PlasmaAir
A WellAir Brand

Plasma Air Delivers Clean Air to the London International Airport VXU

London, Ontario, CANADA
December 15, 2021

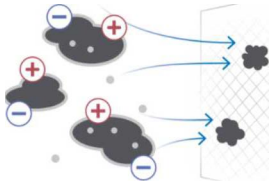
Indoor Air Quality (IAQ) has become a very important topic in today's world. When the London International Airport terminal was last renovated in 2003, Indoor Air Quality was much less of a concern than it is now.

Many of the pollutants generated at transportation facilities are particulate matter (PM) that is microscopic-much smaller than the thickness of an individual strand of human hair. The particulate is either swept indoors through ventilation systems or produced within the indoor space. The tiny particulate is inhaled or even sometimes swallowed. The most dangerous sources of indoor air pollution and odor are from the exhaust from aircraft and diesel engines, direct fuel emissions from refueling aircraft, along with larger dust particles from car exhaust, brakes, tires, asphalt, soil, etc. Given the toxic cocktail that is emitted into the air in and around airports, it is clear that air purification plays a critical role in maintaining safe and clean indoor air.

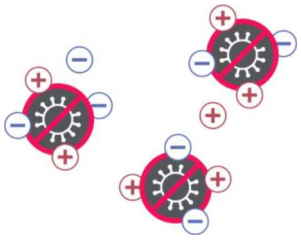
YXU On-Site Contractors worked with the team at Equipco Ltd to look to improve the indoor air quality in the building. Equipco Ltd is the Manufacturer's Representative for WellAir Brands in Canada. Equipco Ltd. proposed a technology called bipolar ionization that is employed in WellAir's Plasma Air air purification products.

How Bipolar Ionization Works to Clean the Air of Pollutants

Much like sunlight does in the atmosphere, Plasma Air technology produces a natural bio-climate rich in positive and negative oxygen ions. The negative ions contain an extra electron while the positive ions are missing an electron resulting in an unstable condition. In an effort to re-stabilize, these bipolar ions seek out atoms and molecules in the air to trade electrons with, effectively neutralizing particulate matter, bacteria and virus cells, odorous gases and aerosols, and VOCs.

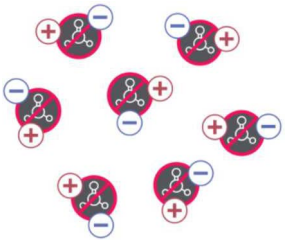


Airborne particles are charged by the ions causing them to cluster and be caught in filters



Bacteria and viruses bond with oxygen ions and are inactivated

Many odorous gases and aerosols oxidize with oxygen ions and are neutralized

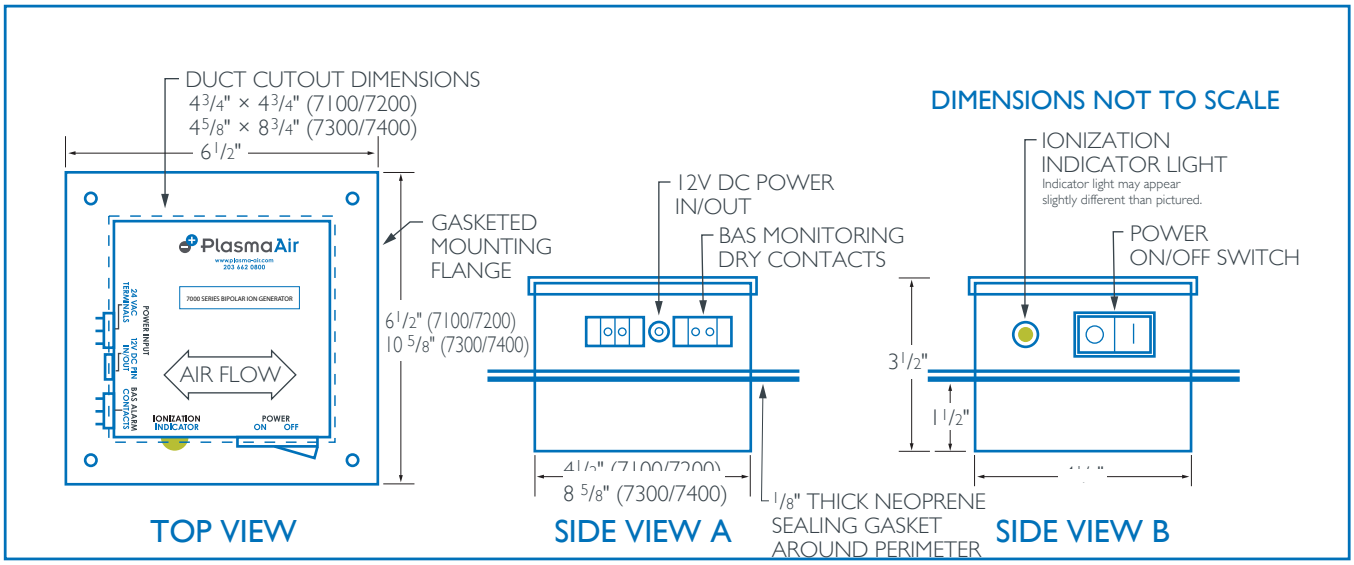


Oxygen ions cause a reaction with VOCs breaking down their molecular structure

The Plasma Air 7000 Series needlepoint ionizers are rated up to 6000 CFM and produce positive and negative ions neutralizing harmful pathogens, pollutants and odors.

They are typically installed in supply ducts utilizing the pre-drilled flange and factory applied gaskets and can also be installed inside an HVAC unit utilizing a contractor supplied mounting bracket.

The 7000 series is UL2998 validated for zero ozone emissions.

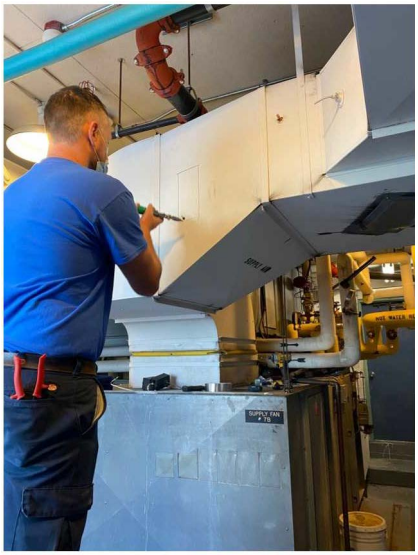


Indoor Air Quality testing was performed on **November 2, 2021** in the 2nd Floor Maintenance office, corridor, and 5201 office on this floor. The testing was performed before installation of the Plasma Air 7300 unit and then again after installation. The **Plasma Air 7300** model allows for installation on units up to 15 tons which fit this application given the size of the Rooftop unit dedicated to this space.

Testing was performed on site with **Equipco Ltd. and London International Airport Maintenance Staff**. The testing device used was an **Alphalab Inc. Model AIC2-Air Ion Counter** to determine the Ions per cubic centimeter in the indoor space.

When monitoring ion count in an indoor air application, in simple terms, the more ions you can create in your space, the better the indoor air quality will be.

The **Plasma Air 7300** blasts millions of ions into the air stream and disperses them through-out the occupied space leveraging the buildings ductwork system. Once ions are in the occupied space they will cluster together with airborne particulates, allergens, mold spores, odors, and dust making them heavier so that they drop out of the breathable zone and larger in size so that they can easily be captured by filtration. Additionally, these ions will attach themselves to airborne pathogens like viruses and bacteria, rendering them inactive and no longer transmissible to a host. For this impact to be highly efficacious we target generating an ion count in the occupied space above 2500 ions/cm3.



Target of 2500 negative ions/cm3 for Best Indoor Air Quality

Before Install-Average Ions/cm3: 150

Maintenance Office
Common Area: 180 ions/cm3 At Diffuser: 80 ions/cm3

Hallway
Common Area: 100 ions/cm3 At Diffuser: 170 ions/cm3

S201 Office
Common Area: 170 ions/cm3 At At Diffuser: 50 ions/cm3

1 hour after installation-Average Ions/cm3 : 2,000

Maintenance Office
Common Area: 1400 ions/cm3
At Diffuser: 6100 ions/cm3

Hallway
Common Area: 2200 ions/cm3
At Diffuser: 2800 ions/cm3

S201 Office
Common Area: 2400 ions/cm3
At Diffuser: 2700 ions/cm3

7 days after installation-Average Ions/CC (cubic centimeter): 2,606

Maintenance Office
Common Area: 2800 ions/cm3
At Diffuser: 7400 ions/cm3

Hallway
Common Area: 2400 ions/cm3
At Diffuser: 3900 ions/cm3

S201 Office
Common Area: 2620 ions/cm3
At Diffuser: 3220 ions/cm3

FINAL RESULTS

Target Ions/Ccm3 in the space: 2500 Ions/cm3 average

Before Install Average: 150 ions/cm3

1 Hour After Install Average: 2,000 ions/cm3

7 Days After Install Average: 2,606 ions/cm3

Conclusion:

After testing the Indoor Air Ion Count prior to installation of Plasma Air 7300 and then again after the installation, we were able to dramatically improve the Air Quality in the Office spaces and Hallway corridor. We brought the ion count from 150 ions/cm3, to 2,606 ions/cm3 after the installation.

Our target was 2500 ions/cm3 of negatively charged ions in the Indoor Air space, in which we surpassed during our testing after 7 days of installation. The Plasma Air 7300 unit remain installed and continues to filter and purify the air making for a healthier environment.

Field evaluation conducted and authored by:

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