



UPPER-ROOM UVGI

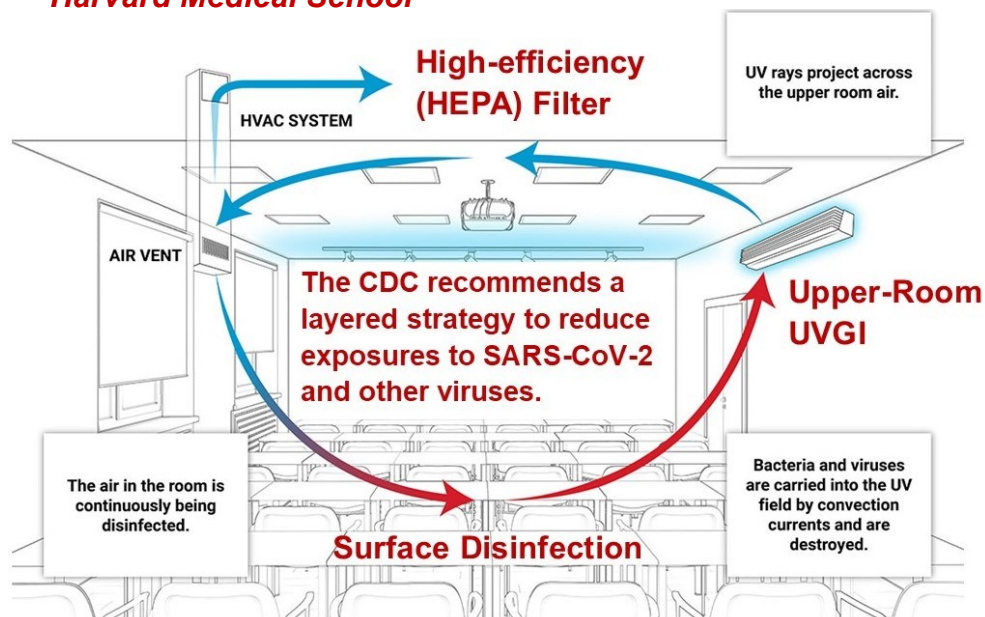
GERMICIDAL ULTRAVIOLET DISINFECTION LIGHTING

“Essential for Airborne Infection Control”

Why Germicidal UVGI is Essential for Airborne Infection Control

“Germicidal UV, primarily upper room UV, has for over 80 years provided a safe and highly effective way to disinfect air in occupied rooms where person to person transmission is likely to occur. Quantitatively, where applicable, no other technology approaches the equivalent air changes per hour that can be produced by upper room UV, silently, safely and cost-effectively. **For COVID-19, it is essential** that engineering strategies target transmission in occupied rooms—more so than in the ventilation system, given the paucity of evidence of recirculated virus”. **“It is no exaggeration to claim that the most effective, evidence-based, cost effective, safe, sustainable, and available engineering intervention to disinfect air is germicidal ultraviolet (GUV) air disinfection”**.”

Harvard Medical School



CDC, EPA, ASHRAE, the American Medical Association and others recommend a layered strategy to reduce exposures to SARS-CoV-2 and other viruses and pathogens. A layered strategy includes mask, physical distancing, surface cleaning, upper-room UVGI and high-efficiency (HEPA) filters.

Upper-room UVGI Recommended by: CDC ASHRAE, EPA, U.S. Dept. of Energy, Harvard Medical School, Johns Hopkins School of Public Health, Lancet COVID-19 Commission, U.S. Dept. of Defense, Homeland Security, Duke Medical School, AIA, U.S. Dept. of Education, DHEC, American Medical Association, Center for Infectious Disease, IES, U.S. Army Public Health Center, OSHA, IFMA, NIOSH, NCBI, American Journal of Infection Control, National Academies of Science, Engineering and Medicine and every major Medical and Scientific Institution

Upper-Room UVGI:

The ONLY air disinfection technology PROVEN and RECOMMENDED by the CDC, all Federal Agencies, Medical and Scientific Institutions.



Why Upper-Room GUV is so Effective and Cost-Effective Compared to other Technologies

“ In contrast to mechanical ventilation and room air-cleaners, upper room GUV air disinfection with good air mixing has been shown under real-life conditions to produce the equivalent of adding as much as 24 room air changes per hour quietly, safely and sustainably. Under high-risk conditions, especially where few buildings have efficient mechanical ventilation systems, **the only approach to the environmental control of airborne infection is upper room GUV**. Upper room GUV is so highly effective because such large volumes of room air are decontaminated at one time.”

Harvard Medical School

“Upper-room UVGI kills pathogens in the room where they are released. For airborne viral particles, upper-room UVGI systems provide air changes per hour that are similar to the introduction of clean air into the space.”

The CDC

- Operates 24/7/365
- Safe for Occupied Rooms
- Maintenance Free
- Chemical Free
- Ozone Free
- Silent
- Automated Lamp Replacement Notice
- Proven for over 80 Years in Hospitals to Stop Airborne Infections
- Disinfects and Cleans the Air to the Equivalent of Fresh Air



Any upper-room UVGI system installed to help during the COVID-19 pandemic will also be useful against seasonal flu and other pathogens.

The CDC



Ultraviolet germicidal irradiation, or UVGI, is the use of ultraviolet (UV) energy to kill viral, bacterial, and fungal organisms. UVGI fixtures produce UV-C energy, which has shorter wavelengths than more penetrating UV-A and UV-B rays and pose less risk to human health. Upper-room UVGI refers to a disinfection zone of UV energy that is located above people in the rooms they occupy. **This kills airborne pathogens in the room where they are released.** Fixtures are installed to prevent direct UV exposures to people in the room.

How does Upper-Room UVGI work?

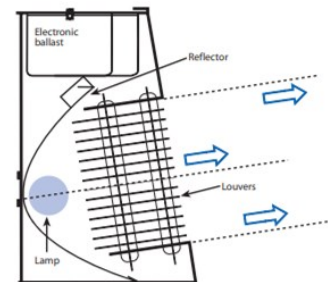
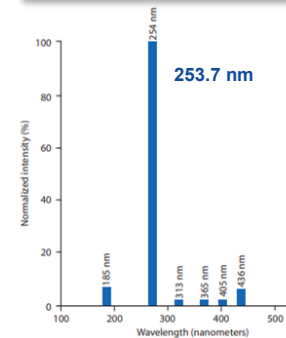
1. Air passes through the disinfection zone from air flow through a heating, ventilation, and air conditioning (HVAC) system, fans, and/or open windows.
2. The airborne pathogens are killed once they receive an appropriate amount of UV energy. The particles remain in the air, but they are no longer infectious.

The CDC

Upper-Room UVGI is considered as a primary component of emergency preparedness and is considered as a “Biosafety Technology” and “Bioterrorism Countermeasure”.

nZGUV®
GERMICIDAL LIGHTING
a Division of NetZero USA Holdings Inc.

Germicidal 253.7 nm Ultraviolet Disinfection Upper-Room Unit



The First UL Tested and Listed GUV Technology

UL 1598

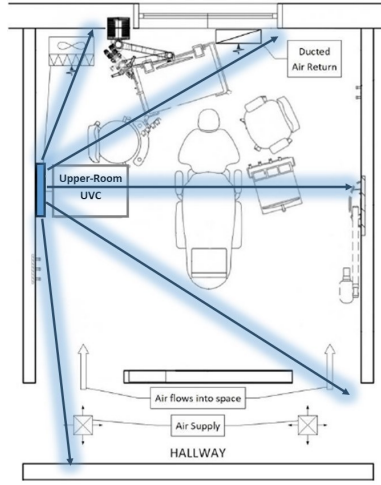
UL 8802

UL IEC62471 Photobiological Safety Testing

UL IEC62471 Efficacy Testing

UL: Exempt-No Risk





ASHRAE Position Document on Infectious Aerosols

“Building science professionals must recognize the importance of facility operations and ventilation systems in interrupting disease transmission.

Dilution and extraction ventilation, pressurization, airflow distribution and optimization, mechanical filtration, ultraviolet germicidal irradiation (UVGI), and humidity control are effective strategies for reducing the risk of dissemination of infectious aerosols in buildings and transportation environments.

Even the most robust HVAC system cannot control all airflows and completely prevent dissemination of an infectious aerosol or disease transmission by droplets or aerosols.

Upper-room UVGI as a supplemental to supply airflow (Evidence Level A) - Strongly recommended; good evidence.”

ASHRAE

ASHRAE Journal Supplemental October 2020

“One of the oldest applications of germicidal UV for space infection control, upper-room/air systems work by effectively intercepting pathogens and viruses at their source in the room air.

Operating 24/7/365, upper-room/air germicidal fixtures can inactivate these microbes in a matter of seconds.

Upper-room/air UV-C fixtures utilize the natural rise and fall of convection or mechanical air currents to circulate airborne infectious agents into the upper room, where they are exposed to UV-C and killed.

First-pass kill or inactivation ratios of up to 99.9 percent have been modeled, with concentrations further reduced with each subsequent pass of recirculated air (multiple dosing). “

ASHRAE



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The NetZero USA LEASING PROGRAMS powered by Wells Fargo can design Leasing solutions for GUV installations that avoid any up-front or out-of-pocket cost.

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- Low Monthly Payments / \$1.00 Buyout
- Non-Encumbering Equipment Lease
- No Down Payment
- 36, 60, 72 & 84 Month Terms
- Material & Installation

nZGUV[®]
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