

# BREATHE EASIER

Our line of state-of-the-art air sanitizing systems are laboratory tested and proven to kill over **99.97%** of pathogens, including SARS-CoV-2.

Presentation by:



**BREATHE EASIER UV**  
EST. 2021

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*This is not a medical device and is not intended to diagnose, treat, cure, or prevent any disease or health condition.*

- Aerapy, LLC, manufacturers Air and Surface disinfecting and sanitizing UVGI equipment.
- Established in 2008.
- Company president is a published writer and frequent speaker about infection control.
- Member of ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineers) and IUVA (International Ultraviolet Association).



# EXPERTS' RECOMMENDATIONS FOR MITIGATING COVID-19 EXPOSURE IN THE WORKPLACE



“Consider using ultraviolet germicidal irradiation (UVGI) as a supplement to help inactivate SARS-CoV-2... Upper-room UVGI systems can be used to provide air cleaning within occupied spaces...”



UVC radiation may also be effective in inactivating the SARS-CoV-2 virus, which is the virus that causes the Coronavirus Disease 2019 (COVID-19).



The International Ultraviolet Association (IUVA) believes that UV disinfection technologies can play a role in a multiple barrier approach to reducing the transmission of the virus causing COVID-19, SARS-CoV-2, based on current disinfection data and empirical evidence.



# EXPERTS' RECOMMENDATIONS FOR MITIGATING COVID-19 EXPOSURE IN THE WORKPLACE

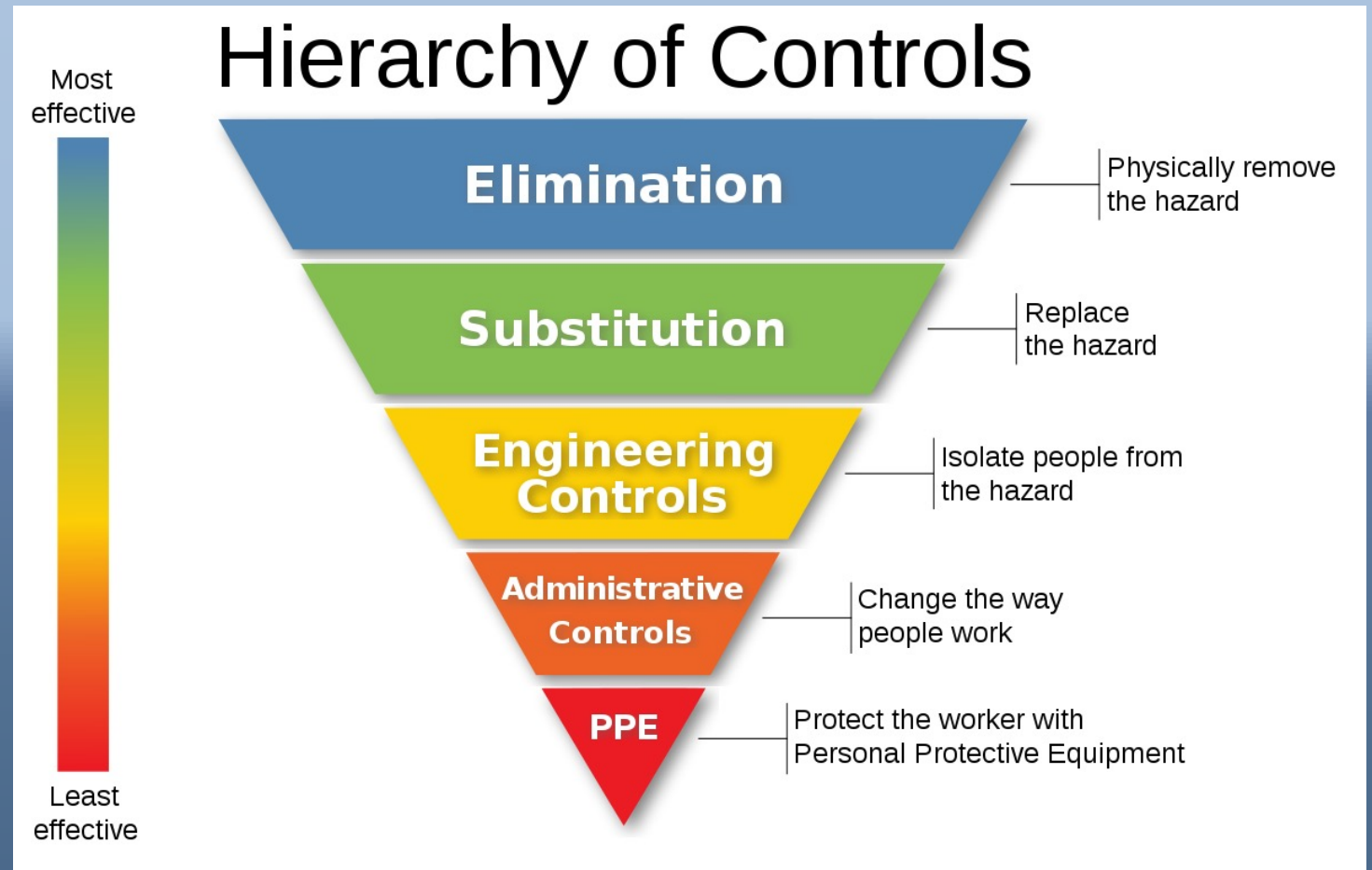


AIHA is the association for scientists and professionals committed to preserving and ensuring occupational and environmental health and safety (OEHS) in the workplace and community. More than half of AIHA's nearly 8,500 members are Certified Industrial Hygienists, and many hold other professional designations.

“Relying upon individuals to maintain social distancing, perform perpetual hand washing, and, when available, wear the lowest form of personal protective equipment (PPE) on the market can only achieve so much in preventing the spread of COVID-19...”

“When hazardous agents in the workplace cannot be controlled by elimination, isolation, ventilation, administrative controls, or other better means, Personal Protective Equipment (PPE) is used as a last resort to protect workers.”

“Engineering controls that can keep infectious aerosols at shallow levels indoors offer the greatest promise to protect non-healthcare workers and other vulnerable populations as we reopen our businesses and workplaces. **Engineering controls have historically proven to be more reliable because they are less prone to human error.**”



# UPPER-AIR UV-C TECHNOLOGY

Lab Tested

Patented

Environmentally Safe



*“Compared to solutions relying mostly or exclusively on PPE, engineered solutions removes the onus from individuals and their personal habits or attentiveness. Machines do not get tired, sloppy, or distracted.”*

*“...the expected relative risk reduction offered by an N95 respirator is 90 percent, therefore only engineering controls that offer greater than 90 percent relative risk reduction should be considered.”*

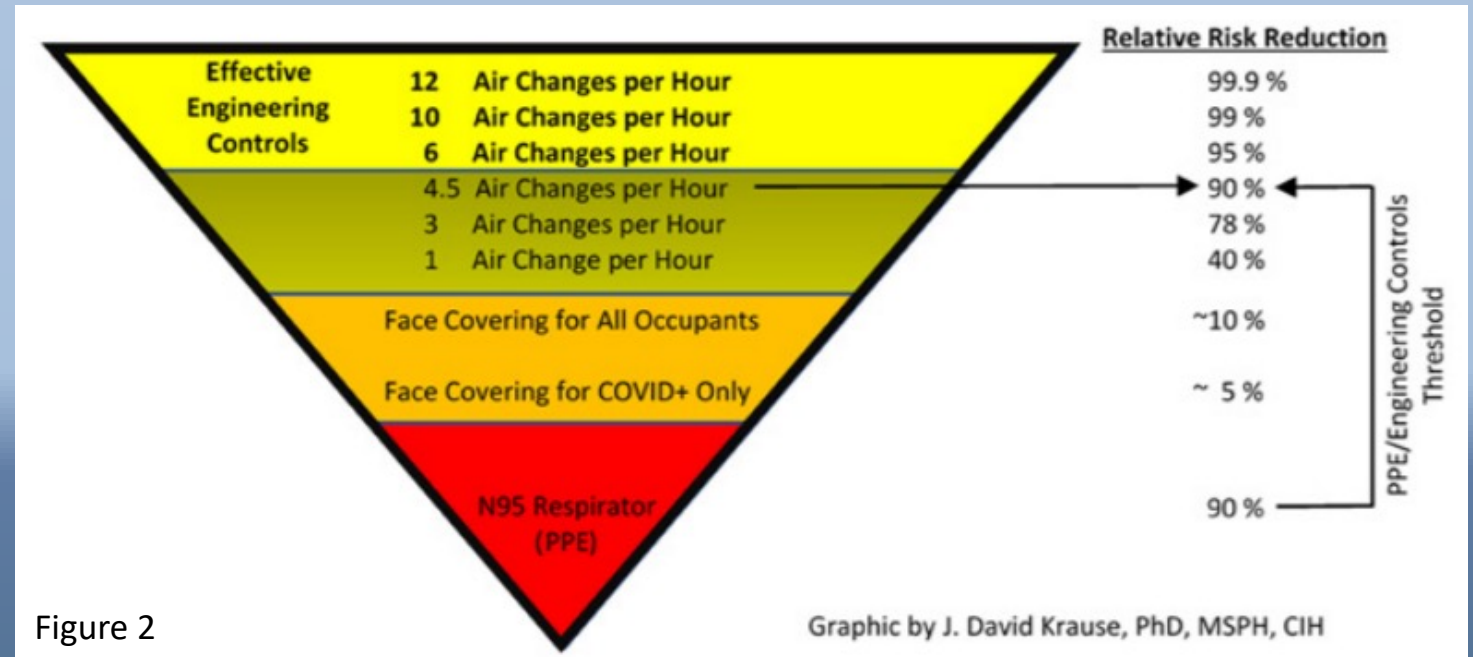


Figure 2

Graphic by J. David Krause, PhD, MSPH, CIH

**NOTE! WHEN PROPERLY FITTED AN N95 MASK ONLY PROTECTS THE INDIVIDUAL WEARING THE MASK**

**SOURCE: AIHA “Reducing the Risk of COVID-19 Using Engineering Controls”**

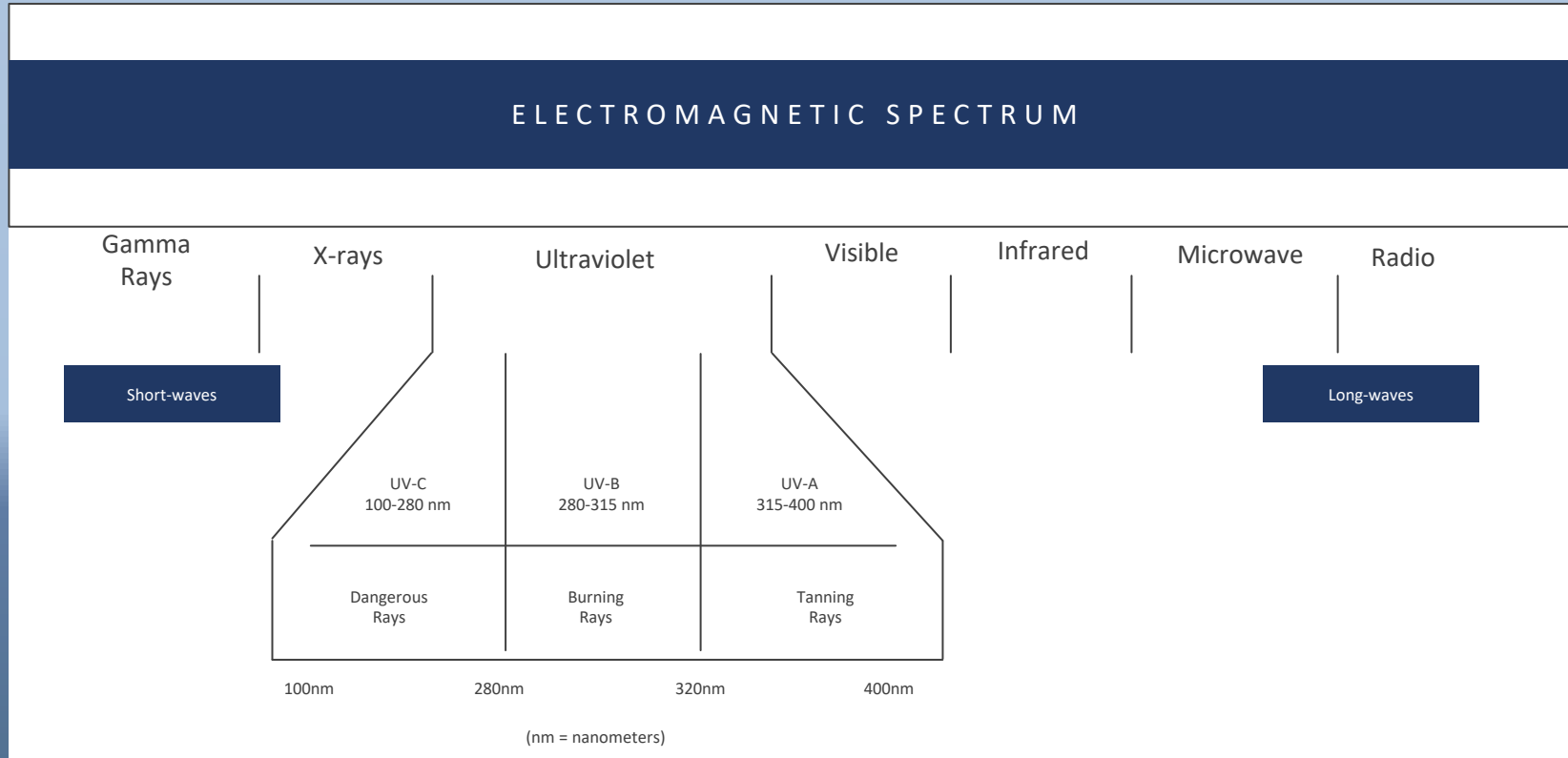
# UPPER-AIR UV-C TECHNOLOGY

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## UV Spectrum



## UV-A

Causes wrinkling, sagging and premature aging of skin

## UV-B

Cause sun burns and skin cancer

## UV-C

Rays are germicidal and lethal to microorganisms

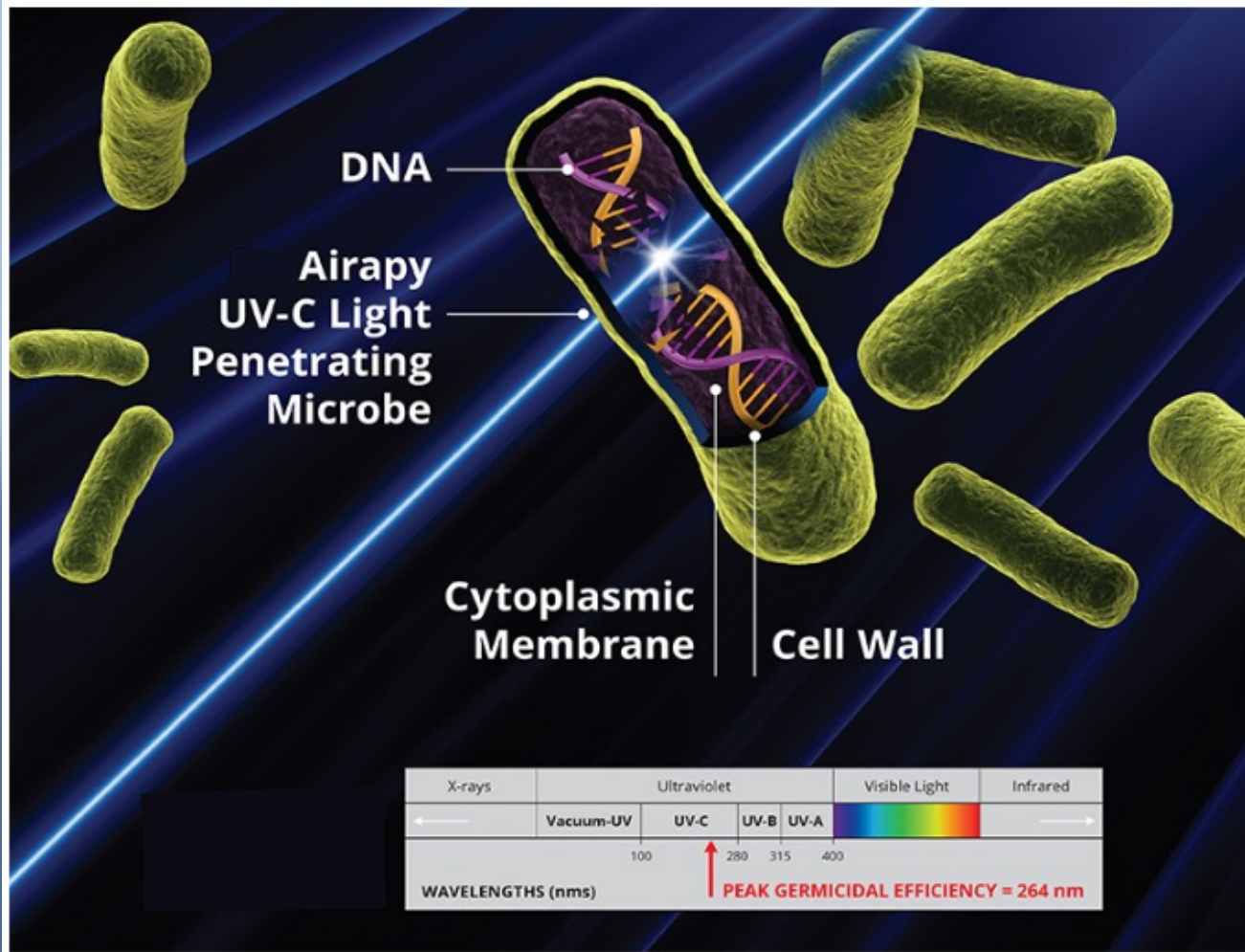
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How UV-C mitigates the spread of pathogens.



UVGI works as a mutagen to viruses, bacterial and other microorganisms on a cellular level, penetrating the cell wall.

This disrupts the microorganism DNA breaking the carbon bond which causes the death of the cell and/or renders it helpless.

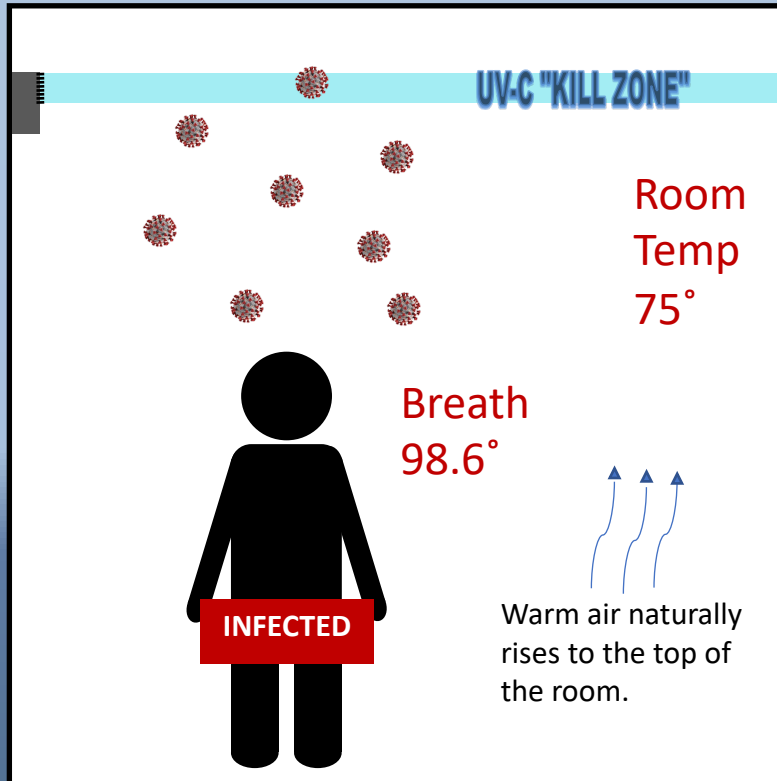
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## How upper-air UVGI (Ultraviolet Germicidal Irradiation) uses UV-C.



In a room, a process called “convection” causes warmer air to naturally rise to the upper portion of the room.

UV-C light is deployed in the upper-air of the room to inactivate any pathogens caught in the convection currents. For occupant safety, louvers are used to keep the UV-C rays in the upper portion of the room away from the room occupants.

This natural process convection combined with UVGI allows 6-12 ACH (Air Changes per Hour) to be “sanitized” in the room.

Upper-air UVGI solutions can help reduce both the air pathogen load and, in combination with normal surface cleaning procedures, help further reduce the surface pathogen load.

For example, if a larger pathogen aerosolizes for 20 seconds to 5 minutes and then falls out of the air, it contributes to surface disease transmission. Upper-air UVGI inactivates exposed aerosolized pathogens BEFORE they land on surfaces.



# UPPER-AIR UV-C TECHNOLOGY

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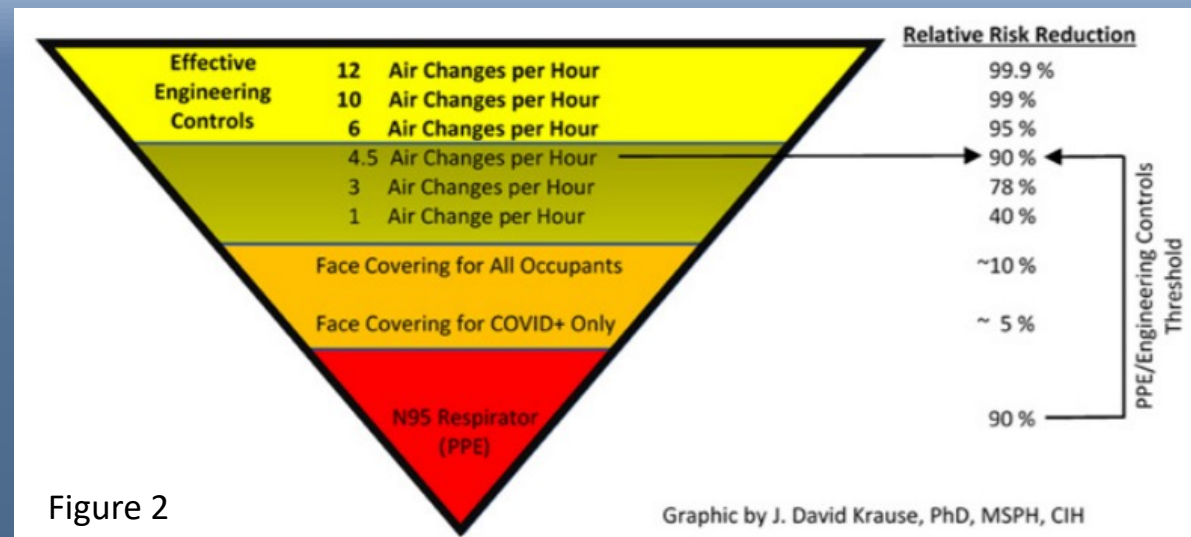
## Limitations of UVGI

1. Effectiveness dependent on frequency of UV-C light produced by bulbs.
2. Intensity of bulb decreases with distance which increases inoculation time
3. Cannot be installed where reflective objects can cause room occupants to be at risk of exposure
4. Reliant on room environment (temperature, circulation, etc...) which may affect natural air exchanges per hour.



*“when selecting engineering controls, such as increasing the number of air changes per hour (ACH), the minimum level of protection offered by the new control should exceed the protection offered by PPE alone. In Figure 2, the expected relative risk reduction offered by an N95 respirator is 90 percent, therefore only engineering controls that offer greater than 90 percent relative risk reduction should be considered.”*

SOURCE: AIHA “Reducing the Risk of COVID-19 Using Engineering Controls”



# UPPER-AIR UV-C TECHNOLOGY

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## Why Aerapy UVGI products are superior.

1. Aerapy has catalogued and tested their products against over 1,300 Viruses (including Sars-CoV-2)
2. Aerapy uses UV-C technology in the 254nm spectrum which is the MOST EFFECTIVE at inactivation all pathogens.
3. Aerapy's patented system deploys circulation fans to circulate the air and draw pathogens into the most effective "Kill-Zone" increasing ACH up to 18 Air Changes per Hour – at this rate air is sanitized in the room every 3.33 minutes!
4. Our trained professionals will ensure products are installed where they are most effective and safe for room occupants.



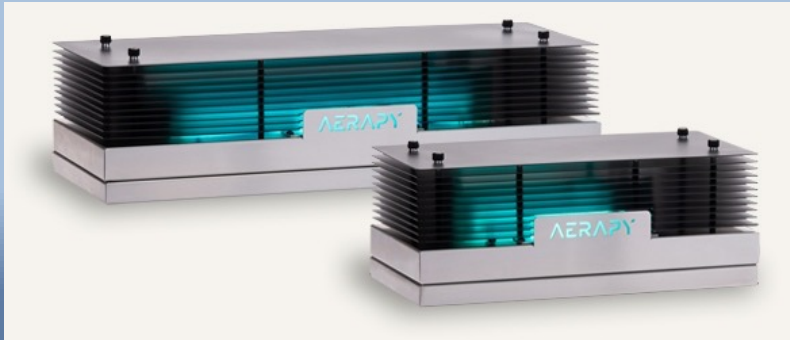
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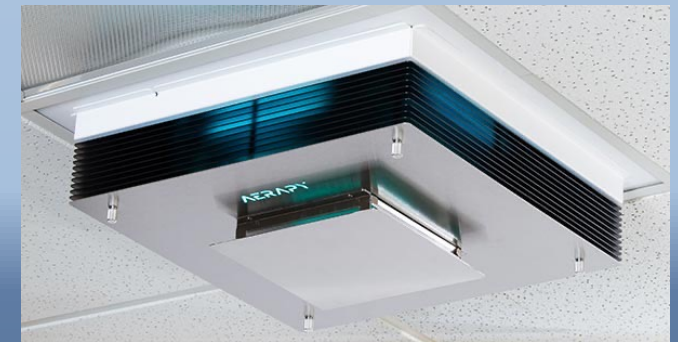
## UVGI PRODUCTS



**ZONE180 SERIES**



**PSF SERIES**



**ZONE360 SERIES**

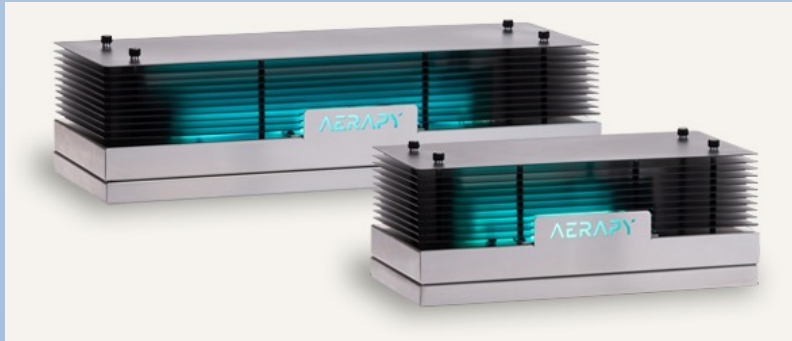
# UPPER-AIR UV-C TECHNOLOGY

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## ZONE180 SERIES.



The **Zone180 Series** (Zone180-16 and Zone180-24) offers targeted, high-level UV disinfection for smaller indoor spaces, including those with no HVAC in place.

The **Zone180** is designed for spaces with less square footage than those suitable for our popular Zone360 upper air unit. The compact, upper room units are easily wall-mounted to provide continuous air disinfection.

The **Zone180-16** is designed for rooms less than 250 sq. ft. and features one integrated fan to create powerful airflow, while the **Zone180-24** can take on rooms up to 400 sq. ft. with two fans.

Zone180  
installed at  
Rocco  
Steakhouse



Product	Coverage	Cord	Power	Dimensions
Zone180-24	400 sq ft	120 plug	1.5 amp	8" H x 6" W x 24" L
Zone180-16	250 sq ft	120 plug	.75 amp	8" H x 6" W x 16" L



# UPPER-AIR UV-C TECHNOLOGY

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## PSF SERIES.



The **PSF Series** (PSF-16 and PSF-24) offers targeted, high-level UV disinfection for smaller indoor spaces, including those with no HVAC in place.

Designed as an alternative to our ZONE180 series where reflections may cause UV-C light to be a hazard to room occupants.

The compact, upper room units are easily wall-mounted to provide continuous air disinfection in a contained device.

The PSF-16 is designed for rooms less than 250 sq. ft. and features one integrated fan to create powerful airflow, while the PSF-24 can take on rooms up to 400 sq. ft. with two fans.



PSF-24  
installed at  
Santander  
Bank

Product	Coverage	Cord	Power	Dimensions
PSF-24	400 sq ft	120 plug	1.5 amp	5.4" H x 7" W x 24" L
PSF-16	250 sq ft	120 plug	.75 amp	5.4" H x 7" W x 16" L

# UPPER-AIR UV-C TECHNOLOGY

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## ZONE360 SERIES.



The ZONE360 2' x 2' is a unit which features 360 degrees of UV air disinfection and is easily installed in any type of ceiling (min. 8 ft. height) to provide continuous air disinfection in 500–1000 sq. ft. rooms. Suitable for indoor environments, including spaces with no HVAC in place, that need immediate airflow, circulation, and disinfection.

### Need more fan power and flexibility?

The **Zone360X** All the features of our Zone360 plus the option of three fan speeds (100cfm, 200cfm, 530cfm) and a remote control. Created for spaces where occupancy may fluctuate during the day. As occupancy increases, increase fan speed for faster air disinfection. Ideal for restaurants and bars.



Zone360  
installed at  
Rocco  
Steakhouse

Product	Coverage	Cord	Power	Dimensions
Zone360	1,000 sq ft	120 wired	1.6 amp	23-3/4" H x 23-3/4" W x 5" D
Zone360x	1,000 sq ft	120 wired	2.4 amp	23-3/4" H x 23-3/4" W x 5" D

# IN-DUCT UV-C for HVAC TECHNOLOGY

Lab Tested

Patented

Environmentally Safe



**UNPROTECTED HVAC SYSTEMS CAN SPREAD AIRBORNE PATHOGENS SUCH AS VIRUSES, BACTERIA, AND MOLD THROUGH AN ENTIRE BUILDING!**

**COVID-19 can stay aerosolized for over 3 hours!**

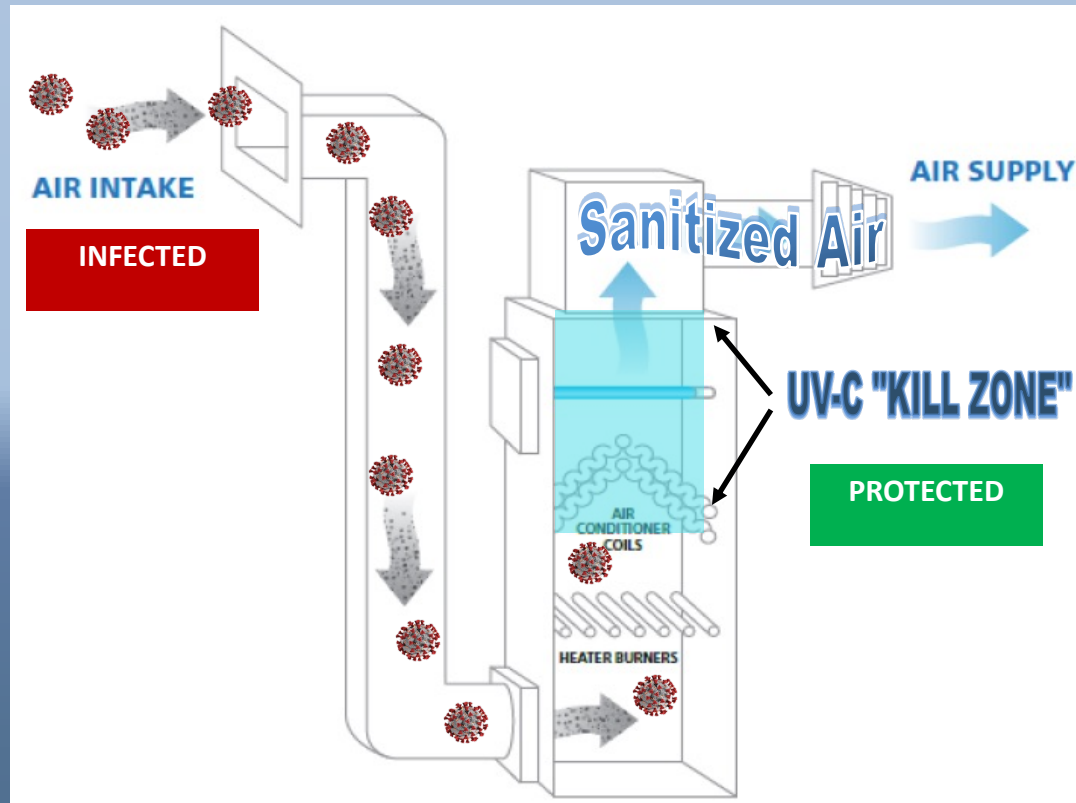
# IN-DUCT UV-C for HVAC TECHNOLOGY

Lab Tested

Patented

Environmentally Safe

Aerapy's in-duct UV products have been lab tested and proven to kill over **99.9%** of tested pathogens on the first air pass **BEFORE** they circulate back throughout your indoor environment.



1. Contaminated air is drawn by the HVAC system into the UV-C "Kill Zone" of Aerapy's in-duct UVC unit.
2. The contaminated air is then exposed to powerful UV-C radiation which neutralizes both coil surface and airborne mold, viruses, bacteria, allergens, mites and other pollutants (including Sars-CoV-2).
3. Sanitized air is recirculated to the indoor environment.

Your customers and employees can feel safe knowing they are breathing clean, sanitized air.



# IN-DUCT UV-C for HVAC TECHNOLOGY

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1mL of viral Sars-CoV-2 was aerosolized via a nebulizer into a containment chamber and exposed to an airstream at various speeds.c

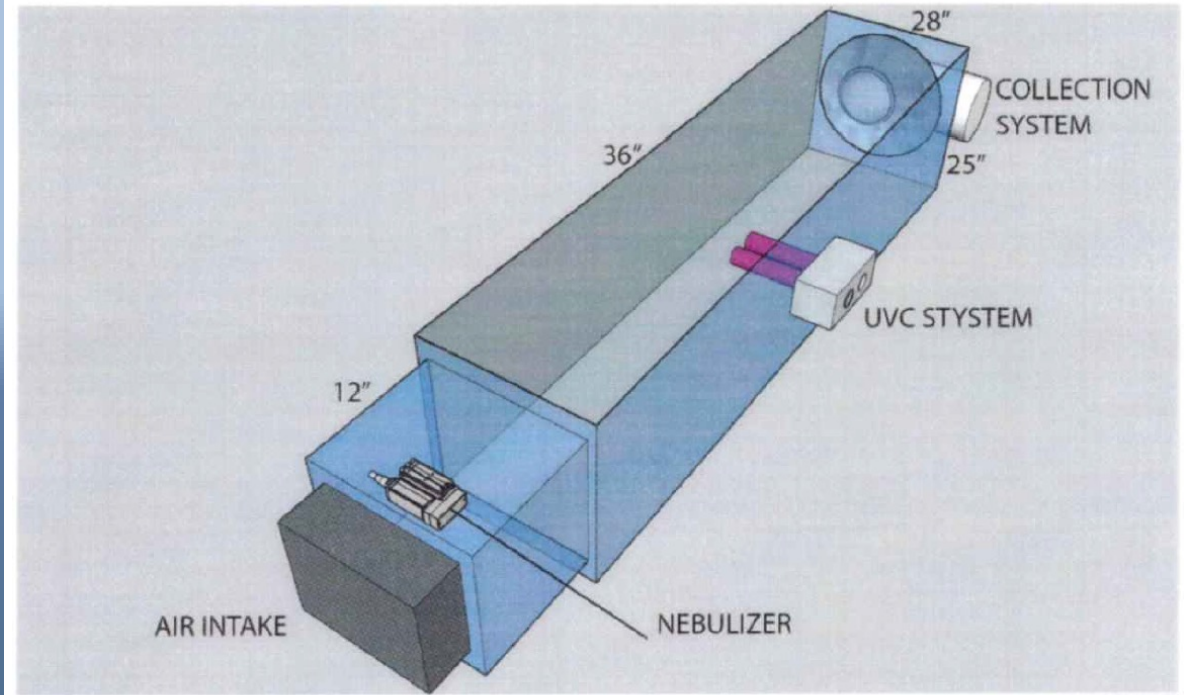


Innovative Bioanalysis  
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SARS-CoV-2 NEUTRALIZATION BY UV EXPOSURE

CLIENT: AERAPY LLC  
PROJECT: AERAPY – UVGI – 2  
PRODUCT: PET AIRAPY PAH-N12  
CAP LIC NO: 886029801  
CLIA LIC NO: 05D0955926  
STATE ID: CLF 00324630  
CHALLENGE VIRUS: SARS-CoV-2 USA-WA1/2020

## DESIGN LAYOUT FULL:



# IN-DUCT UV-C for HVAC TECHNOLOGY

Lab Tested

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Environmentally Safe



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SARS-CoV-2 NEUTRALIZATION BY UV EXPOSURE

CLIENT: AERAPY LLC  
PROJECT: AERAPY – UVGI – 2  
PRODUCT: PET AIRAPY PAH-N12  
CAP LIC NO: 886029801  
CLIA LIC NO: 05D0955926  
STATE ID: CLF 00324630  
CHALLENGE VIRUS: SARS-CoV-2 USA-WA1/2020

**Results showed Aerapy's UV-C Technology significantly reduced the active SARS-CoV-2 virus at all tested CFM!**

CFM	Starting Concentration	Final Concentrations	% Reduction	Log10 Reduction
1100	$3.78 \times 10^4$ TCID50/mL	$8.31 \times 10^4$ TCID50/mL	97.81	1.66
550	$4.01 \times 10^6$ TCID50/mL	$2.37 \times 10^4$ TCID50/mL	99.41	2.23
410	$4.14 \times 10^6$ TCID50/mL	$9.53 \times 10^2$ TCID50/mL	99.7	3.64

# IN-DUCT UV-C for HVAC TECHNOLOGY

Lab Tested

Patented

Environmentally Safe



Designed to fit into any new and existing HVAC (indoor split system), Aerapy's **PAH & PPR Series** of in-duct UV disinfecting technology utilizes short-wavelength UV-C light to kill or inactivate pathogens in the air by disrupting their DNA and destroying their cellular function, causing the death of the microorganisms and/or rendering them helpless.



*"It is being reported that the most likely cause of exposure to COVID-19 in the public sphere is when people are within 6 feet of one another for longer than 15 minutes. The important factor to remember in this finding is that our air is being sanitized multiple times within 15 minutes. Now the exposure point in our office is low enough to not necessitate any type of PPE requirement!"*

**Tyson Gabriel, Industrial Hygienist**  
Premier Risk Management





# BREATHE EASIER

**We have installed a state-of-the-art air sanitizing system which has been laboratory tested and proven to kill over **99.97%** of pathogens, including SARS-CoV-2.**