CIRCUL-AIRE

CASE STUDY

Canadair Administration Building, Montreal

Air Purification - DAS System

New Headquarters for Bombardier Aerospace Group-North America and Canadair

Located at Montreal International Airport (Dorval), the building consolidates Canadair aerospace activities previously scattered in six older facilities, reuniting all corporate, program and administrative personnel.

This state-of-the-art office building houses the management team of the Bombardier Aerospace Group-North America, which comprises Canadair, de Havilland (Downsview, Ontario) and Learjet Inc. (Wichita, Kansas). Together they offer the most complete range of business jets in the world and the broadest choice available of jet and turboprop aircraft from 37 to 56 seats, for regional airlines.

As building proprietor, Bombardier Real Estate Limited - a Bombardier Inc. subsidiary - assumed responsibility for overall design and construction with significant input from Canadair. Bouthillette, Parizeau & Associates Inc. (one of the leading engineering firms in Montreal) were the mechanical and electrical consultants for this project.

Officially opened mid-August 1993, over 1800 people are now at work in the new building, which is capable of accommodating 1900 high-tech workstations.

The Work Environment

More than 425,000 square feet (39,673 square meters) in size and 9 floors, this imposing structure, the tallest office building at Dorval airport, is located between two runways. A modern production facility — where Challenger business jets, Regional Jet airliners and CL-415 amphibious aircraft are assembled for customers worldwide — is connected to the new building via an underground tunnel to allow indoor access year round.

Indoor Air Quality for a Healthy and Comfortable Working Environment

When 1800 employees are working in one large building, you can expect to have a wide range of contaminants produced from various areas such as the printing department, the art studio, the kitchen, the cafeteria and other departments.

Even if this building is classified as non-smoking, building furnishings and materials, equipment in operation, the occupants and their activities all generate indoor air contaminants which must be eliminated for the health and comfort of the occupants.

The outdoor air supplied to the building's HVAC system also needed to be filtered because of the close proximity of the airport runways and jet airliner production testing areas.

Canadair management considered that the new administrative building must provide a comfortable and efficient work environment including superior quality air.

Circul-Aire's gas phase filtration was the technology selected to ensure the required superior indoor air quality.

Gas Phase Filtration: The Solution to IAQ

Gas Phase Filtration is the technology used to purify the air from all indoor organics, inorganics and chemical contaminants present in a building. The principle of the Circul-Aire tube-style DAS (Deep Bed Air System) is simple: the contaminated air passes through prefilters which retain dust and particles, and then the required Multi-Mix Media stages which chemically destroy any remaining gaseous contaminants.

A total of 324,000 CFM of air is passed through the two parallel sections of the DAS system supplying 180,000 CFM and 144,000 CFM of clean air to the building. A total of 80,000 lb. of Multi-Mix media is included in the system in order to support the air quality level.

The Circul-Aire DAS system is installed in two sections at opposite ends of the mechanical room on the top of the building with other complex systems including PM Wright electric duct heaters with SCR controls.

Custom-Design System for Space Limitation & Serviceability

In a high-tech building such as Canadair, located at an airport, the mechanical and electrical room is faced with one critical requirement: space limitation. Once all the heating, ventilation and air conditioning systems were designed, the engineers, mechanical contractors and system suppliers had to integrate all these components into one synchronized package without compromising the effectiveness of any component.

The Circul-Aire DAS Air Purification System was engineered and custom-built to meet these space limitations and also the maintenance requirements. Like any other air purification system, the DAS requires replacement of the filter components including the Multi-Mix media. However, because of its unique custom-design, maintenance has been reduced to its minimum.

The DAS system for this project comprises of two separate sections of 5 and 4 modules respectively. On the top of each section is a rail system located in the fresh air supply plenum. A traversing cart moves on these rails during the media filling process.

The Multi-Mix media supplied in 300 lb. supersacs is gravity loaded into the cart on a platform located outside each section. The media is then simply pushed to the modules on the rail system. The blast gate of the cart is then opened to fill each module.

The media discharge during replacement is achieved through 8" diameter pipes connecting the individual modules of each section and travelling to the ground floor of the building. The consumed media is pumped through these pipes by a waste disposal truck and taken to a landfill.

Partial view of DAS Tube-Style Scrubber

Tech-Chek Service for Maintenance Monitoring

The maintenance of the DAS Air Purification System has also been simplified with the Tech-Chek Service supplied by Circul-Aire. With this exclusive service, media samples are tested in order to verify consumption rates. This lifetime service is monitored by a computerized program from Circul-Aire and indicates the appropriate schedule for media replacement. This customized service, supplied at no charge, not only provides a precise maintenance schedule but also ensures the performance of the DAS Air Purification System.

FOR MORE INFORMATION ON A SPECIFIC APPLICATION, PLEASE CONTACT YOUR LOCAL REPRESENTATIVE OR CIRCUL-AIRE.

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