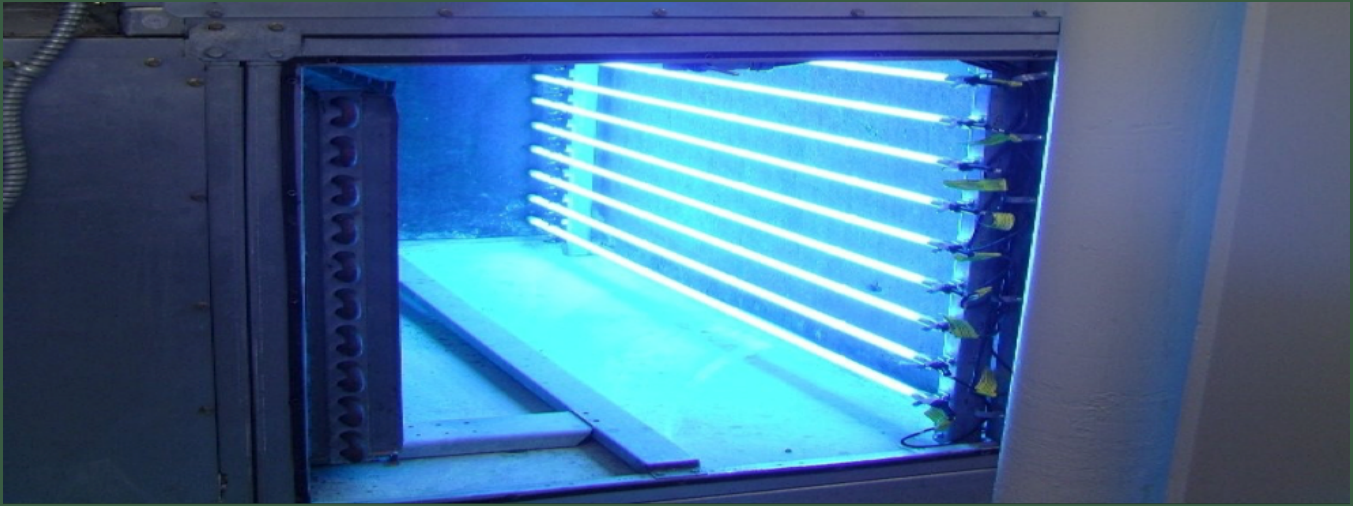


# UV-C Germicidal Light Solution



## A Solution To Combat Coronavirus

Greffen Systems is working with industry leaders to offer UV-C germicidal light solutions that will combat the Coronavirus. COVID-19 is considered a nano-virus and is only .1 micron in size. To put this into perspective, a HEPA filter will only collect particles up to .3 microns. Based on the information available from authorities, Coronaviruses can be transmitted via both air and direct contact. It can be assumed that the virus can be ingested into the return air-plenum and be moved throughout the organization's air handling units and the building's duct work.

## How Do We Know UV-C Works?

Researches don't know if UV-C can kill COVID-19 as this particular strain has not yet been studied, but it has been proven that UV-C waveform 253.7 nm is effective in killing other varieties of coronaviruses such as SARS and MERS. The 253.7 nm spectrum UV-C bulbs are in fact the same spectrum bulbs used to sterilize hospital surgical rooms.

## What Are We Proposing?

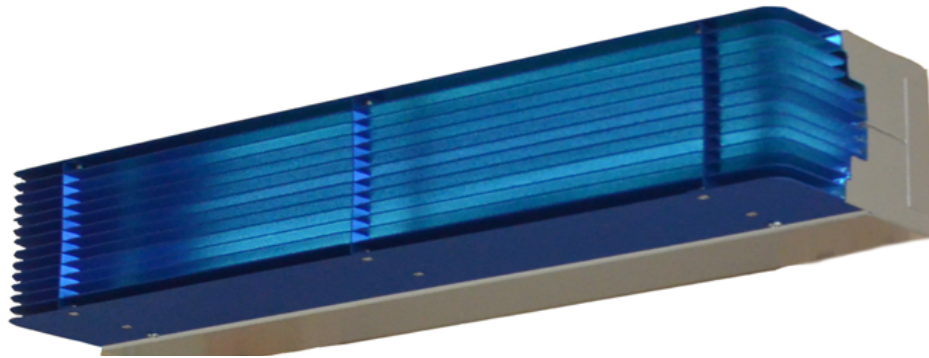
Greffen is proposing installing UV-C germicidal lamps in the air handlers of an organization's HVAC system. UV-C germicidal lamps are the only solution studied and validated by ASHRAE, in which they state that the UV-C wavelength can kill 90% or more of all microorganisms living on HVAC air ducts and evaporator coils and will kill viruses as they fly by. Greffen's engineering team will assist the customer in predictive modelling to determine specific dosage rates required. These dosage rates depend on how easily the UV-C energy is absorbed by the virus and are also dependent on other variables such as the CFM air speed of the respective air handler, lamp location within the air handler and the best options for installing either upstream or downstream of the coil (or both) depending upon the customer's goals.

## What Other Greffen/UV-C Solutions Are Available?

Greffen also offers an Upper-Room/Upper-Air germicidal fixture. These fixtures use the very same 253.7 nm bulbs that are used for surgical disinfection. The Upper-Room UV-C fixtures are self-contained and are wall mounted at approximately 7 feet or higher in the room. They are ideal for waiting areas, surgical suites, cafeterias, classroom, churches and hotels. As convection or air currents lift the airborne infectious agents into the room's upper air, they are exposed to the UV-C irradiation which breaks down the virus's DNA chain and renders it incapable of replicating and also kill the virus. The wall mounted units offer baffles that direct the energy upward and outward which ensures that no UV-C energy enters below seven feet into the occupied portion of the room. ASHRAE has given the Upper-Room UV-C fixtures an "Evidence Level A" rating in their April 14, 2020 "Position Document on Infectious Aerosols."

## So, What Is Greffen Offering?

Greffen is offering a full UV-C germicidal solution which will offer you a proposal that includes; design, project management, complete installation and ongoing support to retro-fit your air handlers with 253.7 nm germicidal lighting. Greffen's engineering team will also work with you to determine placement and number of Upper-Room UV-C germicidal fixtures as applicable for the respective buildings. Greffen's engineers will also discuss other ancillary benefits of UV-C lighting that should be incorporated into the design, such as energy savings, mold remediation and pressure drop over the coil.



## Summary

The Coronavirus has had a tremendous impact on the workplace. Authorities have confirmed that COVID-19 can be transmitted by both air and direct contact. UV-C germicidal lamps are the only ASHRAE validated solution that has been proven to kill other coronavirus', including SARS and MERS, as well as other pathogens and bacteria such as influenza, measles and tuberculous. Greffen's UV-C solution is both cost effective and is a great tool in helping to keep your facilities safe from spreading the virus through the building's HVAC system.

**Contact: Frank Salensky, CEO Greffen System, Inc.**  
**email: [frank@greffensys.com](mailto:frank@greffensys.com)**  
**phone: 678-233-7724**