OMNI SPIRO UVGI Air Scrubbers

High standards are integral to everything we do at OMNI Solutions. With an increasing global demand for enhancing sanitization standards, we are excited to offer the "best available technology" as the leader in global UV-C disinfection equipment. UV-C light cleaning equipment can kill up to 99.9% of bacteria and viruses, both on surfaces or when airborne.

ASHRAE and CDC Position on UV-C Air Disinfection

ASHRAE, is a global society advancing human well-being through sustainable technology for the built environment. The Society and its members focus on building systems, energy efficiency, indoor air quality, refrigeration, and sustainability within the industry. The CDC refers to ASHRAE protocol for issues such as legionella and air disinfection.

Ultraviolet Germicidal Irradiation (UVGI) is a disinfection method that uses short-wavelength ultraviolet (ultraviolet C or UV-C) light to kill or inactivate microorganisms by destroying nucleic acids and disrupting their DNA, leaving them unable to perform vital cellular functions. UVGI is used in a variety of applications, such as food, air, and water purification. OMNI's SPIRO unit provides this type of UVGI disinfection.

The CDC, regarding COVID-19 and public buildings, states, "Consider using ultraviolet germicidal irradiation (UVGI) as a supplemental technique to inactivate potential airborne virus in the upper-room air of common occupied spaces, in accordance with industry guidelines." The CDC provides the ASHRAE site as their position on UV-C air disinfection as it pertains to COVID-19.

ASHRAE Statement on Airborne Transmission of SARS-CoV-2

- **Transmission of SARS-CoV-2 through the air is sufficiently likely that airborne exposure to the virus should be controlled. Changes to building operations, including the operation of HVAC systems can reduce airborne exposures.**

ASHRAE Statement on Operation of Heating, Ventilating, and Air-Conditioning Systems to Reduce SARS-CoV-2 Transmission

> **Ventilation and filtration provided by heating, ventilating, and air-conditioning systems can reduce the airborne concentration of SARS-CoV-2 and thus the risk of transmission through the air. Unconditioned spaces can cause thermal stress to people that may be directly life threatening and that may also lower resistance to infection. In general, disabling of heating, ventilating, and air-conditioning systems is not a recommended measure to reduce the transmission of the virus.**

Control of seasonal influenza has for decades relied on large-droplet precautions even though there is evidence suggesting a far greater importance for airborne transmission by small particles. For instance, a 1959 study of influenza prevention in a Veterans Administration nursing home identified an 80% reduction in influenza in staff and patients through the use of upper room ultraviolet germicidal irradiation (UVGI). This suggests that air currents to the higher-room areas where the UVGI was present carried the airborne infectious particles, and they were inactivated. The inactivated (noninfectious) particles were therefore unable to infect staff and patients in control areas with UVGI, as compared to areas without UVGI.

There is research that shows UVGI in both the upper-room and in-duct configurations can inactivate some disease-transmitting organisms that it can affect disease transmission rates, and that it can be safely deployed. Upper-zone UVGI, when effectively applied inactivates infectious agents locally and can be considered in public access and high-traffic areas such as cafeterias, waiting rooms, and other public spaces. The fixtures are typically mounted at least 2.1 m (7 ft) above the floor, allowing at least an additional 0.3 m (1 ft) of space above the fixture for decontamination to occur.

Filtration and UVGI can be applied in new buildings at moderate additional cost and can be applied quickly in existing building systems to decrease the severity of acute disease outbreaks.

Committees that write and maintain practice standards and guidelines for critical environments such as health-care facilities and crowded shelters should consider recent research and understanding of infectious disease control and consider adding or strengthening requirements for the following:

- **Improved particle filtration for central air handlers**
- **Upper-room and possibly other UVGI interventions (such as mobile UV-C surface disinfection units) or at least the ceiling heights and electrical infrastructure to quickly deploy them**

While ASHRAE also suggests proper room ventilation and filters, they also state the level of filters used to help prevent airborne pathogens can significantly reduce air flow and cause more problems, and further suggest UVGI as a resource for keeping air flow at the proper level while still reducing airborne pathogens.

Airborne bacteria and viruses are unable to be destroyed by conventional cleaning processes. OMNI's SPIRO air unit provides a solution to this issue, not only during routine cleanings, but while the buildings are occupied. Unlike conventional cleaning methods, the use of UV-C provides the ability to kill viruses and bacteria while airborne. Unique wavelength (around 254nm) makes

it powerful and effective. The ability to scrub the air in an occupied room allows for a much safer environment.

Studies have proven the efficacy of UV-C disinfection, such as Journal of Virological Methods, which states, "Exposure of virus to UVC light resulted in partial inactivation at 1 min with increasing efficiency up to 6 min, resulting in a 400-fold decrease in infectious virus. No additional inactivation was observed from 6 to 10 min. After 15 min the virus was completely inactivated." Another study from Health Facilities Scotland, a division of NHS National Services Scotland, states "The study showed UVC disinfection significantly reduced the number of bacteria on surfaces directly or indirectly exposed to UVC to a very low number." Activating the SPIRO unit at least 60-minutes before the room is occupied will allow the air to circulate completely and provide a continuous reduction in airborne pathogens.

Improving air quality traditionally requires an initial and ongoing investment. SPIRO is a one-time investment, except for lamp replacement. If run 24-hours daily, lamp replacement should occur every 12-months. Lamp cost is very reasonable and easy to install.

OMNI's SPIRO units provide between 2,500 and 750,000 cubic square feet of coverage, cleaning the air in the space hourly, easily allowing air to be circulated and scrubbed consistently for any size building or room. The UV-C lamps are covered, safe to run in occupied rooms, and include carbon filters on the output side, which will assist with odor if this is an issue. The UV-C lamps are designed to run efficiently while still using a high, non-toxic UV-C dose to ensure maximum benefit. All but the two larger size units (six options available) use regular 110-volt outlet, the two large units require 220-volt outlets. All units are designed for ceiling mount, as suggested by ASHRAE, but may also be wall mounted.

OMNI has an outstanding reputation and has been in the UV-C disinfection industry for many years. OMNI's UV products are used in the Pentagon, the Mayo Clinic, and hundreds of healthcare facilities, hotels, schools, and other locations. Many industry awards, such as the **TRSA 2020 Sustainability Award** and the **2020 Leading Experts in UV-Based Technology Award** from GHP Healthcare & Pharmaceuticals, have been presented to OMNI over the years. Our products are crafted in the USA using only high-quality parts and lamps which enable us to provide a superior product at an exceptional value.