COVID-19 RELIEF BILL

FUNDING ALLOCATION FOR YOUR SCHOOLS

PURGE VIRUS

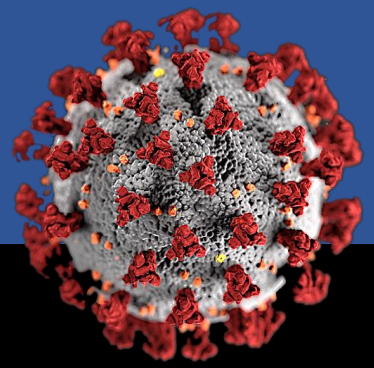
STAY SAFE and HEALTHY

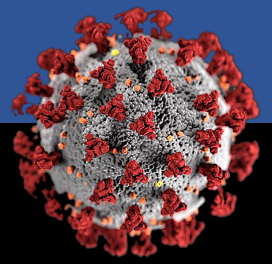
5 Reasons

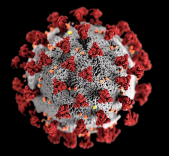
Schools qualify for Relief Bill funds

improve indoor air quality (IAQ) to combat COVID-19 & future pathogens

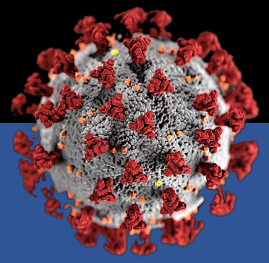
PROTECT YOUR STUDENTS:
GET CLEAN AIR!

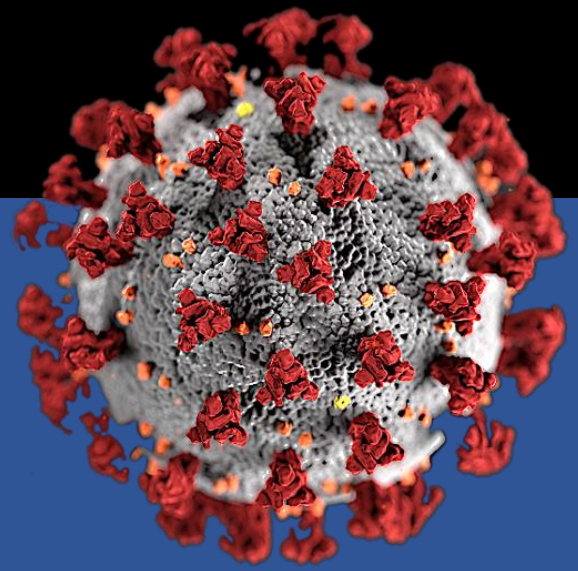




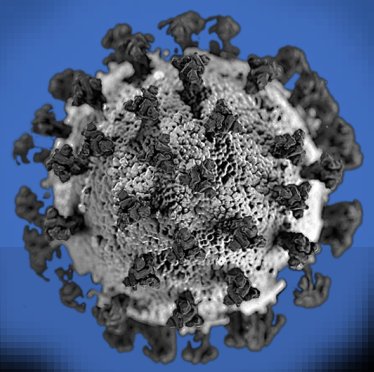


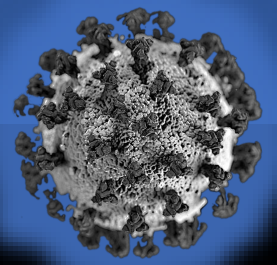
You have multiple choices for resource allocation. Now, you can **increase safety for students and faculty** by improving indoor air quality for short-term and long-term benefits.



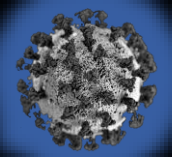


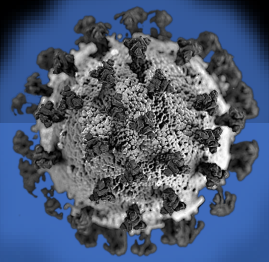
Systemic Improvement

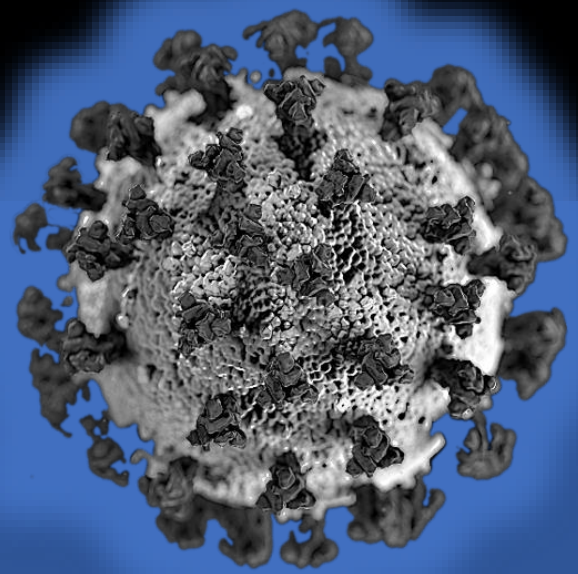




Masks, hand washing, social distancing, and Vaccines are a great short-term "fix" but IAQ is a **systemic long-term solution**.







5 Reasons for IAQ

1. COVID-19 is an Airborne Respiratory Disease
2. Ventilation is a Great Starting Point
3. Disinfection Technologies are Proven and Affordable
4. IAQ Saves Lives and Energy
5. The Health Benefits Transcend COVID-19

1 COVID-19 is an Airborne Respiratory Disease

The CDC Guidelines initially focused on Masks, Social Distancing, Hand Washing, Surface Cleaning, and Contact Tracing. They have more recently realized (3/23/21) the **advantages of ventilation** and clean indoor air.

Our Purge Virus team created this graphic to emphasize that air is at the center of buildings and COVID-19 mitigation protocols.

2 Ventilation is a Great Starting Point

CDC March 23, 2021 Updates

"CDC recommends a layered approach to reduce exposures to SARS-CoV-2, the virus that causes COVID-19. This approach includes using multiple mitigation strategies, including **improvements to building ventilation**, to reduce the spread of disease and lower the risk of exposure. " - https://www.cdc.gov/coronavirus/2019-ncov/community/ventilation.html

2 Ventilation is a Great Starting Point

Purge Virus:

Purge Virus starts with ventilation per CDC guidelines. Ventilation is complicated when it comes to aligning the right technology and correctly integrating **advanced filtration, air quality meters, energy recovery ventilators (ERVs) and economizers with Building Management Systems (BMS)**.

A surprisingly small percentage of HVAC service providers have the depth of engineering and expertise to improve IAQ effectively and affordably. To ensure optimal results, Purge Virus works with leading HVAC companies, some may already service your school.

3 Disinfection Technologies are Proven and Affordable

CDC March 23, 2021 Updates

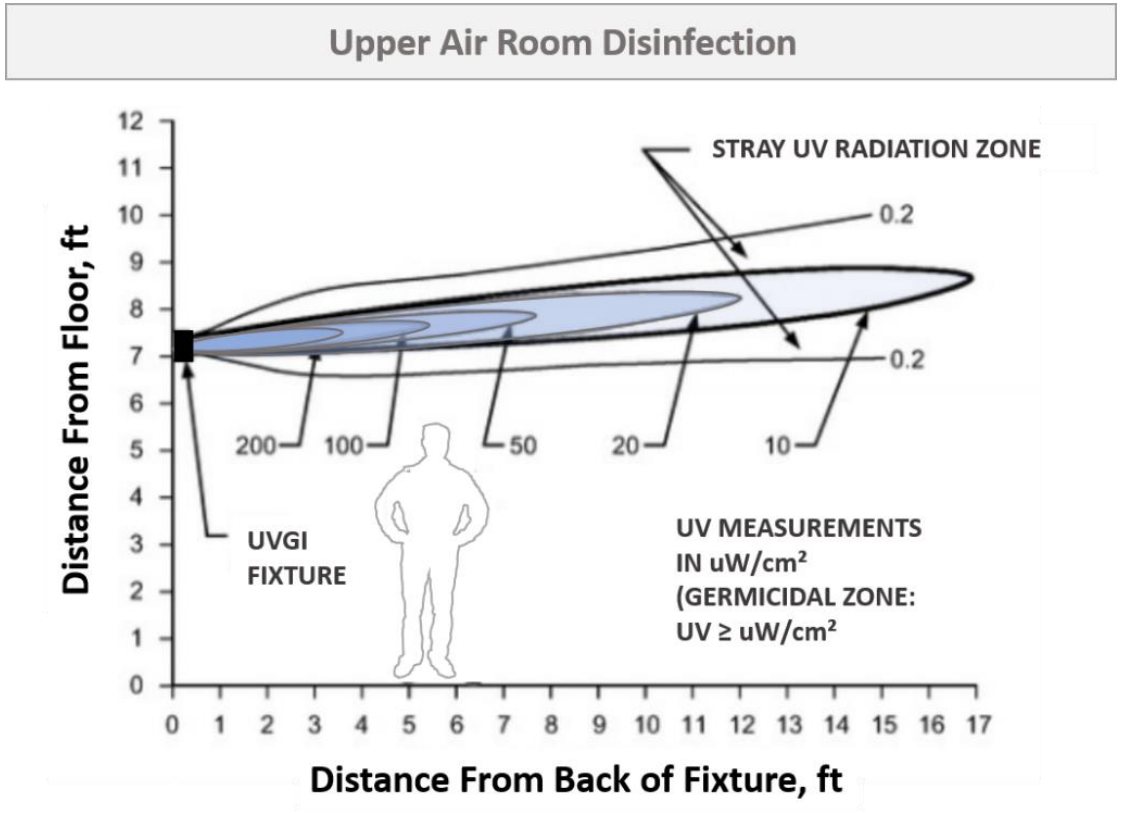
"Consider using ultraviolet germicidal irradiation (UVGI) as a supplemental treatment to inactivate SARS-CoV-2, especially if options for increasing room ventilation and filtration are limited. **Upper room UVGI** systems can be used to provide air cleaning within occupied spaces, and **in-duct UVGI** systems can help enhance air cleaning inside central ventilation systems."

https://www.cdc.gov/coronavirus/2019-ncov/community/ventilation.html

3 Disinfection Technologies are Proven and Affordable

Upper room UVGI

Purge Virus: We offer multiple upper room UVGI devices.



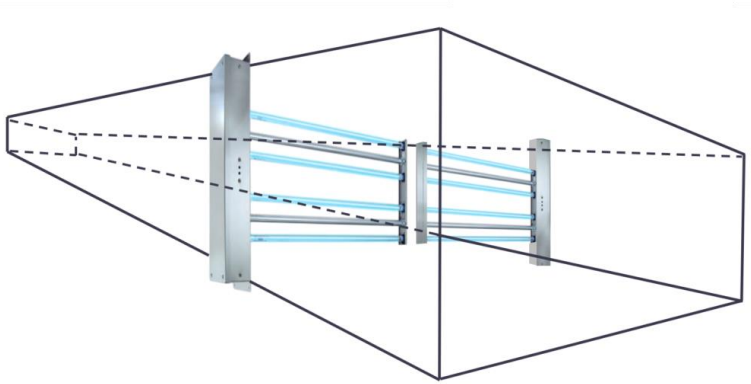
PV-AUV-TB-36-W: Wall Mounted UVC Disinfection Device

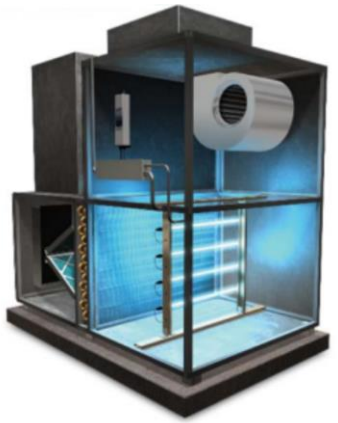
Coverage area: 300 sq ft
Wavelength: 253.7 nm
Width: 37.5"
Watts: 36w

3 Disinfection Technologies are Proven and Affordable

In-duct UVGI

Purge Virus: We offer multiple in-duct UVGI devices.





BUY AMERICAN ACT
BAA
COMPLIANT

MADE in USA

50,000 Devices
Produced Over
50 Years

3 Disinfection Technologies are Proven and Affordable

CDC March 23, 2021 Updates

"When considering the acquisition and use of products with technology that may generate ozone, verify that the equipment meets UL 867 standard certification (Standard for Electrostatic Air Cleaners) for production of acceptable levels of ozone, or preferably **UL 2998** standard certification (Environmental Claim Validation Procedure (ECVP) for Zero Ozone Emissions from Air Cleaners) which is intended to validate that no ozone is produced."

From: CDC Frequently Asked Question (FAQ):
Many new air disinfection devices are marketed for their ability to inactivate SARS-CoV-2. How can I tell if they work as advertised?

3 Ventilation is a Great Starting Point

Purge Virus:

In addition to ultraviolet solutions, on a case-by-case basis, we use advanced **bipolar ionization** that does **not generate harmful ozone (UL 867 and UL 2998).**

Bipolar ionization is often an excellent alternative to ultraviolet disinfection in heating, ventilation, and air conditioning (HVAC) systems.

Bipolar Ionization - *CLEAN THE AIR NATURALLY*

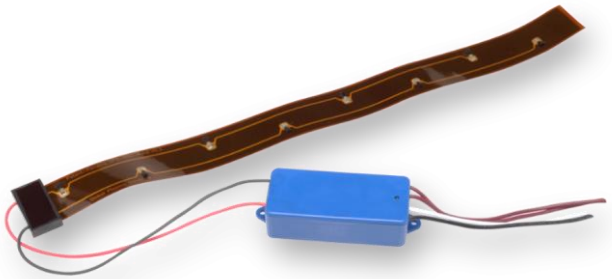
Ions are present naturally in the air and are found in the highest concentrations where the ocean meets the shore and high elevation in the mountains.

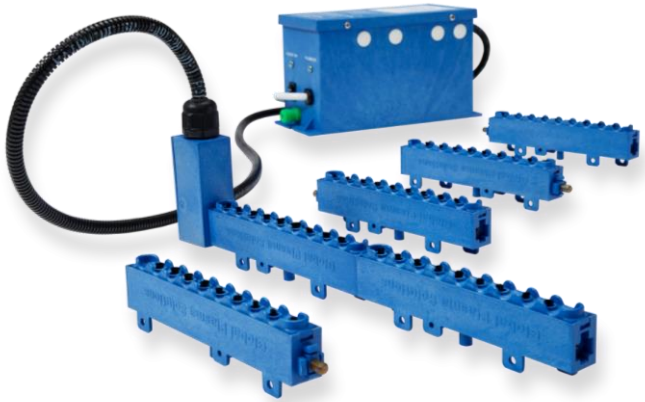
Ionization creates the ions found in these desirable locations and distributes them into the building, enhancing the indoor air quality. This proven scientific process has been around since the late 1800's.

Units of Measure = ions/cc (cubic centimeter)
Waterfalls/High Elevation = 5,000 i/cc
City = 200 i/cc
Inside Buildings = <100 i/cc

BPI – Sample Devices

carbon fiber
ion emitters





The special carbon fiber ion emitters are soldered into the circuit traces for the ribbon devices (ideal for ductless HVAC.) and the emitters are mounted on the other devices for ducted HVAC.

Designed for
3,200 CFM or 8 tons.
(e.g. PTACs) This ribbon system comes in 18" and 36" lengths
Ion Production:
> 35 Million +/- Ions/cc /ft.

Designed for
4,800 CFM or 12 tons
ideal for mid sizer HVAC systems.
Ion Production:
> 400 Million +/– Ions/cc

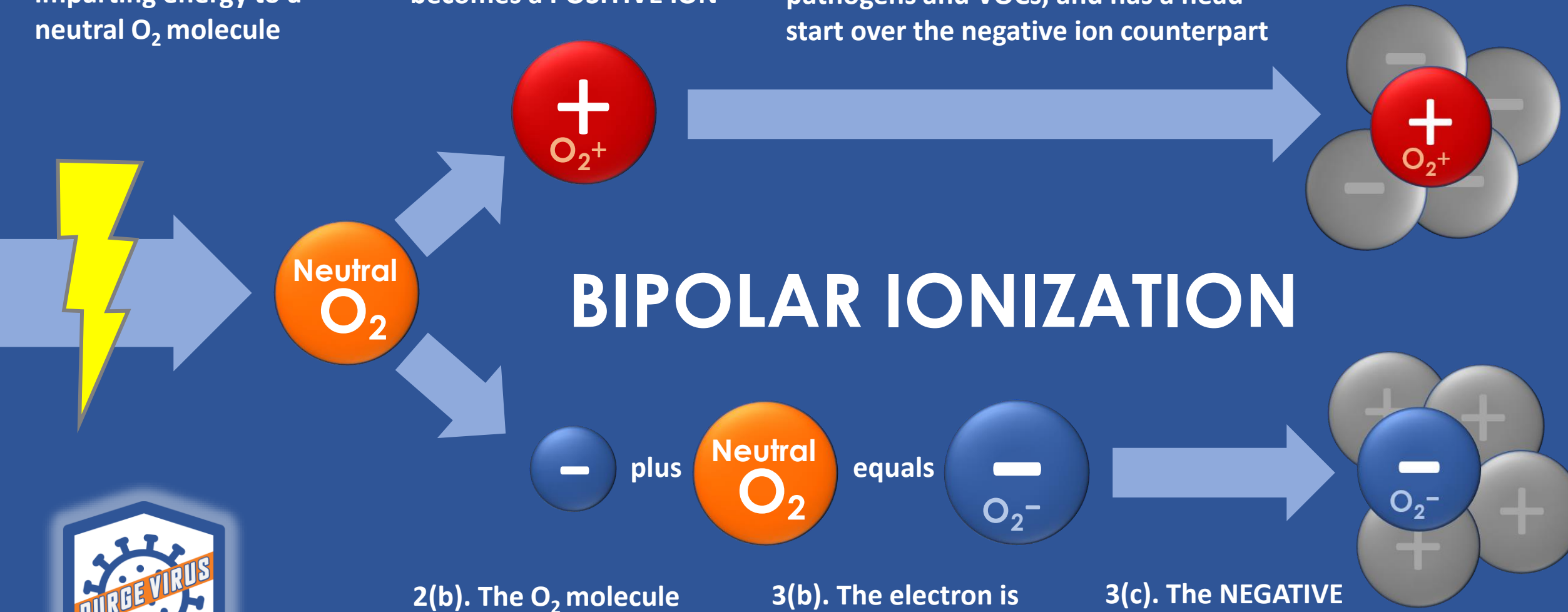
Designed for large HVAC e.g.
8,000 CFM / 20 tons or larger
(any length up to 240 inches in 6-inch increments: 50–250 CFM per inch of bar.)
Ion Production:
> 840 Million +/- Ions/cc per 6 in.

BIPOLAR IONIZATION

1. Ionization starts by imparting energy to a neutral O_2 molecule

2(a). The O_2 molecule becomes a POSITIVE ION

3(a). The POSITIVE ION "seeks" pathogens and VOCs, and has a head start over the negative ion counterpart

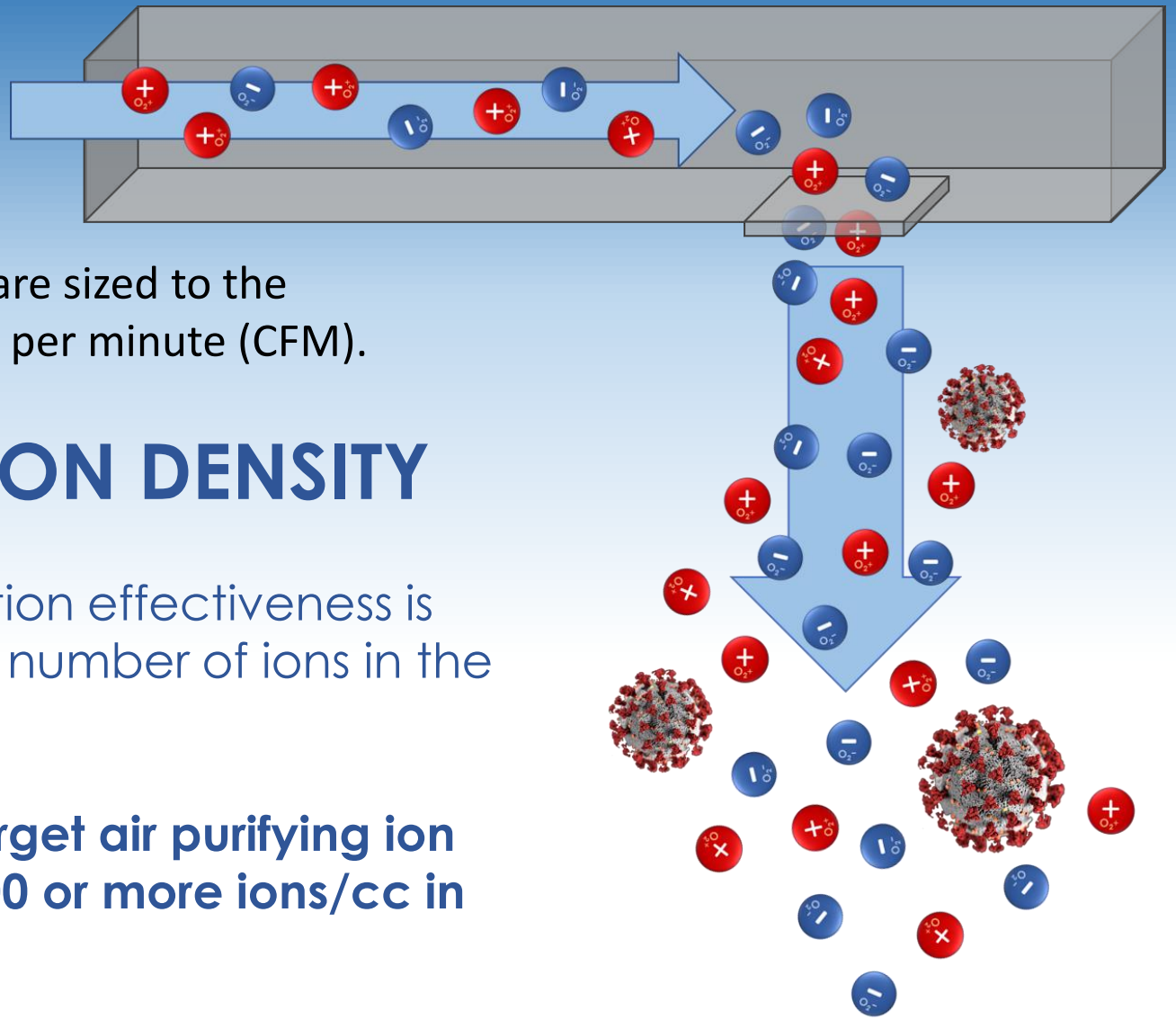


2(b). The O_2 molecule emits an electron

3(b). The electron is captured by another O_2 molecule creating a NEGATIVE ION

3(c). The NEGATIVE ION "seeks" pathogens and VOCs

HVAC BLOWER
(enhancement)



Ionizer devices are sized to the HVAC cubic feet per minute (CFM).

TARGET ION DENSITY

Bipolar Ionization effectiveness is based on the number of ions in the space.

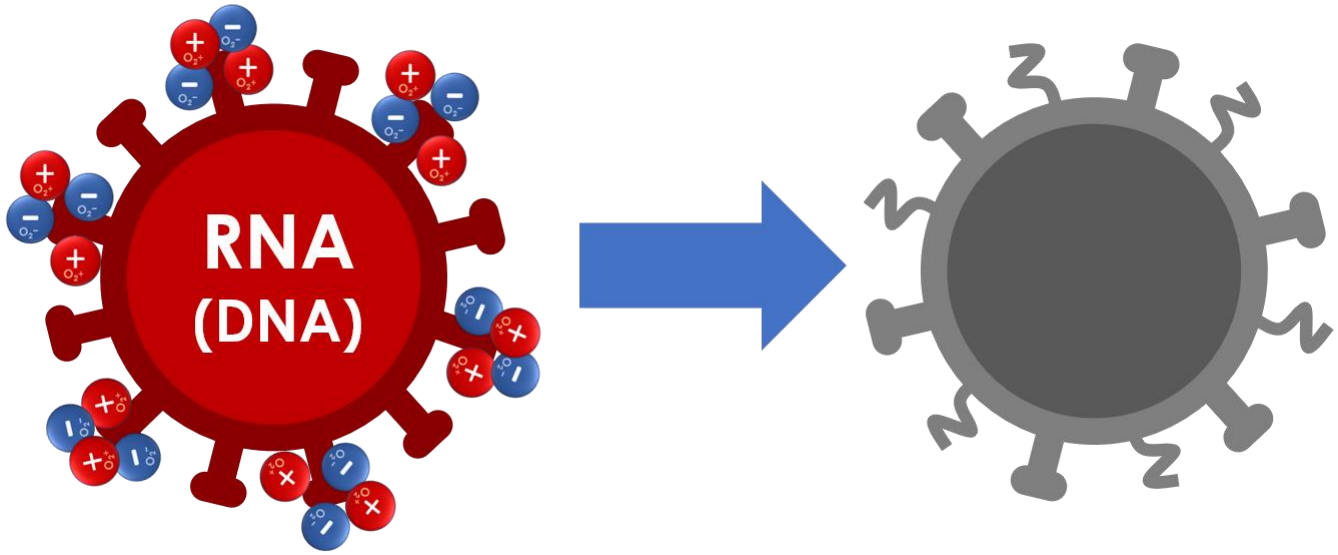
For viruses: target air purifying ion density is 1,000 or more ions/cc in the space.

BPI / VIRUS SCIENCE: BPI inactivates airborne viruses. The bipolar ions surround the hemagglutinin (surface proteins that form on organisms and trigger infections) and change into highly reactive hydroxyl radicals.

The ions **destroy the virus surface structure**, in the case of coronavirus the spikes, on a molecular level. As a result, the virus cannot cause infection, even if it enters the body.

ions envelope spikes (viruses differ in structure)

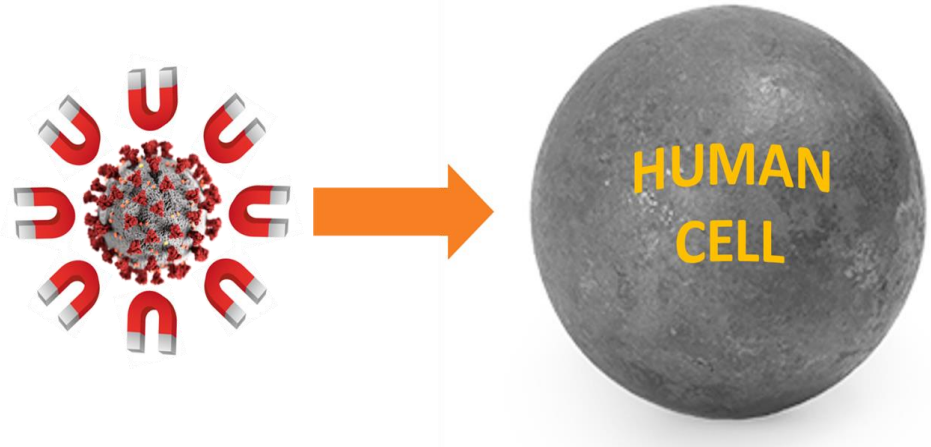
ions destroy the molecules of the surface proteins of the virus



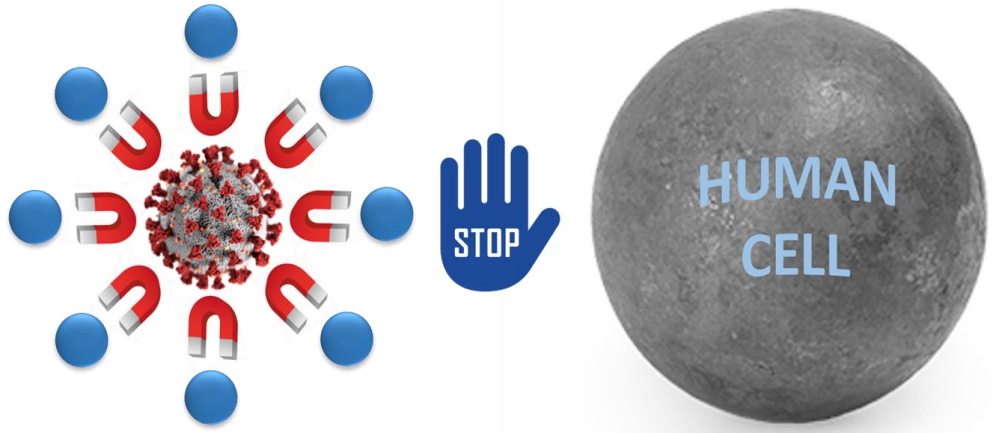
TESTING:

TESTING COUNTS: **99.4%** reduction rate on a SARS-CoV-2 (COVID-19) surface strain within 30 minutes, the first instance in which an air purification company has effectively neutralized SARS-CoV-2 in this manner.

The laboratory study was designed to mimic ionization conditions like that of a commercial aircraft's fuselage. Based on viral titrations, it was determined that at 10 minutes, 84.2% of the virus was inactivated. At 15 minutes, 92.6% of the virus was inactivated, and at 30 minutes, 99.4% of the virus was inactivated.



Without Bipolar Ionization = CONTAMINATION
(attraction to cells)



With Bipolar Ionization = PROTECTION
(rejection from cells)

Measurement and Verification

Our field teams have ion meters to measure and verify the performance of the installed bipolar ionization devices.

ION METER:

The Air Ion Counter Model AIC2 is a handheld meter designed to measure ion density – the number of ions per cubic centimeter (ions/cc) in air. It measures this number separately for positive and negative ions (+ and – ions are usually present simultaneously).

This instrument is a true ion density meter, based on a Gerdien Tube Condenser design, and it contains a fan which draws air through the meter at a calibrated rate. The unit comes as a dual-range model; AIC2-R1 has selectable maximum ranges of both 2 million and 200 million ions/cc. For comparison, a typical outdoor environment has 100 to 1000 ions/cc.

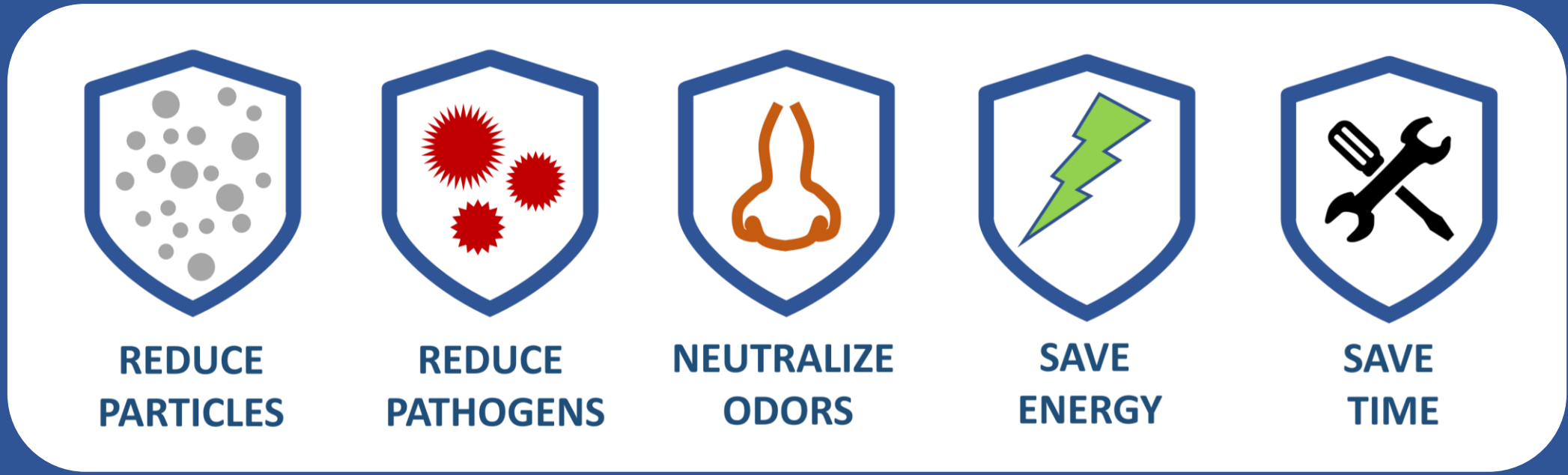
4 IAQ Saves Lives and Energy

When properly sized and installed in HVAC systems, either ultraviolet light or bipolar ionization have the proven third-party testing that demonstrates the ability to inactivate SARS CoV-2 (COVID-19).

The added advantage of cleaning the fan coils and reducing the need for as much replacement ventilation air generates the **energy savings** that often pays for the cost of disinfection within the first year or two of operations.

5 The Health Benefits Transcend COVID-19

Improved indoor air quality (IAQ) should be the “new normal” for K-12 Schools



THANK YOU

PURGE VIRUS

STAY SAFE and HEALTHY

We look forward to learning about your HVAC systems to help upgrade ventilation and align the right disinfection technology.