

# High-Output UV-C Lamps Reduce Energy Expenditures Even as an Airport Expands





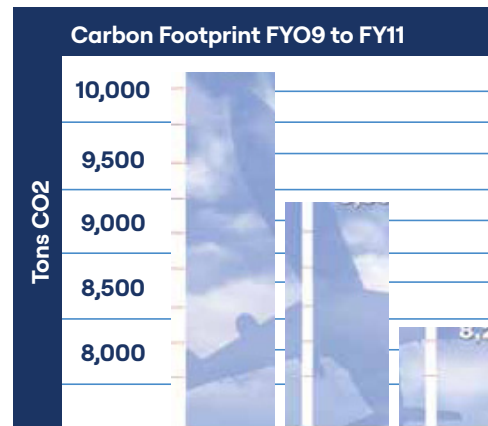
Auckland's newly remodeled international terminal

Becoming a major gateway to green. That's precisely what New Zealand's Auckland airport's newly remodeled international passenger terminal was tasked with in 2007. New Zealand's largest commercial building, handling 13 million passenger movements per year, had a goal to reduce their carbon footprint by 5% before 2012.

This was a seemingly Herculean effort, because the terminal was also to be soon taking on more retail space while increasing passenger numbers by 4.9%. More people consuming, but less energy expended? How would that be possible? Enter Superior Air Solutions, with the unsurpassed Steril Aire UV-C coil-cleaning and air contamination control Emitters™ installed in the HVAC system. According to Martin Fryer, the airport's Sustainability Advisor, these were a major part of the solution.

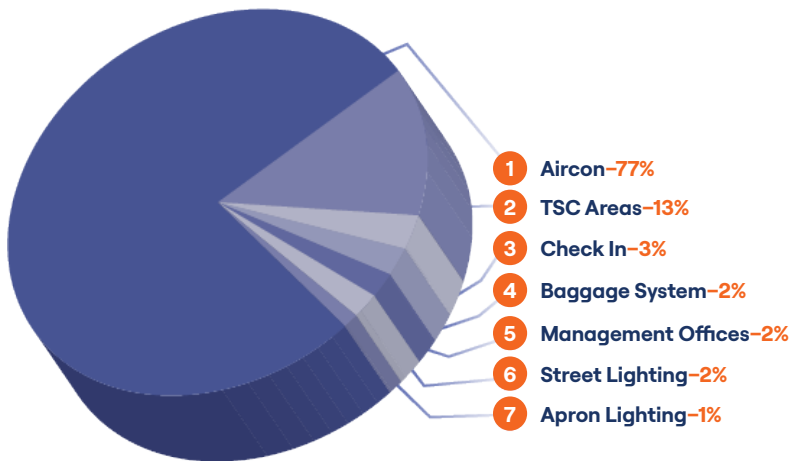
Mr. Fryer states "This was a real win-win-win for Auckland Airport – reduced energy costs, reduced carbon footprint and improved air quality for our passengers and tenants."

Although they wanted to reduce their carbon footprint by 5% by 2012, they actually achieved that goal 2 years ahead of schedule, and much of that success was directly linked to the decrease in energy expenditure of their HVAC systems.



Reduced carbon dioxide emission goals were achieved 2 years ahead of schedule.

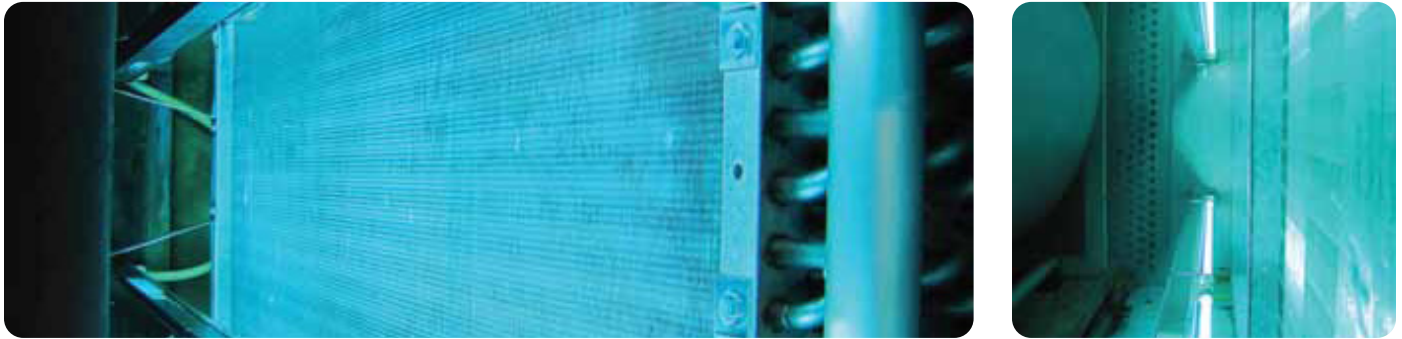
### Savings are in the air (conditioning system)



An energy audit revealed that HVAC energy use accounted for 77% of the overall building electrical usage. Steril Aire UV-C helped substantially improve performance while reducing energy and maintenance costs.

An audit done by Auckland Airport showed that 77% of electrical energy use was related to air conditioning showing that the efficiency of the HVAC units is critical to energy savings. This efficiency is extremely hampered by biofilm that builds up on the cooling exchange plates, inhibiting the heat transfer process and reducing airflow. By destroying the biofilm, Steril Aire's high-output Emitters eliminate the need for manual coil cleaning and chemical usage. Coils, drain pans and plenums stay free of mold and bacteria – restoring equipment to their original performances without using harmful toxins or requiring expensive maintenance.

## Steril Aire’s patented installation downstream of the coil is critical for best results



High-output UV-C emitters mounted downstream from the coil destroy mold, bacteria, viruses and VOCs preventing them from re-entering the air.

### \$272,000 savings each year!



Biofilm buildup greatly increases energy consumption in HVAC systems.

Keeping biofilm from the coils in over 100 air-handling units has resulted in a return on investment in merely 1.5 years, according to Martin Fryer. This is well under their ambitious time-frame goal. And all the while, there was no disruption of service and no passenger interruption. “We reduced our carbon footprint by just over 400 tons” said Fryer, “because Steril Aire produces the highest output UV-C Emitters available.”

The overall cost savings are a verified \$272,000 each year and a 2,480MWh reduction each year. That’s an incredible reduction of 2,480,000 kWh.

### Breathe better benefits

Over one billion passengers per year travel by air. Airports and airplanes are all confined spaces with predominantly recycled air. One person breathes out. Another person breathes in. What is that other person breathing in? Airborne viruses. Bacteria. And more. Steril Aire’s high output germicidal UV-C has been shown to be very effective in reducing surface and airborne mold, bacteria and viruses. Microbial testing at Auckland International Airport showed a greater than 99% reduction in mold and bacterial colonies forming in units 31 days after installing Steril Aire Emitters.

### Microbial testing shows remarkable improvement after 31 days

**Microbial Testing – AHU T2-20 @ 31 Days**

**BEFORE**

AIAL/AHU T2-20/COIL-19/07/2010  
PRE - UV-C INSTALLATION

**AFTER**

AHU T2-20, COIL FACE 8/10/2010  
4 weeks after UV-C INSTALLATION

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**BEFORE**

AIAL/AHU T2-20/DRAIN PAN-19/07/2010  
PRE - UV-C INSTALLATION

**AFTER**

AHU T2-20, DRAIN PAN 8/10/2010  
4 weeks after UV-C INSTALLATION

### Summing-up Steril Aire savings

- Reduction in mandatory carbon footprint well ahead of schedule
- Reduction in energy costs of \$272,000 per year
- Reduction in carbon emissions
- Reduction in AHU microbial load, resulting in improved indoor air quality
- Reduction in costs of HVAC maintenance
- ROI of less than 18 months