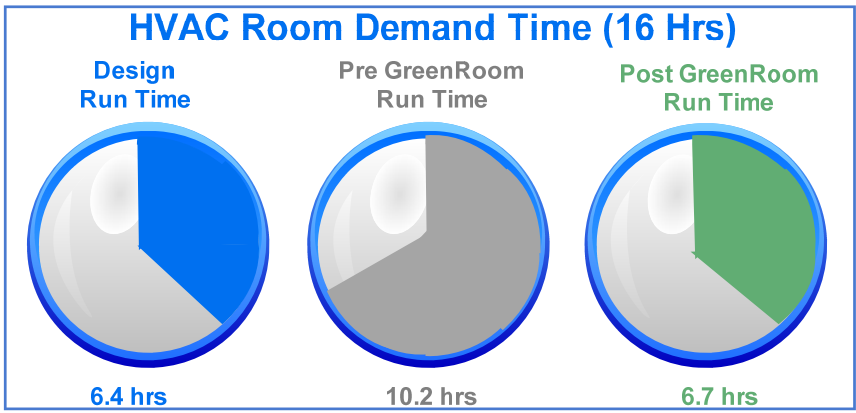
Prior to beginning, particle counts were taken in all of the rooms with the fans set to high. AERIS Atlantic measured airflow and  $\Delta T$  at the lowest temperature and highest fan operation. The filters were then removed and all of the measurements were repeated including particle counts.

The units were restored using the AERIS Atlantic GreenRoom Program which includes unit cleaning, heat exchange surface restoration and coating, and high airflow filtration.



Following surface restoration  $\Delta T$ , airflow data and particle counts were recorded without the filter in the units. A custom fit antimicrobial 3M filter was installed and the data collection was repeated.





**Results**

The  $\Delta T$  increased from a 10.4°F drop to an 11.9°F drop for an average improvement of 14.4%. Airflow increased from an average of 595 CFM to an average of 806 CFM equaling a 36.8% increase. Airborne particulate was reduced by an average of 61% for all units.

Six weeks Post-GreenRoom the average  $\Delta T$  was a 12.8°F drop as compared to a 10.4°F drop Pre-GreenRoom or an average 23% improvement. The average CFM across the filter had reduced to 720 CFM due to loading on the filter, but still a 23% improvement from

Pre-GreenRoom. The CFM increased to post trial levels of 800 CFM by simply brushing the particles off the filters. The coil remained particle free due to the tight fit of the custom 3M filter. Unlike standard filters which vibrate in the unit and contribute to system fouling, the 3M filters maintain a tight seal and can easily be vacuumed or brushed to facilitate constant airflow. Particle counts remained at less than 50% of the pre-test counts

**Conclusion**

The AerisGuard GreenRoom Program significantly improved the airflow quantity, quality and

the unit temperature response time based on measurements of  $\Delta T$ , CFM and particle counts. And, after six weeks, the combination of AerisGuard and 3M continued to protect the coils from bypass loading and microbial contamination resulting in greater operating efficiency and cleaner air.

Average Cost Savings Per Hotel Room @ \$0.13/kwh Assuming Demand Time of 16 hrs/day			
	Design	Pre-GreenRoom	Post- GreenRoom
<b>Capacity</b>	30,000 BTU/hr	18,700 BTU/hr	28,550 BTU/hr
<b>EER Rating</b>	9 BTU/WATT-HR	5.6 BTU/WATT-HR	8.5 BTU/WATT-HR
<b>Runtime</b>	6.4 hrs	10.27 hrs	6.73 hrs
<b>Cost</b>	\$2.77/day	\$4.46/day	\$2.94/day
Average Cooling /Heating Requirement 12,000 BTU/hr, 288,000 BTU/day			
<b>Savings per Day \$ 1.52</b>			
<b>Savings per Year @ 90% Occupancy \$499.32</b>			

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# Case Study