

# Case Study

BUILDINGS ACROSS THE GLOBE ACHIEVE MAJOR INCREASES IN ENERGY EFFICIENCY

Buildings from around the world have achieved valuable reductions in energy losses and improved Indoor Air Quality using AerisGuard™ technologies

## Introduction

During 2003 and 2004, the facilities management teams of a broad range of buildings sought to improve Indoor Air Quality and optimize heating, ventilation and air conditioning (HVAC) energy usage on their premises by trialing the latest AerisGuard technologies. These buildings comprised of major international airports, hotels, hospitals, shopping malls and commercial office premises. The results highly impressed the facilities teams, with the AerisGuard system consistently delivering a broad range of tangible benefits, most notably significant and measurable reductions in energy losses as well as enhanced Indoor Air Quality.

## Microbial contamination at the heart of HVAC inefficiencies

Microbial contamination of HVAC infrastructure is a major issue for building management, having the potential to adversely impact HVAC system efficiencies and indoor air quality.

## Methodology

Aeris Technologies carried out data acquisition during recent trials of the AerisGuard system conducted at numerous sites to demonstrate the effects of system fouling due to microbial contamination.

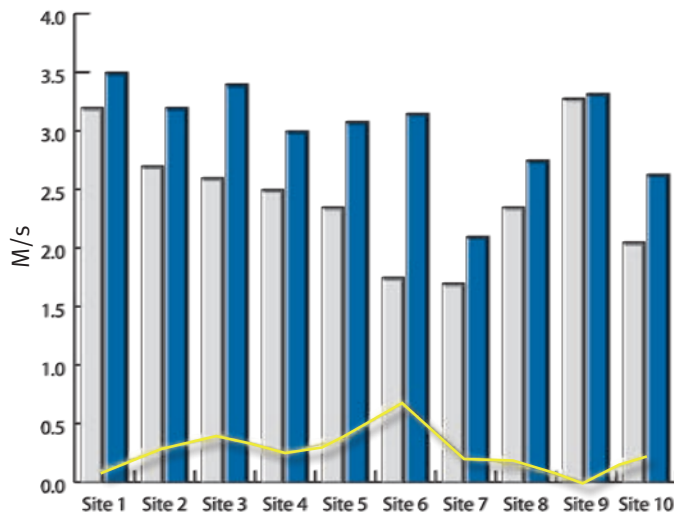


Figure 1: AerisGuard air flow increases

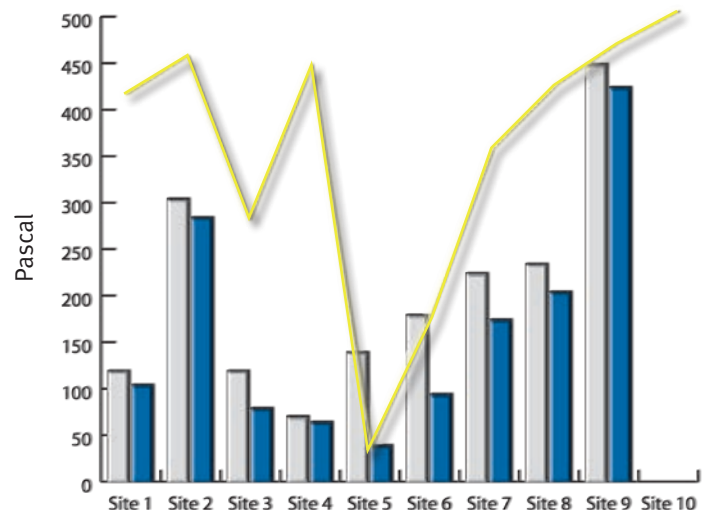


Figure 2: AerisGuard coil pressure decreases

Pre-Aeris
  Post-Aeris
  Improvement

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The trials involved application of the AerisGuard Bioactive Enzyme Coil Cleaner followed by the residual AerisGuard Bioactive Coil Treatment.

The AerisGuard technologies incorporated in these products provide:

- The most effective source removal of microbial contamination from the heat exchange surfaces of HVAC systems,
- Long term prevention against the recolonization of microbial regrowth.

Consequently, AerisGuard delivers on even the smallest remediation successes, reducing energy losses and maintaining extended operating efficiencies, maximum protection and optimal performance to AerisGuard treated HVAC Air Handling Units (AHUs).

## Results: System Efficiency Restored

A range of results in system efficiency remediation was produced that varied from improvements that could normally be expected to those which were outstanding. Figure 1 shows the pre and post measurements for air velocity (air flow), coil resistance or heat exchanger pressure drops (P) and temperature differentials across coils (T) in a variety of locations and applications. This data indicated where significant remediation of biological fouling on the AHU's heat exchanger surfaces was achieved, increasing and maintaining the heat exchanged through the heat transfer medium within the coil tubes.

The results demonstrated that AerisGuard technologies had a dramatic impact in optimizing HVAC system

efficiencies. HVAC systems have been reported to account for at least 50% of the energy consumption of modern commercial buildings around the world. Consequently, AerisGuard delivered on even the smallest remediation successes, reducing energy losses and maintaining extended operating efficiencies.

The improved Indoor Air Quality, the protection of occupants from the health risks associated with HVAC contamination as well as the reduced risk of associated litigation are all additional benefits to be gained.

## The AerisGuard Advantage

The facility management on all trial sites were consistently impressed by the resulting outcomes. In particular, Aeris Technologies had demonstrated that:

- Biological contaminants present over extended periods in HVAC systems had reduced operational efficiency,
- These inefficient HVAC systems were compromising energy efficiencies,
- AerisGuard technologies were highly effective in overcoming HVAC contamination concerns relating to energy and IAQ issues.

Through these trials, the demonstrated improvements in HVAC system performance across various geographic regions as well as in a wide range of applications had enabled Aeris Technologies to confirm, time and time again, how AerisGuard technologies delivers major advantages to the entire HVAC infrastructure.

## Applicator



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