rzero

Beam

Autonomous upper room UVGI air disinfection

Efficacy

Provide top notch air disinfection by adding 12+ eACH to your space, the equivalent of changing air in a room every 6 min. While typical buildings have 1-3 air changes per hour (ACH), new standards from ASHRAE, the CDC, and Lancet requires 5, 6, or much higher ACH.

ROI

Improve your disinfection practices. Enhancing ventilation efficiency and disinfection protocols have been shown to increase reduce HVAC costs, peace of mind, employee productivity, student achievement, and reduce viral risk.

Sustainability

Achieve your IAQ goals with 90%+ less energy costs and greenhouse gas emissions than HVAC.

Autonomous

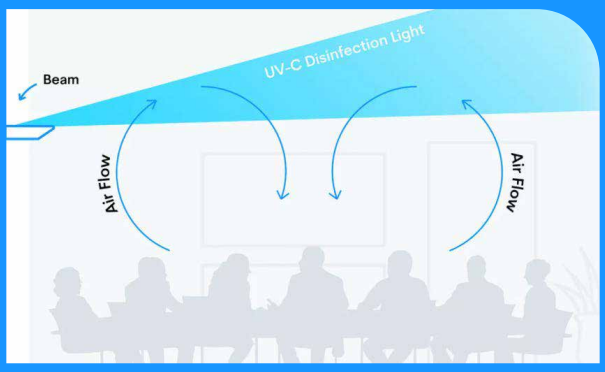
Labor-free disinfection that automatically powers on/off to maximize efficacy and bulb life while minimizing energy usage.

Connected Platform

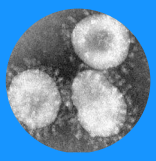
R-Zero's software platform, Connect, integrates data from all devices, extracts insights, and manages workflows. Location and operation of each device is recorded and can be shared in reports to key stakeholders.

How it works

Potentially contaminated air rises and passes through the zone of irradiation, where it is disinfected. Natural airflow then recirculates the disinfected air in the occupied space.

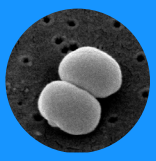


Upper room ultraviolet germicidal irradiation (UVGI) is an air disinfection method generally recommended by ASHRAE and the CDC. R-Zero's upper room UVGI solution, Beam, has been independently validated for its ability to inactivate and destroy microorganisms, including:



99.99%
SARS-CoV-2

99.99%
Klebsiella bacteria



99.99%
Staph epidermidis

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Germicidal Light Engine	
UV Source	4 Proprietary LED bars, 12 LEDs per bar
Rated LED Life	10,000 hrs, up to 3 years under normal operating conditions
Wavelength	Nominal 265 nm (range 260-270 nm)
Disinfection Power	99.99% reduction in SARS-CoV-2
Added Equivalent Air Exchanges	14.3 eACH in 500 sqft. | 9.7 eACH in 1,000 sqft. | 12.6 eACH in 2,000 sqft. (2 units) | 9.2 eACH in 3,000 sqft. (2 units)[1]
Controls	
On Unit	Device status indicator, on/off switch
Remote Operation	Web interface (R-Zero Connect)
Automatic Operation	Touchless power-on when room is occupied
Connectivity	WiFi (2.4 GHz)
Electrical	
Input Voltage	120-240 VAC
Current	1.6A (at 120 VAC)
Typical Power Consumption	120W
Max Power Consumption	200W
Power Connection	IEC C14 socket (cable Included)
Physical	
Dimensions	77 inches wide, 16 inches deep
Weight	25 lb
Mounting	Wall
Minimum Mounting Height	7 feet from floor
Environmental	
Indoor/Outdoor	Indoor only
Altitude	0-3000m
Temperature	10-40C
Relative Humidity	10-90%
Safety	
Motion Sensors	Long-range PIR sensors: 2 in the irradiance zone, 1 in occupied zone
Physical Features	Physical Features Baffle under LEDs to direct light and keep occupant exposure below limits to direct UV-C light
Regulatory	
UL 1598, CSA C22.2 No. 250	Passed March 2022
FCC Part 15C	Passed August 2021

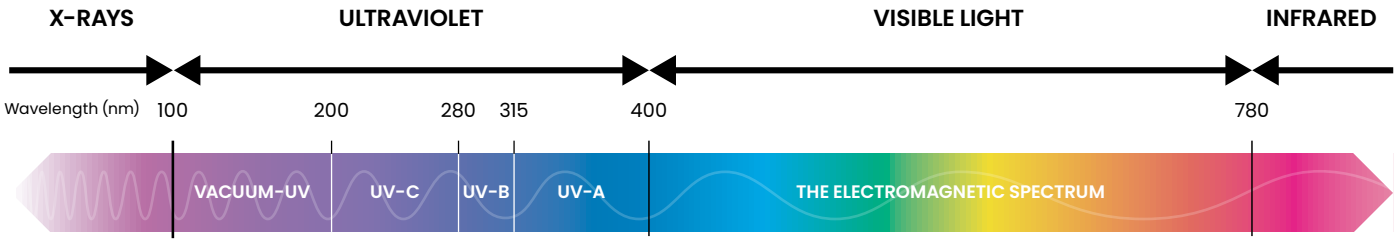
[1] Assumptions: 9 ft ceilings for rooms ≤1,000 sqft, 10 ft for ≥2,000 sqft; 15% ceiling reflectance; SARS-Cov-2 pathogen and light simulation; power limited by ACGIH TLV standards

Your Senior Care Facility Is Now Protected by R-Zero:

What Does That Mean?

R-Zero is the first biosafety technology company dedicated to making shared indoor spaces safe and clinically clean. Founded to help organizations protect the health of people they serve, R-Zero leverages innovative and effective UV-C disinfection technologies to reduce the risk of exposure to microorganisms. In senior care facilities, R-Zero's flagship product, Arc, enhances existing cleaning and janitorial protocols by enabling whole-room UV-C disinfection to reset microbial counts to almost zero.

What is UV-C Disinfection?



UV-C is ultraviolet light at a wavelength of 100-280 nanometers (nm). These wavelengths do not penetrate Earth's atmosphere and have germicidal properties. Consequently, harmful microorganisms like viruses, and bacteria, have no natural exposure and therefore no immunity to the light. When these microorganisms are exposed to UV-C light, the light disrupts vital cellular functions, like replication of RNA and DNA protein structures. This disruption of RNA and DNA replication destroys or inactivates bacterial and viral microorganisms such as influenza, E. coli, rhinovirus, and SARS-CoV-2.

UV-C has been enabling higher standards of disinfection in hospitals for decades. R-Zero's flagship device, Arc, brings hospital-grade efficacy to non-healthcare settings. Arc emits 254nm UV-C light. In addition, Arc has been independently verified to destroy 99.99% of airborne and surface-borne microorganisms (including coronavirus, MRSA, E. coli, and more) in a 1000 square foot room in 7 minutes.

Why Use UV-C Disinfection in Senior Care Facilities?

Residents and staff deserve to interact in safer indoor environments. Indoor environmental health in senior care facilities is possible through the implementation of Healthy Buildings principles, including attention to indoor air quality and effective disinfection, such as the disinfection enabled by R-Zero's UV-C disinfection solutions.

Arc is part of R-Zero's suite of disinfection solutions can help enable safer indoor environments for your senior care facility while providing peace of mind for families.

Common Questions about UV-C Disinfection

Is UV-C safe to use around people?

The UV-C wavelength that Arc uses (254 nm) is not safe to use around people. This wavelength of UV-C can cause skin and eye irritation if humans are exposed. Consequently, Arc should only be used in unoccupied rooms. To further ensure safety, Arc has redundant safety mechanisms. These features include a pre-cycle countdown to allow operators to leave the room safely before a cycle begins and sensors that detect movement and automatically trigger device shut-off if a person enters the room during a disinfection cycle.

Is UV-C a proven technology?

Since the early twentieth century, scientists have known about UV-C light's germicidal (germ-killing) properties. In 1903, Danish doctor Niels Finsen received the Nobel Prize for Medicine for his use of UV-C light to treat lupus vulgaris, a tuberculosis infection that manifests as lesions on the skin. Since then, UV-C light has been proven to destroy or inactivate bacteria and viruses, including SARS-CoV-2, E. coli, and influenza. UV-C has been used in hospitals for decades and is now available for use in schools and other non-healthcare settings thanks to R-Zero's mission to democratize disinfection.

Why is UV-C disinfection an important component of a layered mitigation strategy?

Manual disinfection is not enough. Even in hospitals, cleaning staff can regularly miss up to 49% of high-touch surfaces. UV-C provides an added layer of critical air and surface protection that chemicals and wipes can miss. UV-C disinfection is an eco-friendly solution that is safe to use around furniture, food, and electronics. Unlike chemical decontamination methods (such as sprayers), germicidal UV-C leaves behind no harmful chemical residue. Spaces are immediately safe to enter following a disinfection cycle.

How will the school(s) in my district be using Arc?

Arc is designed to integrate with existing janitorial and cleaning protocols as an added layer of risk mitigation. Arc enhances rather than replaces cleaning processes.

Does UV-C light penetrate glass?

No. UV-C cannot penetrate glass, so you can run a disinfection cycle in rooms that have windows without harming anyone or anything on the other side of the windows.

How do we know the UV-C is working?

R-Zero leverages UV-C dose cards to verify surface and air exposure in rooms. These cards use photo-chromatic ink that changes color when stimulated by certain wavelengths of UV-C radiation. The colors on the card change at various energy levels, and these color changes correspond to log reductions of microorganisms. Log reductions indicate how thoroughly the UV-C irradiation is inactivating microorganisms. R-Zero's UV-C disinfection can achieve a 4 log or 99.99% reduction in potentially harmful microorganisms.*

**Third party testing of SARS-CoV-2, feline calicivirus, MRSA, and E. Coli on hard, non-porous surface in seven minutes, samples taken at eight feet.*

Visit www.rzero.com to learn more about Arc and other UV-C disinfection solutions in R-Zero's portfolio.