

FROM THE LEADER IN HVAC
& HEALTHCARE UV DISINFECTION

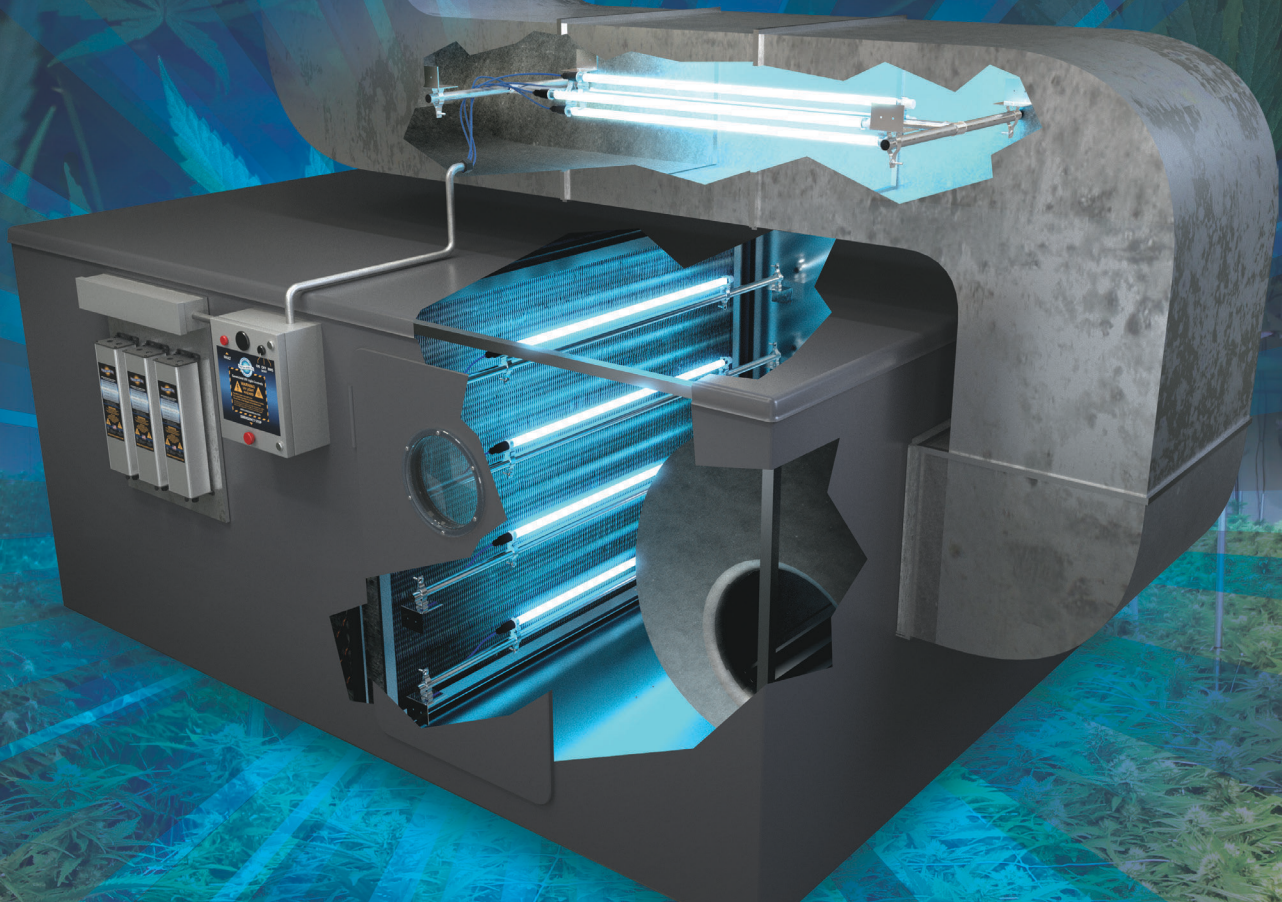
Airborne | Coil | Air Handler | Surface



PREVENTS
AIRBORNE TRANSMISSION OF
POWDERY MILDEW

CONTROL
MICROBES & ODORS

IMPROVE
PLANT VIABILITY



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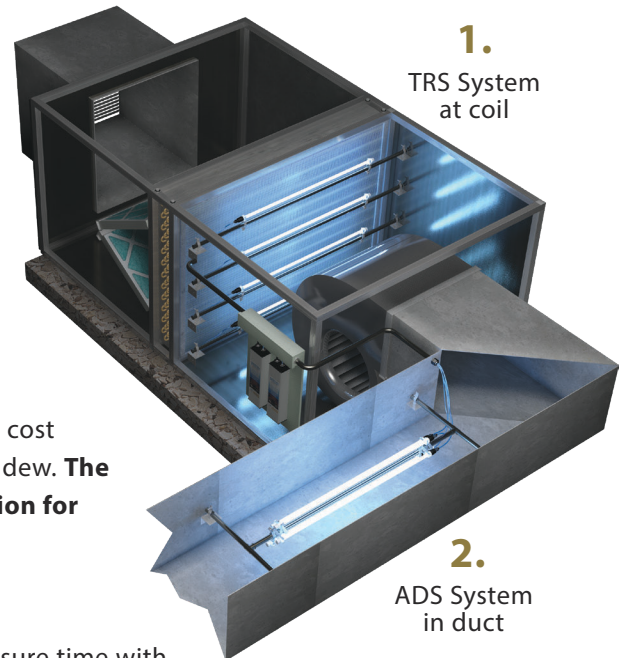


Cannabis Applications

Cannabis crops must be held to the highest standards. Unfortunately for growers, the bacteria, mold and fungus that contribute to powdery mildew and other bio-contamination can be spread via airborne transmission. The good news is that Fresh-Aire UV ultraviolet germicidal irradiation (UVGI) systems are proven to sterilize airborne bacteria, mold and fungus and help prevent them from being transmitted throughout a facility. UV is a powerful tool for cannabis operations to maximize their yields and achieve the highest quality, safest product possible.

1. Air Handler & Air Stream Disinfection (TRS System)

The air handler (AHU) distributes conditioned air throughout the grow facility. The evaporator coil, drain pan and surrounding surfaces within the AHU are often a breeding-ground for problematic mold and fungi. The Fresh-Aire UV TRS high-output germicidal lamp system helps maintain a clean, efficient, safe and sterile air handling unit and is a very cost effective way to address microbial contamination including powdery mildew. **The TRS system is ideal for AHU disinfection and for air-stream disinfection for applications with greater than 10 air-changes per hour.**



1.
TRS System
at coil

2. Airborne Disinfection System (ADS)

The ADS system (mounted parallel in the air-stream) maximizes UV exposure time with the air. Sized according to air velocity (CFM), duct dimension and biological target, the ADS system is available in a full range of (high output) lamp lengths and configurations to achieve up to a 99.9999% biological reduction on a single pass. **The ADS system is ideal for applications with less than 10 air-changes per hour.**

3. Odor Exhaust Oxidation (OEO) System

The Odor Exhaust Oxidation (OEO) System employs high-output UV oxidizing lamps to address odors that are being exhausted to outside. The system is very cost-effective with little to no maintenance required other than lamp replacement. **The OEO System the ideal choice for grow facilities wishing to eliminate problematic odors that are being exhausted outside.** It is sized according to CFM, duct dimensions, and duct length and allows for a tailored approach for any exhaust application. Also available with the APCO HYBRID UV / Carbon Ceramic Matrix.



3. OEO System in duct



800-741-1195

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Made in USA



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SALES@FRESHAIREUV.COM

TUVC-MM-420-OEO 4.11.19

About Fresh-Aire UV

Thank you for showing interest in Fresh-Aire UV systems. Triatomic Environmental has been providing Indoor Air Quality systems for residential, commercial, industrial and healthcare applications since 1988. In 2001, Triatomic Environmental released the Fresh-Aire UV line, which has since grown to become the industry leader in UV disinfection technologies. Since 2001, over half-a-million Fresh-Aire UV systems have been installed worldwide. Fresh-Aire UV is a leading provider of UV disinfection systems for hundreds of applications including healthcare facilities to help control Hospital Associated Infections (HAIs) & improve equipment efficiency. Over the last five years, we have seen an increased demand in our products to control the spread of infection within grow-facilities, really no different than what Fresh-Aire UV has been doing in healthcare for nearly 20 years.

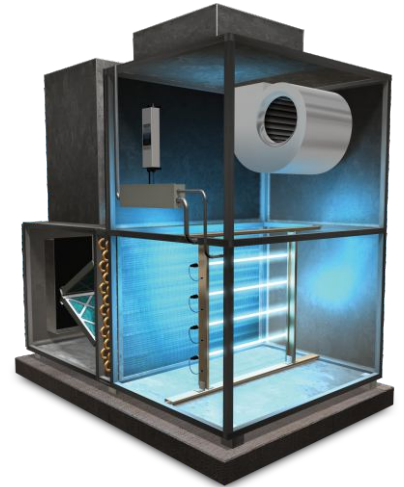
Here is some background on sizing cannabis applications with UV.

Understanding UV & Air Recirculation Rates



For high-level airborne disinfection on a single pass or for facilities with <10 air changes per hour. We would size an ADS (Air Disinfection System) assembly (pictured to the left) with UVC lamps ranging from 18-60" lengths and from two (2) up to six (6) high-output germicidal UVC lamps mounted in the center of the ductwork parallel to the airstream. These modular systems are designed to maximize exposure time between the moving air and the airborne contaminants and are sized according to CFM, duct dimensions, biological targets and air recirculation rates. These types of UV systems are popular for healthcare facilities with low or little re-circulation such as operating rooms. Typically, for grow facilities, this is not the case, as the facility experiences very high-recirculation rates.

Another, more advantageous option (provided there are > 10 air changes per hour) are using high-output UVC lamps not mounted in the ductwork but in the AHU at the coil section (pictured to the right) The goal of these UV systems installed in the AHU is to maintain a sterile, clean coil and air handler free from fungus and mold and "continual" air disinfection. This maintains a sterile coil and drain pan addressing microbial blow-off that would be distributed into the facility and possible cross-contamination.



Ideal UV application for surface & air disinfection for facilities with > 10 air changes per hour

For typical commercial HVAC facility air treatment, Fresh-Aire UV recommends ADS systems for airborne disinfection. Because facilities such as hospitals may bring in as much as 100% outside air, and typical commercial buildings may only experience 4-6 air changes per hour, we need to deliver the highest UV dosage possible for these low recirculation applications. For the majority of grow-ops, the facility experiences very high air-changes per hour (>10). This is exceptional, as not as many UV systems are needed (compared to low-recirc applications) as the air is repeatedly passed through the UV field resulting in much higher disinfection rates.

Information we need to size

To size correctly, Fresh-Aire UV would need the following (for the area to be treated):

- CFM of the blower(s) and evaporator coil dimensions
- Return or supply duct width x height
- Total number of blowers per room
- Room width x length x ceiling height (approx.)

For odor-exhaust to outside applications we need duct dimensions, duct run and CFM

BLUECALC™
UVGI DESIGN

Customer / Project: AMU Disinfection Procedure Written

UVGI Lamp Data	
Width	20 in
Height	20 in
Distance from Surface	12 in
Number of Rows	1
Number of Lamps per Row	1
Total number of UV Lamps	1
Lamp Length	5.7 in
Lamp Diameter	0.5 in
Electrical Power per Lamp	17 W
Electrical Power (Total)	17 W

Irradiation Data	
UVGI Factor	2
Minimum Irradiance on the Surface	180 µW/cm ²
Average Irradiance on the Surface	126 µW/cm ²
Maximum Irradiance on the Surface	240 µW/cm ²

Microbe Survival Time after 28000 hours of operation	
Disinfection Rate	99.9%
Minimum Survival Time	137 min
Maximum Survival Time	6.1 min
Average Survival Time	6.1 min

Irradiation at the surface

Lamp Irradiation Profile

Fresh-Aire UV will provide no-charge "Real-Time" disinfection report with all relevant installation, dosage and engineering data.

Please fill-out the "Grow-Facility UV Disinfection Survey" on the next page



Send completed survey & any additional documents to sales@freshaireuv.com. For any questions or clarification, please call 800-741-1195.

Grow-Facility UV Disinfection Survey (per room) Date: _____

Project Name _____ Room Name _____

Company Name _____

Unit Number and Unit location _____

Jobsite Contact _____

Air Handling Unit (AHU) information

1. What type of room (i.e. flower, dry, etc.)? _____
2. How many AHUs per room? _____
3. CFM per AHU _____
4. Evaporator coil dimensions: *Wide* _____ *x High* _____ (*Inches*__ *Centimeters* __)
5. Voltage: _____ *120VAC* _____ *208/230VAC* _____ *277VAC* _____ *460/480VAC*
6. Room Dimensions: *Width* _____ *x Length* _____ *x Ceiling Height* _____

Ductwork information (if applicable)

7. Ductwork information:
Duct size: Wide _____ *x High* _____ *& DUCT Length:* _____ *DUCT MATERIAL:* _____

Biological contaminants

8. Specify biological contaminants (i.e. Botrytis cinerea): _____
9. If you have testing to share, please include as an attachment.

Odor exhaust information (if applicable)

10. Is exhaust odors an issue? *Yes* _____ *No* _____
 If answered YES:
 Specify: *Exhaust Duct Size: Wide* _____ *x High* _____ *& DUCT Length-to-outside* _____
CFM _____

Other important Notes / Drawings/ Images: