SCIENCE & MECHANICS OF BI-POLAR IONIZATION

Making Mass Timber Buildings Even Better
The Natural Air Purification Solution

Global Integrated Flooring Solutions® can provide AtmosAir™ Bi-Polar Ionization (BPI) air purification technology as part of our package. Unlike most air purification systems, AtmosAir seeks out and neutralizes contaminants at their source. This is vastly superior to most air purification methods because it works “in the space” where we work and play. AtmosAir doesn’t wait for the pollutants to find their way into the filter within the air handler. Instead, air ions go to the contaminants in the space where you breathe, just as in nature.

BPI is a continuous disinfection technology!!
The Fully Integrated Solution

“IFS Building”

- Floor & Finishes
- Cleaner, Healthy Air
- Air Quality & Comfort
- Flexible Floor Plan
- Power & Data Distribution
Can a UFAD system with Atmos technology mitigate disease transmission?
Modes of Transmission

The difference between droplet and airborne transmission

**Droplet transmission**
Coughs and sneezes can spread droplets of saliva and mucus

**Airborne transmission**
Tiny particles, possibly produced by talking, are suspended in the air for longer and travel further

(Source: World Health Organization (WHO), 2020)
"These two studies suggest that "social distancing" may not be sufficient to prevent transmission due to transmission from smaller virus-carrying particles."


(Coronavirus Disease Outbreak in Call Center, South Korea, 2020); (Lu, 2020)
Atmos Air™ Bi-Polar Ionization Air Purification

Can Ions Be Part of the Solution? YES!

BPI is an Active Technology

- The air stream is treated, and ions delivered to the occupied space via the UFAD system
- The space is continuously cleaned by the ions
- Organics are deactivated and are unable to do further harm
- Particulate matter falls to the ground
Atmos Air™ Bi-Polar Ionization Air Purification

Science & Mechanics

Bi-Polar Ionization generates → OH = Hydroxyl Radicals

- OH is one of the most powerful oxidizing agents
- Highly reactive with:
  - Dust particles & mold spores
  - Odors
  - VOC’s
  - Viruses & bacteria including
    - Flu, SARS-1 & -2, MERS, MRSA, Staph & C-Diff
Bi-Polar Ionization generates → OH = Hydroxyl Radicals

- Viruses are enveloped in RNA viral particles
- Handwashing is effective at breaking down the Lipid Membrane

(Source: How Handwashing with Soap Kills Coronavirus - NewYork-Presbyterian (nyp.org))
When Positive and Negative ions are introduced into the air, they attach to the Proteins Spikes that protrude from the virus. The ions pull Hydrogen molecules away from the spikes and deactivate the virus. The virus can’t infect even if it enters the body.

\[ \text{OH} + (\text{stolen}) \text{H} = \text{H}_2\text{O} = \text{Water} \]
Atmos Air™ Bi-Polar Ionization Air Purification

Effective Against More Than Viruses

**When BPI Goes To Work**

- Effective against:
  - ✓ Fungi & allergens
  - ✓ Dust particles & mold spores
  - ✓ Odors
  - ✓ VOC’s

- And...BPI naturally reduces static electricity in the air!

**Reduction in VOC’s** Source: Univ. of Syracuse Testing 2019

**Reduction in PM 0.3** Source: EDL CADR Testing

**Reduction in Staph & MRSA** Source: ATL Labs, 2016

**Reduction in MS2 Bacteriophage** Source: ATL Labs, 2016

*IN A STUDY LAST WEEK, MICROCHEM LABORATORY, FOUND THAT:*

The presence of coronavirus was reduced by 99.92% within 30 minutes of exposure to AtmosAir’s bi-polar ionization technology.
Science Behind AtmosAir™
Click Here to Take a Deep Dive!!

https://www.youtube.com/watch?v=nB0QH8kaTv8