Air Guardian UV-C Disinfection Technology

The primary source to your overall disinfection strategy

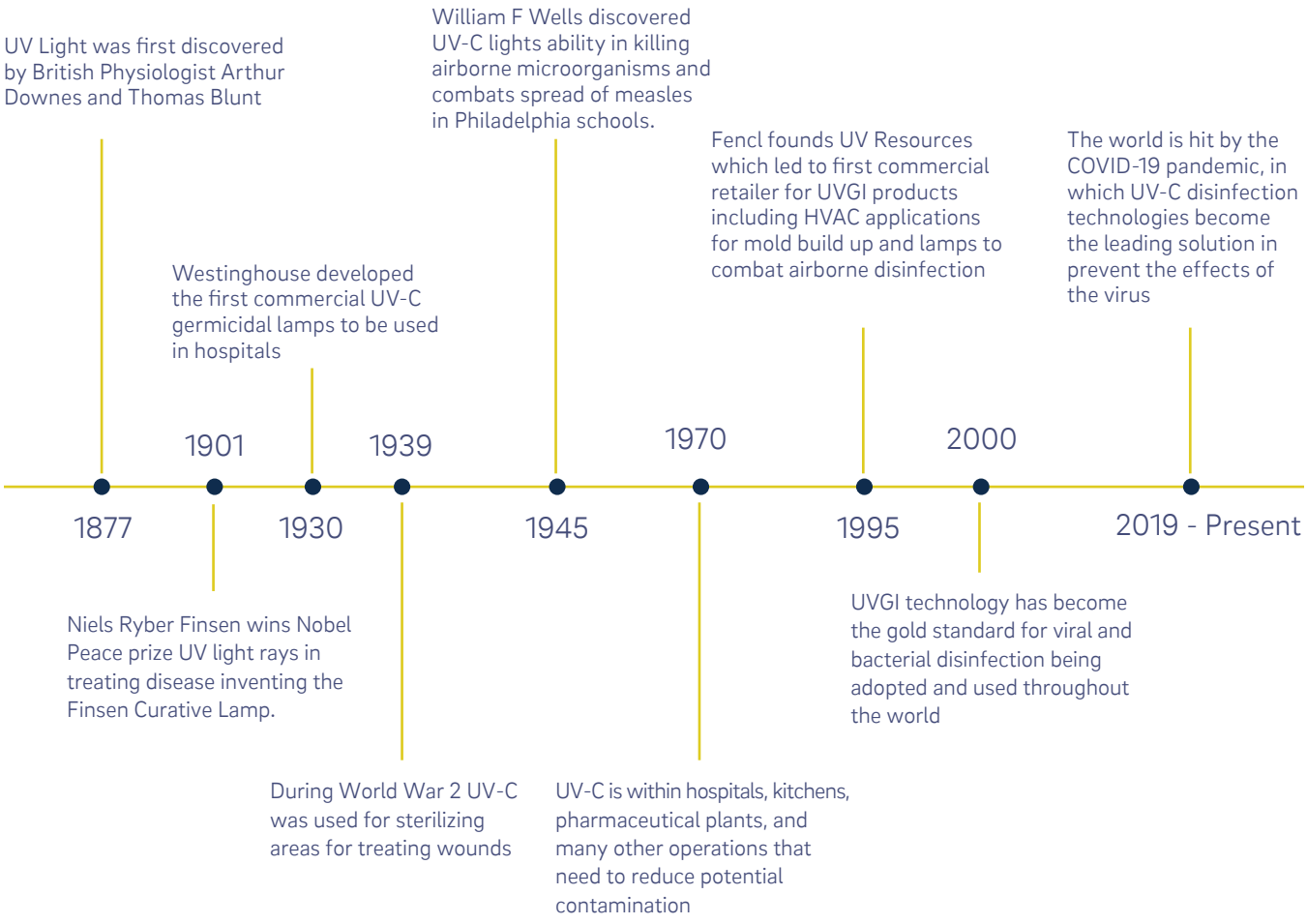
threeUV

UV-C infection prevention

UV-C TECHNOLOGY BACKGROUND

UV-C has been a staple within the scientific community for over 100+ years and is one of the few proven methods to kill viruses, mold, bacteria, and fungus. This technology has been widely used and embraced by the military and defense agencies, along with healthcare professionals worldwide.

Throughout the current pandemic of COVID-19, applications of this technology are being leveraged to create products for every day commercial use. With the education market being heavily affected, Districts are now actively seeking a long-term strategy to ensure student and teacher safety.



Product Options

Registered with the EPA & certified with the FDA as a medical device

Laboratory tested and modeled to kill SARS-CoV-2 and its variants in under 3 seconds

Connects to existing electrical infrastructure for installation

Projects roughly 32/45 decibels of sound output while running

Long term solution with little to no maintenance or servicing (Set it and forget it dynamic)

Product weight: 12/18lbs

Carbon glass filter change outs required 1-2 times per year

Provides continuous disinfection while occupants are in the room

ASHRAE compliant

Serves as the highest level of disinfection technology available on the market today

Includes HEPA carbon glass filters, providing increased indoor air quality

AIR GUARDIAN 2X4 IN CEILING UNIT

AIR GUARDIAN 2X2 PORTABLE UNIT

AIR GUARDIAN 2X2 UNIT IN CEILING UNIT

Product Specifications

FEATURES

- Provides continuous disinfection while occupants are in the room.
- 3rd party tested to kill the virus that causes COVID-19 in under 3 seconds.
- Registered with the EPA & certified with the FDA as a medical device.
- Long term solution with little to no maintenance or servicing.
- Includes HEPA filters, providing increased indoor air quality.
- Serves as the highest level of disinfection technology available on the market today.
- Fan in 2x2 unit pulls in air at 200 CFM; dual fans in 2x4 unit pulling air at 300 CFM (exhaust ports need to be 4 feet from fixture).
- Emits No Ozone or chemical compounds; Multi-level filtration may help people in relieving symptoms of allergies to dust, mold, spores, and other allergens.
- Top tile-mounted box pulls in air via surface-mounted fans. Air pulled into chamber is cleansed of airborne pathogens (viruses, molds, & bacteria) utilizing 260~265nm UV-C with a >99.99% inactivation rate.

PREDICTED LIFETIME

- Fixture lifespan: >70,000 hrs
- Disinfection box lifespan: 30,000 hrs

CERTIFICATIONS

- CE, ETL, RoHS
- Patented technology with additional patents pending
- FDA Facility #10077990
- EPA Registration and Establishment #98105-TX-1
- FDA Medical Device Device Class 1 listing #D420497

WARRANTY

- 260~265nm LED boards in
- back chamber: 30,000 hrs
- Fans: 5 years
- Driver: 5 years
- Chamber Housing: 10 years

CONSTRUCTION

- Aluminum housing
- Powder coating
- Retail
- Healthcare Facilities
- Labs and Clinics

APPLICATIONS

- Retail
- Office
- Commercial
- Food production and storage
- Grow facilities
- Correctional facilities
- Municipalities
- Schools and universities
- Multi-unit housing
- Residential
- Athletic/exercise facilities
- Healthcare, including ambulatory surgery
- Assisted living and retirement centers
- Dental offices
- Dialysis clinics
- Hospitals
- Long term care facilities
- Medical offices
- Nursing homes
- Urgent care centers
- Veterans' facilities

DEVICES

Air Guardian® 2x2 and 2x4 devices can be installed in plenum spaces or on ceiling surfaces. A portable device is also available (see separate spec sheet) which provides protective, disinfected and purified airflow, in a moment's notice, anywhere it may be needed.

	2x2	2x4
CFM fan speed (variable)	50-200	75-300
Number of exhaust vents	2	2
Number of induction centers	1	2
Weight (lbs.)	10.65	24
Amps (10%)	0.75	1.5
Wattage	38	80
Decibels	33	41
Chamber total square feet	19	63
Chamber total linear feet	18	28.7
Chamber total Square inches	2750	9000
UV-C Wavelength	265nm	265 nm
Photocatalyst, powder coat	TiO2	TiO2
Surface Reflectivity	89%	89%
Activated carbon filters	1	2
Optional HEPA or Micron filters	1	2
Voltage	122 ~ 277	122 ~ 277

EFFICACY

It has been proven that the sum of the Air Guardian® applied science mechanisms and design elements kill, inactivate, or destroy microbial pathogens within seconds or sub-seconds while resident within the cubic volume of air which passes through the proprietary internal structures of the device.

These elements include intense UV energy and continuous photo-catalyzed oxidation. The high UV kill-curve in single-pass Log reductions is a result of dose energy over time, rather than distance traveled within the chambers.

The proprietary CFD design elements within the chamber increase the time under dose, where the dose is between 55,240 - 210,000 millijoules of precision wavelength irradiation.

Product Differentiators

Technology that Leverages a UV-C light spectrum.

Proven and widely used technology that kills viruses, mold, bacteria, and fungus.

Been used for 50+ years by military/defense organizations and healthcare professionals.

Comes with a 5-year warranty with a 25 - year useful life.

Product has an EPA registration number to verify capabilities of killing pathogens.

Product is certified with the FDA as a Class 1 Disinfectant Medical Device.

Provides continuous disinfection, while occupants are in the room.

Product has been 3rd party tested by the premiere labs and facilities worldwide, including: Microchem, Intertek, Korea University, and Seoul Semi Conductor.

The Air Guardian leverages the use of UV light for airborne disinfection, which stands as the gold standard for killing pathogens. This is why the Air Guardian is recognized by the following agencies, through various registrations and certifications:

Class 1 Disinfectant Device. FDA Classification: #D420497

Current Disinfection technology meets 6 requirements for the Well Building Institute Certification

EPA registered, along with the manufacturing facility that produces the Air Guardian product. EPA Registration #'s – Facility: #10077990 / Product: #9810-TX-1

Product is ASHRAE compliant

Third party study verifying that the Air Guardian kills the virus that causes covid in under 3 seconds.

Product is a supported technology from the Center for Disease control (CDC)

PURIFICATION RESULTS

Viasys Along with Thermo Electron 3rd Party Independent Lab Testing - Respiritory Care Division Infectious Bacteria, Mold, Viruses, and Yeast - Kill Rate 99.99%

Bacteria

1 Acinetobacter baumannii6
2 Bacillus anthracis - Anthrax1
3 Bacillus anthracis spores - Anthrax spores1
4 Bacillus magaterium sp. (spores)1
5 Bacillus magaterium sp. (veg.)1
6 Bacillus paratyphusus1
7 Bacillus subtilis spores1
8 Bacillus subtilis1
9 Clostridium difficile5
10 Corynebacterium diphtheriae1
11 Ebertelia typhosa1
12 Escherichia coli1,2
13 Leptospiracanicola - infectious Jaundice1
14 Micrococcus candidus1
15 Micrococcus sphaeroides1
16 Mycobacterium tuberculosis1
17 Neisseria catarrhalis1
18 Phytomonas tumefaciens1
19 Proteus vulgaris1,2
20 Pseudomonas aeruginosa1,2
21 Pseudomonas fluorescens1
22 Salmonella enteritidis1
23 Salmonela paratyphi - Enteric fever1
24 Salmonella typhosa - Typhoid fever1
25 Salmonella typhimurium1
26 Sarcina lutea1
27 Serratia marcescens1
28 Shigella dyseteriae - Dysentery1
29 Shigella flexneri - Dysentery1
30 Shigella paradysenteriae1
31 Spirillum rubrum1
32 Staphylococcus albus1
33 Staphylococcus aureus1,2
34 Staphylococcus hemolyticus1
35 Staphylococcus lactis1
36 Stenotrophomonas maltophilia1
37 Streptococcus viridans1
38 Vibrio comma - Cholera1

Molds

39 Aspergillius flavus1
40 Aspergillius glaucus1
41 Aspergillius niger1
42 Mucor racemosus A1
43 Mucor racemosus B1
44 Oospora lactis1
45 Penicillium expansum1
46 Penicillium roqueforti1
47 Penicillium digitatum1
48 Rhisopus nigricans1
49 Protozoa
50 Chlorella Vulgaris1
51 Nematode Eggs1
52 Paramecium1

Virus

53 Bacteriopfage - E. Coli (MS2)1
54 Coronavirus (SARS-CoV-2)4
55 Infectious Hepatitis1
56 Influenza1
57 Poliovirus - Poliomyelitis1
58 Tobacco mosaic1

Yeast

59 Brewers yeast1
60 Candida albicans3
61 Common yeast cake1
62 Saccharomyces carevisiae1
63 Saccharomyces ellipsoideus1
64 Saccharomyces spores1,2

The Air Guardian disinfects against a wide variety of Viruses, Mold, and Bacteria.

Effectively improves indoor air quality by removing volatile organic compounds (VOC's), Carbon Dioxide and other harmful particulate matter.

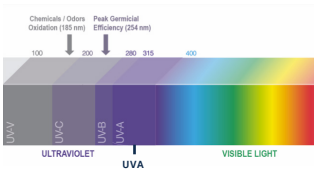
Proven to kill the virus that causes COVID-19 (SARS-COv-2) under 3 seconds.

SURFACE PURIFICATION RESULTS

	Irradiance	Min 1.684, Max: 3.789			
		2.7931		mW/cm^2	
	Adjusted Irradiance	2.446		mW/cm^2	
	Time	1.000		s	
	Adjusted Dosage	2.446		mJ/cm^2	
	% Reduction at system dosage	Time required for % reduction of original population			Target
Bacteria		2 log (99%)	4 log (99.99%)	6 log (99.9999%)	80.00%
Acinetobacter baumannii6	86.4540%	2s	5s	7s	1s
Bacillus anthracis - Anthrax1	78.0530%	3s	6s	9s	1s
Bacillus anthracis spores - Anthrax spores1	24.8424%	16s	32s	48s	6s
Bacillus magaterium sp. (spores)1	92.0919%	2s	4s	5s	1s
Bacillus magaterium sp. (veg.)1	99.4895%	1s	2s	3s	0s
Bacillus paratyphusus1	88.5013%	2s	4s	6s	1s
Bacillus subtilis spores1	45.1036%	8s	15s	23s	3s
Bacillus subtilis1	69.8639%	4s	8s	12s	1s
Clostridium difficile5	45.1036%	8s	15s	23s	3s
Corynebacterium diphtheriae1	86.8232%	2s	5s	7s	1s
Ebertelia typhosa1	95.9966%	1s	3s	4s	1s
Escherichia coli1,2	86.4540%	2s	5s	7s	1s
Leptospiracanicola - infectious Jaundice1	88.9084%	2s	4s	6s	1s
Micrococcus candidus1	65.7908%	4s	9s	13s	2s
Micrococcus sphaeroides1	57.5459%	5s	11s	16s	2s
Mycobacterium tuberculosis1	73.2702%	3s	7s	10s	1s
Neisseria catarrhalis1	78.8223%	3s	6s	9s	1s
Phytomonas tumefaciens1	80.7804%	3s	6s	8s	1s
Proteus vulgaris1,2	86.4540%	2s	5s	7s	1s
Pseudomonas aeruginosa1,2	71.5369%	4s	7s	11s	1s
Pseudomonas fluorescens1	86.4540%	2s	5s	7s	1s
Salmonella enteritidis1	82.3783%	3s	5s	8s	1s
Salmonela paratyphi - Enteric fever1	88.5013%	2s	4s	6s	1s
Salmonella typhosa - Typhoid fever1	95.9966%	1s	3s	4s	1s
Salmonella typhimurium1	58.0218%	5s	11s	16s	2s
Sarcina lutea1	39.3329%	9s	18s	28s	3s
Serratia marcescens1	88.2565%	2s	4s	6s	1s
Shigella dyseteriae - Dysentery1	95.6778%	1s	3s	4s	1s
Shigella flexneri - Dysentery1	97.9361%	1s	2s	4s	0s
Shigella paradysenteriae1	97.9361%	1s	2s	4s	0s
Spirillum rubrum1	88.2565%	2s	4s	6s	1s
Staphylococcus albus1	90.0403%	2s	4s	6s	1s
Staphylococcus aureus1,2	86.4540%	2s	5s	7s	1s
Staphylococcus hemolyticus1	90.9181%	2s	4s	6s	1s
Staphylococcus lactis1	77.6715%	3s	6s	9s	1s
Stenotrophomonas maltophilia1	75.5650%	3s	7s	10s	1s
Streptococcus viridans1	96.8948%	1s	3s	4s	0s
Vibrio comma - Cholera1	86.8642%	2s	5s	7s	1s
Molds					
Aspergillius flavus1	12.4773%	35s	1m 9s	1m 43s	12s
Aspergillius glaucus1	13.9232%	31s	1m 1s	1m 32s	11s
Aspergillius niger1	3.9193%	1m 55s	3m 50s	5m 45s	40s
Mucor racemosus A1	31.2592%	12s	25s	37s	4s
Mucor racemosus B1	31.2592%	12s	25s	37s	4s
Oospora lactis1	69.8639%	4s	8s	12s	1s
Penicillium expansum1	45.1036%	8s	15s	23s	3s
Penicillium roqueforti1	39.3329%	9s	18s	28s	3s
Penicillium digitatum1	13.9232%	31s	1m 1s	1m 32s	11s
Rhisopus nigricans1	5.8209%	1m 16s	2m 33s	3m 50s	27s
Protozoa					
Chlorella Vulgaris1	45.1036%	8s	15s	23s	3s
Nematode Eggs1	13.3603%	32s	1m 4s	1m 36s	11s
Paramecium1	48.2991%	7s	14s	21s	2s
Virus					
Bacteriopfage - E. Coli (MS2)1	86.4540%	2s	5s	7s	1s
Coronavirus (SARS-CoV-2)4	92.8552%	2s	3s	5s	1s
Infectious Hepatitis1	80.7804%	3s	6s	8s	1s
Influenza1	86.4540%	2s	5s	7s	1s
Poliovirus - Poliomyelitis1	86.4540%	2s	5s	7s	1s
Tobacco mosaic1	2.9541%	2m33s	5m 7s	7m 40s	54s
Yeast					
Brewers yeast1	86.4540%	2s	5s	7s	1s
Candida albicans3	64.5719%	4s	9s	13s	2s
Common yeast cake1	63.1951%	5s	9s	14s	2s
Saccharomyces carevisiae1	63.1951%	5s	9s	14s	2s
Saccharomyces ellipsoideus1	63.1951%	5s	9s	14s	2s
Saccharomyces spores1,2	52.7470%	6s	12s	18s	2s

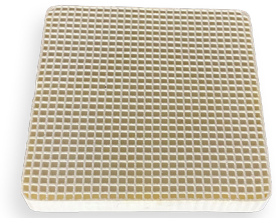
Technology Inside the Unit

5 main technologies that have been compiled together to deliver the effectiveness of the product



UVA

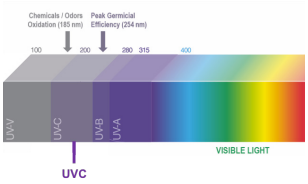
When a pathogen first enters the "A" chamber of the unit, it is treated with UVA light which is lower on the UV spectrum, aimed to start breaking down the cell walls of the pathogen."



TITANIUM DIOXIDE (TIO2) COATING AND TIO2 MESH FILTER

As the pathogen is shocked with UVA, it passes through a titanium dioxide mesh filter, which shocks the pathogen creating a turbulent environment distorting the shape and creating a more susceptible dynamic to the breakdown of DNA. The entire box and enclosed system is also coated with titanium dioxide which limits the ability for debris and moisture buildup within the unit itself.

UV-C



Once inside the chambered system the pathogen traveling speed is reduced and the exposure process begins. Throughout the chambered system, the pathogen travels though snake like channels lined with UV-C chip lighting. This patented UV-C chip lighting technology holds a 30,000 burn hour lifespan, while only being utilized by 6 companies in the world. The prolonged exposure to UV-C throughout the system is what allows the Air Guardian to effectively kill the virus that causes COVID-19 under 3 seconds.

NEUTRAL PRESSURE THROUGH THE CREATION OF A RESIDENCY

One of the main aspects of the Air Guardian technology that provides such effective disinfection, lies within the ability to create a residency for the pathogen inside the system. Exposure of the pathogen to UV-C, isn't as vital as the extended amount of time that the pathogen is exposed. Through the strategic design of this system, a residency is created allowing for an extended duration of exposure time to the pathogen, which dictates the ability to effectively kill the virus that causes COVID-19.

CARBON HEPA FILTERS

Within the final stage of the system, the purified return air is then sent through two carbon HEPA filters on both sides of the unit to be circulated back into the occupied space. These HEPA filters stand as the last line of defense, providing micro particulate removal as the air is returned back into the room.

WHY THE AIR GUARDIAN IS SO EFFECTIVE

- Air is ingested and captured up to 23 seconds
- Air travels 19 feet with constant UV-C exposure
- UV-C energies are intense at 55-210 UV-Watt levels
- Air is exposed to 25 square feet of TiO2 oxidation
- UV-C and Oxidation remove 99-99.9999% of pathogens, particles, and pollutants while air is present in the device
- Air is dual filtered through (HEPA) super-micron and carbon filters
- Purified air is released at precise pressure to create constant downward displacement (dilution and protection)
- Frequent, complete air change rates up to every few minutes are possible depending on device selection (ventilation)

Air Guardian

Three Critical Protective Measures

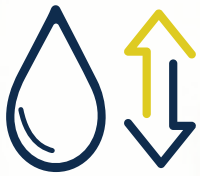
Three key elements for infection prevention as recommended by the CDC, EPA, and other industry groups:

VENTILATION

There are three key elements of ventilation related to the transmission mechanism and the risk estimation of airborne infection. These include ventilation rate, flow direction, and airflow pattern most strongly influence the risk of airborne infection.

REMOVAL

Air Guardian® adds effective pathogen removal to any area, any room, in any environment - to help remove and eliminate harmful airborne microbes before they can be transmitted within a space. This would include the removal of pollutants, including organic, inorganic, and microbial contaminants, compared with traditional purification procedures



DILUTION

Through the multi patented process of disinfection, the Air Guardian provides air dilution of any harmful viruses or airborne particulates. As air travels through the system, it becomes purified before going back into the space, which provides effective dilution of poor indoor air quality.

Clean Air Dilution Of Any Pathogens In Occupied Spaces

SUMMARY OF THE TECHNOLOGY

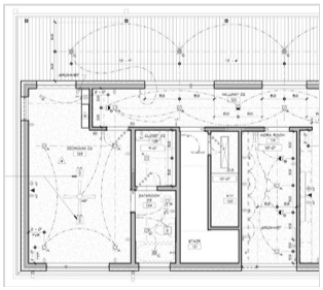
1. Air Guardian® captures air and exposes it to intense forces for up to 23 seconds
2. Airflow pressure, movement, and design are patented processes
3. Occupants are not exposed to UV-C light
4. Air Guardian® releases no chemical by-products
5. Air Guardian® provides ventilation, removal and dilution
6. Within minutes, all room air can be displaced with slight downward pressure to ensure clean breathing air and minimal cross-contamination

THE AIR GUARDIAN'S UNIQUE, MULTI-PATENTED PROCESSES

1. Filtration and purification are active, not passive. This active ingestion and downward airflow displacement process conforms to optimal airflow and venting recommendations that help prevent disease transmission and facilitate more complete room air changes
2. UV-A photo-catalyzed nanoparticle oxidation in a patented fore-chamber - Ingested air is initially passed through a localized, intense ROS (reactive oxygen species) cloud in a specialized chamber. The ROS cloud and extreme UV-A irradiance combine for high initial levels of destruction/inactivation
3. Intense time-dose UV-C irradiance - 126,000 up to 210 millijoules/cm2 (without additional bounce energy calculations)
4. Air is forced through a series of precision designed channels, designed with patent-pending measures and angles and distance to maximize optimal radiant distance, dose strength, irradiant light reflectivity, and continuously exposed to time-dose UV irradiance, for up to 23 seconds, depending on device models and options
5. UV-C photo catalyzed nanoparticle oxidation - Air Guardian's internal channels are flooded with electromagnetic UV-C radiation wavelengths, which a) inactivate and destroy pathogens and particles and b) trigger photo-activation of the channel surfaces, which creates continuous clouds of reactive ion species, which form within every channel and along every surface inside the Air Guardian® device
6. Air Guardian's UV-C dose energy is thousands of times greater than the required levels for the inactivation / removal of most pathogens, with few exceptions, (proven in numerous studies).
7. Air Guardian's extreme UV-C dose is highly effective at removing pathogens and particles, yet safe in any setting because no UV energy is emitted from the sealed device
8. Air is filtered using HEPA super-micron and carbon filters and released at precise pressures and distances to create constant downward displacement into breathing zones
9. Complete room air changes can be performed as frequently as every few minutes, depending on device selection

Scope Development Process

STEP 1: Analysis of Building Floor Plans & Reflected Ceiling Plans



Our team of experts will work with staff to gather information relating to the design and development of the overall project. This information will include building floor plans and reflected ceiling plans. The building floor plans will allow our team of engineers to analyze the different building layouts, general size of each site, and will provide data that will dictate the most effective locations for each unit. The reflected ceiling plans will allow our team to identify the ceiling dynamics, along with ceiling heights which are included in the ACH calculation for cubic feet.

STEP 2: Analysis of Facility Square Footage / ACH Calculator Conversions

Following the floor plan and ceiling analysis, we will then review the building square footages to identify the cubic volume within each room, which will dictate the number of recommended units. An average 2x4 unit will have the capacity to disinfect and purify the air within a 1,000 square foot space. If there is a room smaller, than a 2x2 unit would be recommended for that specific space. We leverage our proprietary Air Change Calculator (ACH) which is a customized calculator that will convert the building square footage into a model that will provide how many air changes would be provided with each unit.

STEP 3: Identification of High Traffic & High-Density Locations

A major part of our analysis in develop of an effective disinfection project is conducting research on an agency's high traffic and high-density locations. Throughout the span of the pandemic, research has shown that these locations with largest amount of foot traffic and occupant density have the highest probability of infection.

STEP 4: Completion of in Person Site Walks

Once a virtual assessment has been completed through analysis of the items mentioned above, our team of engineers will schedule in person site walks. This will involve a site visit for each building or facility that will be included in the scope to verify all floor plan, building layout, ceiling dynamic, and square footage specifications. This will also allow our team to identify additional areas for recommended unit locations and receive feedback from onsite facility and maintenance staff on any disinfection strategy preferences.

STEP 5: Approval and Installation

Once a final scope of work is developed and the project is approved an agency will submit an official purchase order for the product, which will be sent to the manufacturer for fulfillment. Our installation team will then provide staff with a detailed installation schedule to identify timelines, scope completion milestones, and site by site breakdown of installation specifications.

Recent Case Studies

EL MONTE UNION HIGH SCHOOL DISTRICT

El Monte Union High School District in LA County was among some of the first school districts to take a proactive approach toward their disinfection strategy throughout this pandemic. District administration and board members wanted to ensure a safe environment for both teachers and students, while still being able to go throughout daily schedules without distractions due to disinfection efforts. The Air Guardian is able to provide continuous airborne disinfection while occupants are in the room, allowing teachers to get back to teaching, and students to get back to learning. The District approved a PO to install (1) 2x4 unit into every classroom District Wide.

"Keeping our students and teachers safe through these times is our number one priority"

- Padilla, boardmember

CITY OF FRESNO

The City of Fresno in Northern California took the COVID-19 virus head on during the peak of a major outbreak within the local community. The City council went through analysis on a wide range of different disinfection technologies to identify a technology that provided the highest level of disinfection available on the market. The Air Guardian was selected as the most effective technology for the job, which was considered a long term solution for the City in delivering a 5 year warranty with a 25 year useful life. The Air Guardian was installed within all of the high risk/high density City Facilities including City Hall, Public Safety Facilities (PD & Fire), along with senior living and community center facilities.

City of FRESNO

additional references available upon request

Alternative Technologies

HVAC UNIT UV LIGHT APPLICATION

Creates O-zone and releases endotoxins back into room

Increased cost (would have to install UV-C lights at every point within your ductwork)

Decreased air changes per hour / not continuous filtration, would have to run your AC the entire time

Endotoxins back into the classroom, small particles back into the space

Decreased treatment time due to HVAC air flow having higher CFM, not effective for high levels of disinfection capabilities

ANTI-BACTERIAL DISINFECTION SPRAY APPLICATIONS (ELECTROSTATIC)

Very labor intensive and increased amount of maintenance costs and staff needed to provide adequate cleaning services or requires hiring of 3rd party sanitation firms with expensive contracts

Requires continuous manual applications

Creates ongoing costs for purchasing of cleaning solution (refills) and additional materials

Short term solution; only addresses surface level bacteria without continuous disinfection

Can't disinfect while occupants are in the room

PORTABLE AIR PURIFYING UNITS

Short term solution

Requires a greater amount of time for full room air filtration

Disinfection rates on bacterial particulates will provide much lower effectiveness <99.99%

Will not provide both surface level and airborne bacterial disinfection

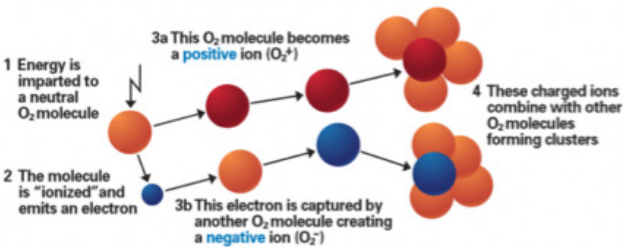
BIPOLAR IONIZATION / NEEDLE POINT IONIZATION

Ionization can emit harmful Ozone (UV Irvine Case Study) (Trane Case Study)

Ionizations validated studies fall short of accuracy and accreditation

Causes CO2 buildup in room, negatively impacting occupants and causing potential impairment

Significant degradation of product effectiveness over time, creating an unreliable solution for disinfection



Applicable Markets

The Air Guardian is applicable to a wide range of different industries, sectors, and businesses. It provides the highest level of disinfection available on the market to essentially any agency operating with a facility or enclosed space. Below are some of the main types of agencies taking advantage of the Air Guardian technology.

- Medical Centers / Outpatient Offices
- Warehouse Facilities
- Assisted Living Centers / Retirement Communities
- Adminstrative Offices
- Public Safety: Fire Stations / PD
- Indoor Arenas
- Franchised Chain Locations
- Hotels / Casinos
- Commerical Real- Estate
- School Facilities
- City Facilities
- Restaurants
  Gyms
- Banks
- Movie Theatres

threeUV

UV-C infection prevention