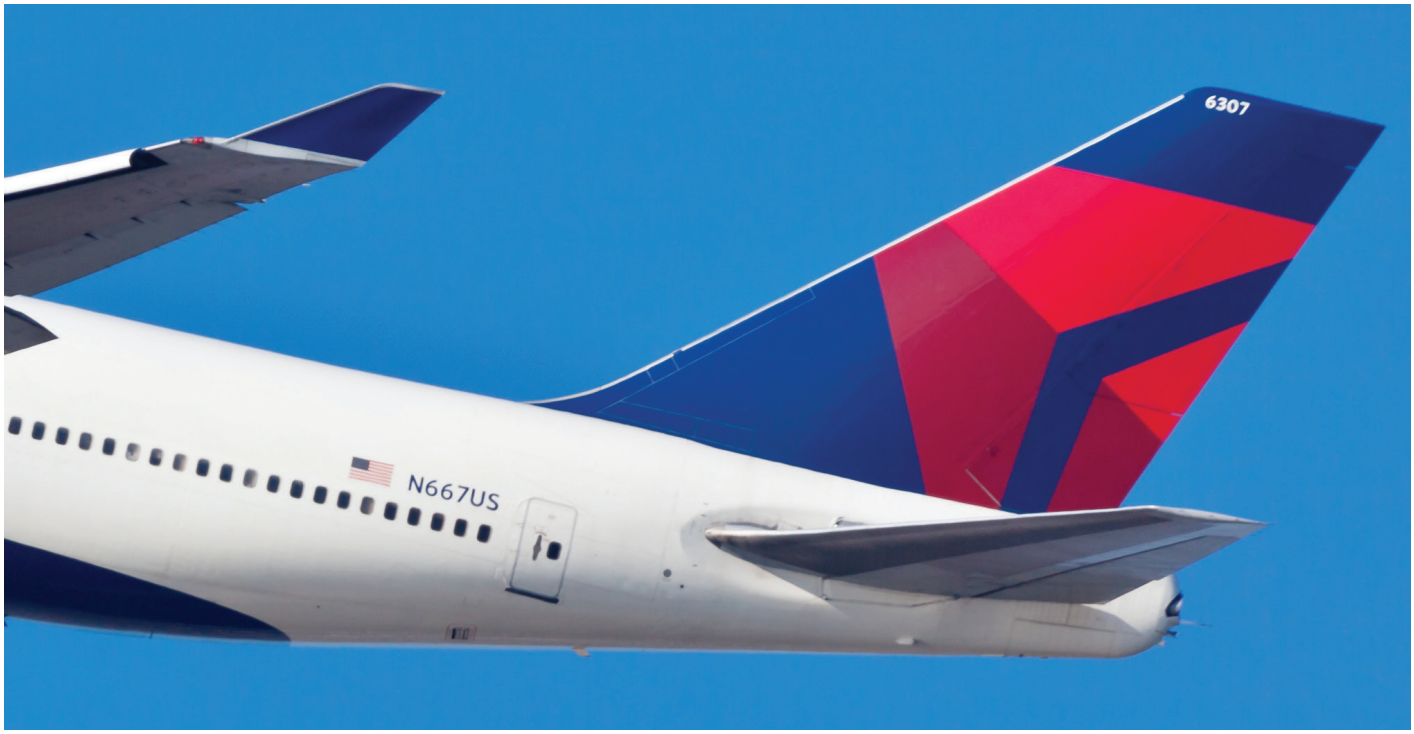
CosaTron®
Advanced Technology for Indoor Air Quality

Delta Airlines Checks In CosaTron at DFW



Application: Odor Control

Key Highlights

Problem: Odor control in the terminal at DFW

Solution: 12 CosaTron Series 1000 units

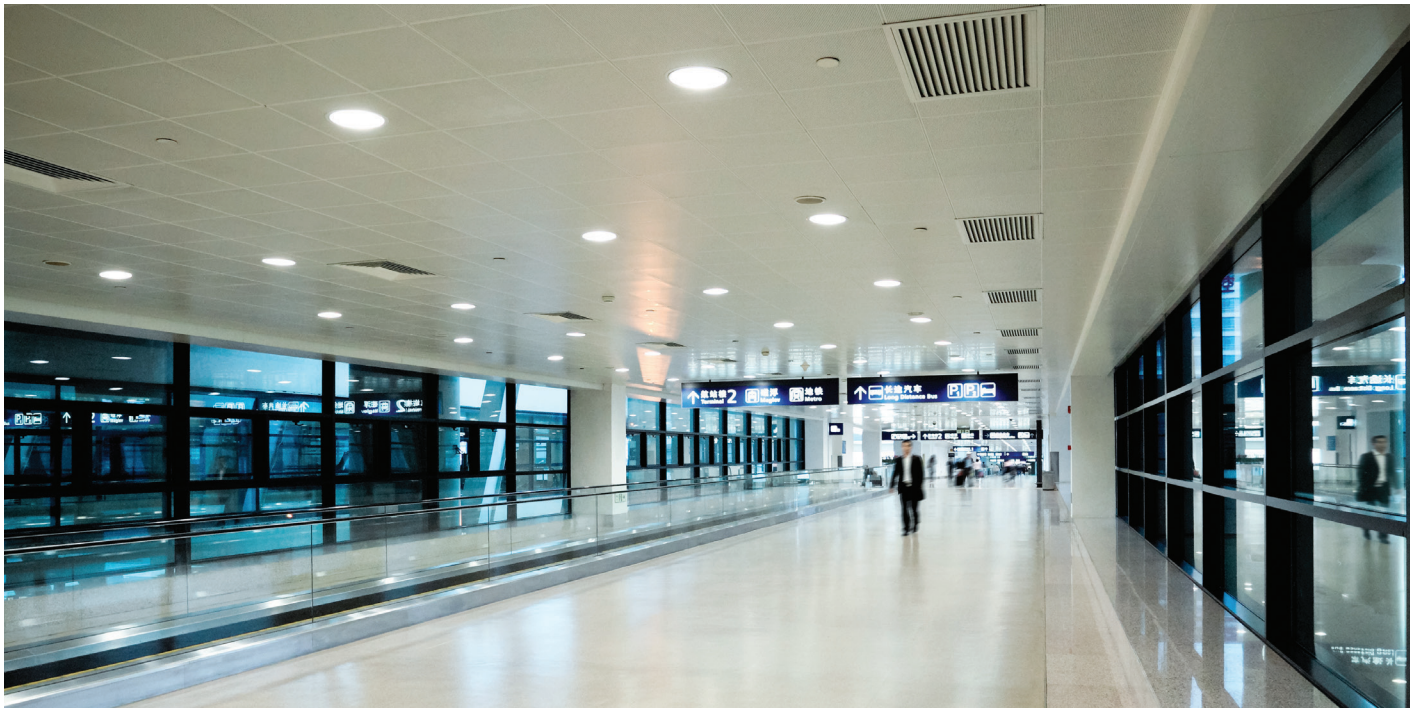
Results: Elimination of odor throughout the terminal

An annual energy savings in excess of $170,000

Controlling the offensive odor generated around airport terminals can be a major problem. This is particularly true of odor associated with support facilities such as restaurants, snack bars, security screening (where people must now remove their shoes), waiting lounges, etc. Delta Air Lines has solved this disturbing problem in several of their terminal and operations facilities, specifically in the giant Dallas/Fort Worth (DFW) complex. Delta's solution to this problem was the installation of CosaTron series 1000 units, a unique solid-state air purification system that operates in conjunction with high-efficiency filters to save energy, control offensive odors, and reduce over-all cleaning and maintenance costs.

DFW, the sprawling airport complex situated on 17,207 acres some 17 miles from downtown Dallas/Fort Worth, is the culmination of a dream dating back to 1927. Originally opened in 1974, today, DFW is the fourth largest airport in the world in terms of operations and eighth largest in terms of passengers.

The massive Delta terminal at DFW at its peak handled over 300 flights per day until Delta closed it as a hub in 2007. As in all of the terminal facilities at DFW, Delta utilizes twelve separate air-handling systems to control their interior environment. Their individual capacities range from 38,000 cfm to 48,000 cfm depending upon the area served. Each air-handling system at DFW utilizes 100HP fan motors, roll pre-filters and 80% NBS efficient in-line sock filters. The main supply air system is distributed to individual spaces through



induction-type damper boxes in the ceilings, thus providing zone control throughout the terminal facility. Chilled water is supplied from a remotely located central chiller plant. Each system averages 7 – 7½ air changes/hour.

In the Delta terminal, each of the 12 air-handling systems is equipped with CosaTron, consisting of two CosaTron Power Generators and a 120" x 120z" electrode assembly located inside the air plenum. Easy access is provided for cleaning and maintenance via the air handler's access door. An auto cut-off switch deactivates the CosaTron when the access door is open. The total power consumption per generator is approximately 5O Watts, operating from 110 Volt, single phase, 6O-cycle current.

The CosaTron system at Delta's DFW facility replaced an activated charcoal system that was installed as original equipment when the terminal complex was first constructed. After only 12 months of operation, DFW was notified by the manufacturer of the carbon system that reactivation was necessary. This prompted Delta's maintenance and engineering personnel to evaluate the CosaTron systems that had been operational in their Atlanta training and operations centers since 1973.

In an effort to evaluate the effectiveness of the CosaTron system at DFW, Delta engineers established a test procedure that could easily be monitored by their maintenance and engineering personnel. Selected ceiling tiles in the passenger and restaurant areas, installed during initial construction, were replaced with new, clean tiles. For a fair evaluation, the coils and fans in each air-handling system were thoroughly cleaned prior to commencing the test. After the 12-month evaluation period was complete, officials of Delta and CosaTron, inspected the DFW terminal, reviewed operating reports and talked with Delta's on-site maintenance personnel. As a result of this careful evaluation, Delta accepted the CosaTron system without further qualification. A Delta executive wrote a letter detailing, in part, '…odor control has been outstanding; our mechanical equipment has remained clean and deposition of fine particles on the building surfaces is greatly reduced." Today, more than twenty years after the initial installation, the selected test tiles still stand out from those that were part of the original installation.

Other significant benefits were realized too, according to Delta's maintenance personnel at the DFW facility. It was reported that the use of chilled water was reduced from 1,150 gallons per minute to 350. A savings of $10,000 during the first full month of operation was reported, plus an additional $3,000 reduction in energy use. Delta reports a savings in excess of $170,000 in the first full 12 months of CosaTron operation, not including the savings generated by the reduction in staining, soiling and other damaging effects of fine particle deposition.

CosaTron is helping many airport facilities achieve a new standard in clean air technology. Controlling offensive odors and dust are only some of the benefits. Others include significant energy savings by reducing the need to heat or cool outside make-up air by as much as 9S%, a reduction in germs and viruses, reducing day-to-day cleaning and maintenance costs ... and more.