

# UV LIGHT DISINFECTION

## Healthcare Applications



**AIRSTREAM**



**COIL/AIR HANDLER**



**ROOM/SURFACE**



**ICE/WATER MACHINES**



# UVGI: Chemical-Free Disinfection

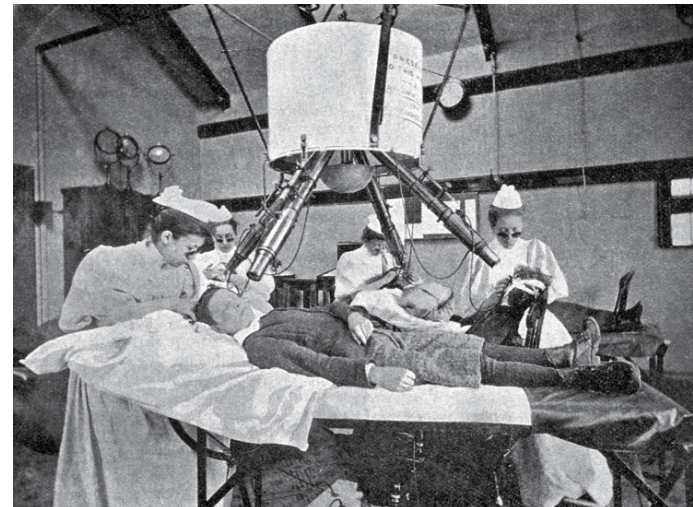
Medical facilities of all types are threatened by biological and VOC contaminants. Despite their best efforts to maintain a sterile indoor environment there will always be ways in which more mold, bacteria, and viruses, as well as odor-causing and potentially toxic volatile organic compounds (VOCs) can be introduced. These threats are mostly invisible and may only be revealed when people get sick.

Ultraviolet germicidal irradiation (UVGI) is a safe, scientifically proven and well established disinfection technology that has been used for over a century. UVGI is widely used in water treatment, food processing, and air purification systems. Medical facilities benefit from this technology in several ways.

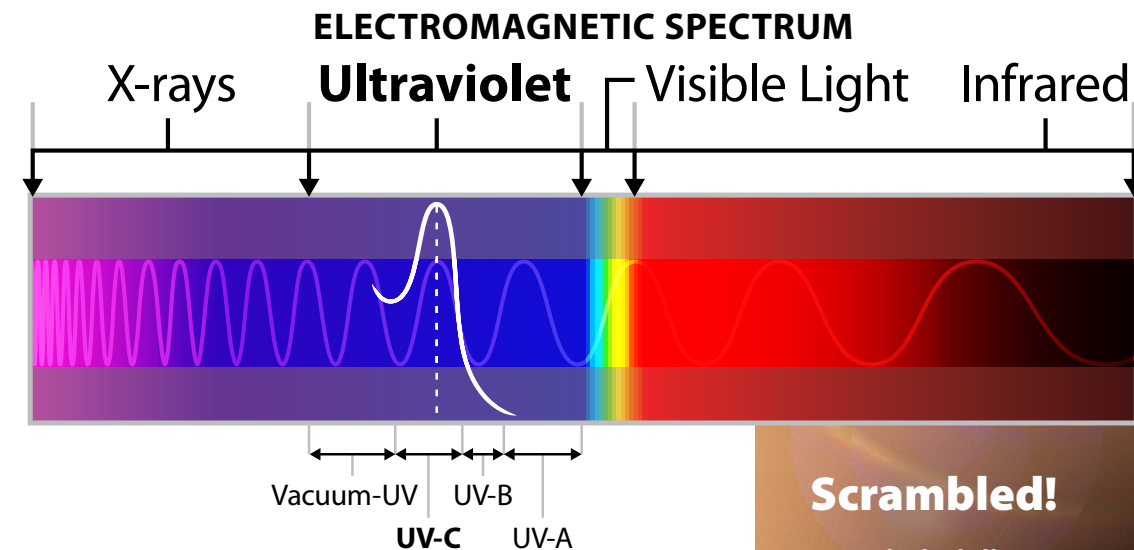
UVGI can significantly reduce dangerous airborne pathogens from being spread by the HVAC system. It also reduces maintenance costs and extends the life of the system. UVGI is also used to sterilize surfaces in unoccupied rooms and to disinfect ice makers and ice & water dispensers.



**A Sanitary Indoor Environment is Critical for Patient Safety**



Finsen UV-C light therapy for lupus, early twentieth century. In 1903, Niels Finsen was awarded the Nobel Prize in medicine and physiology for his work on UV-C phototherapy.



## ABCs of UV Light

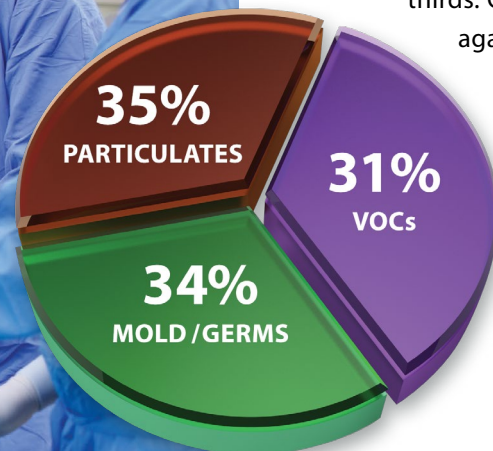
UV-A and UV-B light frequencies are present in sunlight and cause sunburn. Higher frequency (254 nm) UV-C light is filtered out by the Earth's atmosphere so microorganisms have no defense against it.

## Scrambled!

UV-C light kills microorganisms by scrambling their DNA which prevents them from reproducing.

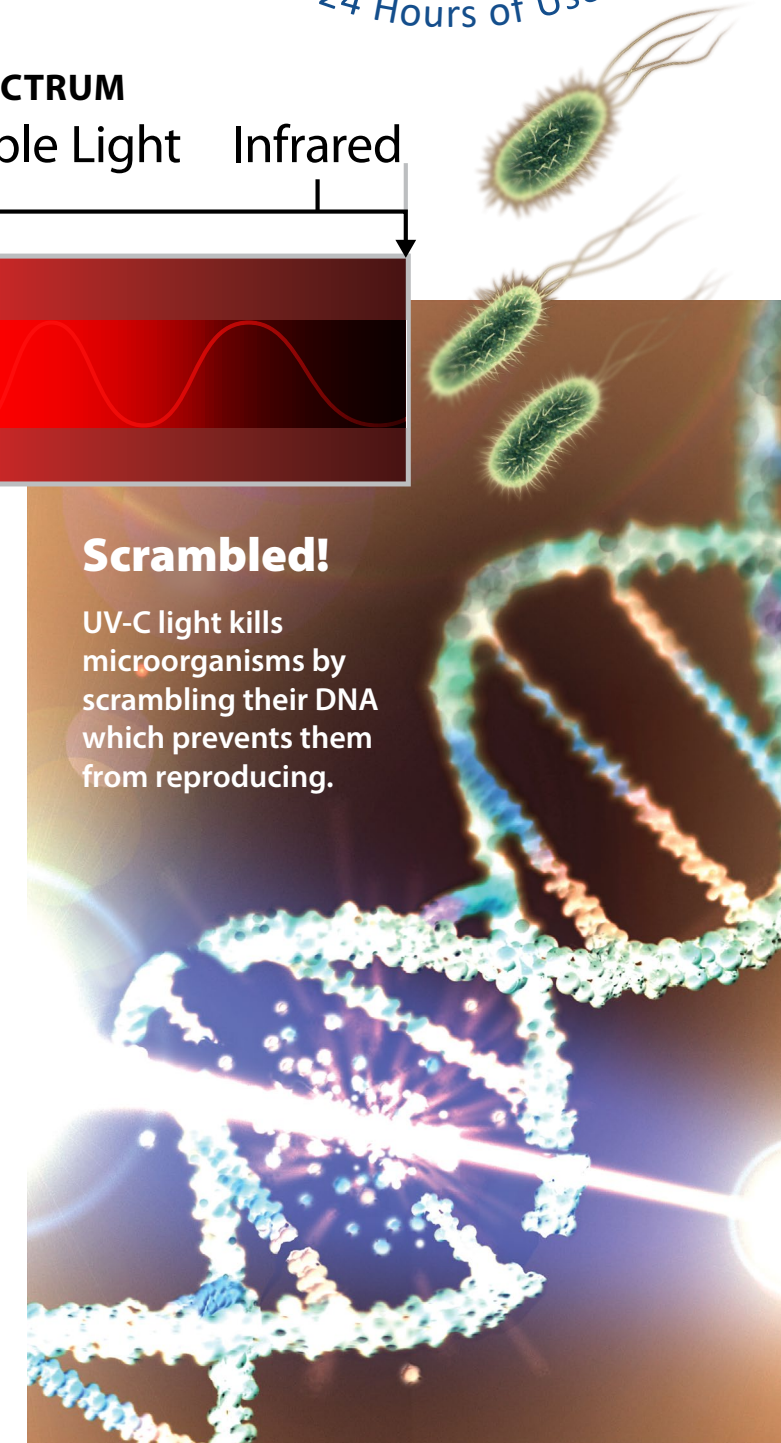
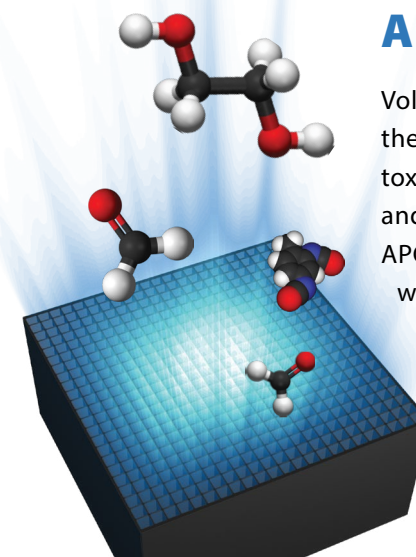
## The Other Two Thirds

Airborne contaminants can be divided roughly into thirds. Conventional filtration is effective against particulates, like dust, but has no effect on the other two thirds. UV-C light is proven effective against airborne and surface biological contaminants and our award-winning APCO® technology neutralizes odor-causing and potentially toxic volatile organic compounds (VOCs).



## APCO® Technology

Volatile Organic Compounds (VOCs) are the source of nearly all odors and include toxic vapors such as acetone, toluene, and formaldehyde. Our proprietary APCO® technology combines UV-C light with photo-catalytic activated carbon cells to neutralizes VOCs. Harmless water vapor and CO2 are the only byproducts.



# HVAC Applications

- Reduce HAIs
- Eliminate Mold & Biofilm on Coils
- Improve HVAC Efficiency & Reduce Maintenance Costs
- Sterilize Airborne Pathogens
- Improve Indoor Air Quality
- Extend Life of HVAC system
- Neutralize Toxic & Odor-causing VOCs

## Coil Disinfection

Biological fouling (usually caused by mold) is a common problem in commercial air handlers. The cool, moist interior of the air system is an ideal breeding-ground for mold. A biofilm of only 0.002" can reduce efficiency by 37%!

UV-C light kills mold on coils safely and continuously. Conventional cleaning procedures which use harsh chemicals are expensive, labor intensive, and are themselves a source of environmental contamination and can be a health risk to maintenance workers. UVGI disinfects HVAC coils and interior surfaces 24/7, reduces airborne pathogens, improves indoor air quality, and requires virtually no maintenance other than lamp changes every one or two years.



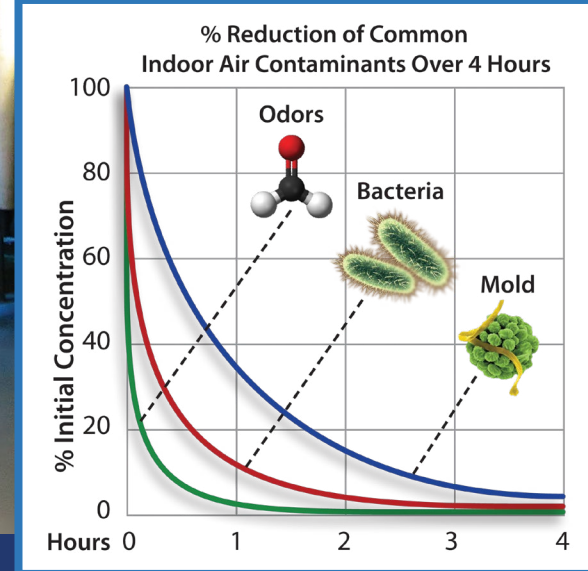
For coil disinfection choose the Commercial Standard System, Tubular Rack System, or APCO® Rack System

The Airborne Disinfection System (ADS) is designed for ducts and uses high-output UV-C lamps

The APCO® Rack System neutralizes VOC contaminants with lifetime activated carbon photocatalytic cells

## Designed Right

Fresh-Aire UV consultants will work with you throughout the design and installation process. Our knowledgeable staff will examine the parameters of your project and analyze them using our proprietary BlueCalc Software.



## Validation

UVGI disinfection has been validated by numerous independent laboratory studies. HVAC trade associations and government agencies including ASHRAE, NAFA, and USGCA all validate the use of UVGI and/or photocatalytic oxidation for surface and air treatment. For more information visit: [WWW.FRESH-AIREUV.COM](http://WWW.FRESH-AIREUV.COM)

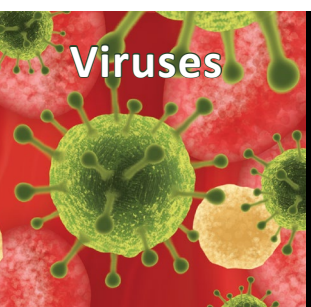
## Big Savings from UVGI

UVGI pays for itself in a very short time. By simply improving heat transfer and air restriction across the coil significant energy savings can be achieved. UVGI also eliminates the need for conventional coil cleaning helps save labor and resources

## Airborne Disinfection

Airborne infectious diseases are one of the most serious threats to health related to HVAC equipment. In settings such as hospitals, clinics, health clubs, elder care and veterinary facilities airborne pathogens can be spread by the air system threatening the health of patrons and exposing facility owners to liability risks.

Fortunately Fresh-Aire UV has a solution. Our Airborne Disinfection System is equipped with high-output UV-C lamps to kill airborne pathogens 24/7.

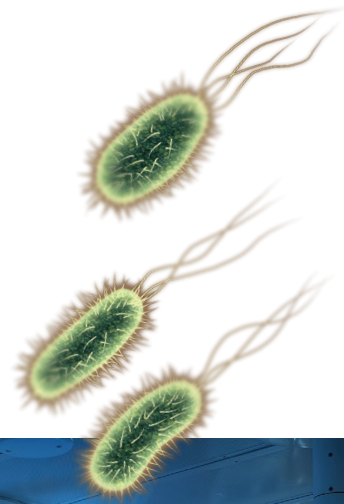


## Odors & VOCs

Volatile Organic Compounds (VOCs) are the source of nearly all odors. Our award-winning APCO® technology uses a unique combination of UV-C light, activated carbon, and titanium dioxide to safely adsorb and neutralize VOC molecules as they pass through the HVAC system. APCO technology produces no ozone.



# Room Disinfection



## Reduce HAI Risk

For medical facilities at risk for hospital acquired infections (HAIs), Fresh-Aire UV offers surface disinfection UV-C systems. The ESDS system is designed to disinfect room surfaces when the area is unoccupied. It is a self-contained overhead mounted high-output germicidal UV-C light fixture which comes with an internal electronic power supply and door interlock safety switches. The high quality hard quartz UV-C lamps (single or dual) are encased in a shatter-proof Teflon safety coating.



The Environmental Surface Disinfection System (ESDS) is designed for sanitizing unoccupied spaces

In an independent test UV-C light killed over 99% of microbial contaminants after the first 24 hours of use.

## Practical & Safe

The ESDS UVGI fixture is a simple and cost-effective solution for surface disinfection. It's easy to install and comes with a safety door interlock switch to prevent accidental exposure. The ESDS is just a fraction of the cost of a UV-C robot, has no moving parts, and does not require a skilled operator or regular maintenance other than yearly lamp changes.



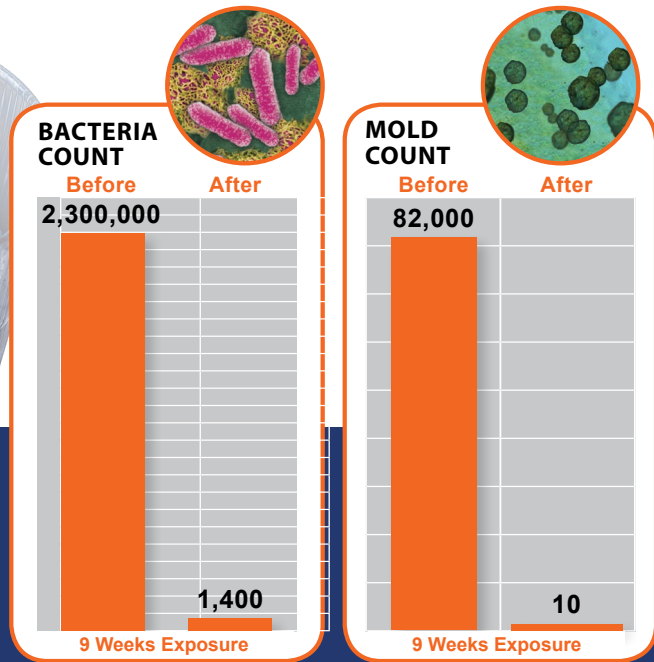
# Ice & Water



## Save on Maintenance

Ice machines are prone to both mold and bacterial contamination. The cool, moist interior of the machines is a perfect breeding-ground for mold. Even worse, it only takes one pair of unwashed hands for dangerous bacteria such as E.coli to contaminate the ice. Conventional cleaning methods are expensive and labor-intensive and are only done periodically.

Fresh-Aire UV ICE UV™ and ICE UV Mini™ work continuously to keep all types of ice makers clean and sanitary which extends the cleaning cycle. These UVGI systems require no maintenance themselves other than lamp changes every two years.



## ICE UV™

Now ice machine maintenance is easier, safer, and more cost-effective thanks to the award winning ICE UV germicidal UV light system from Fresh-Aire UV. ICE UV works continuously to kill germs before they become established, reducing the need for frequent cleanings. The UV-C lamp is designed to produce just the right amount of UV-C light; enough to kill germs inside the ice machine without damaging plastic materials inside.

## ICE UV Mini™

The countertop ice & water dispensers used at nursing stations frequently need cleaning due to slime in the drain pan. ICE UV Mini™ features a pencil-thin UV-C lamp and a compact power supply making it ideal for these smaller machines.



32" lamp systems are available for larger ice machines.



WORKS CONTINUOUSLY TO KEEP ICE MACHINE SANITIZED



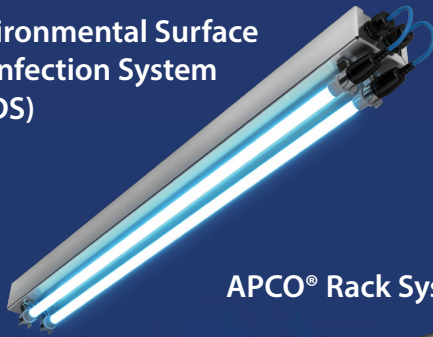


Fresh-Aire UV is an innovation leader in the field of indoor air quality. Our award-winning UV light and carbon products fight mold, bacteria, viruses and odors in commercial and residential HVACR systems.

Fresh-Aire UV® Commercial Series products do not produce ozone. Most come with a lifetime warranty on all parts except lamps.

### Standard Commercial System

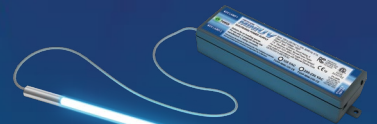
Environmental Surface Disinfection System (ESDS)



Tubular Rack System



APCO® Rack System



Ice UV Mini



Airborne Duct System (ADS)



Ice UV



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