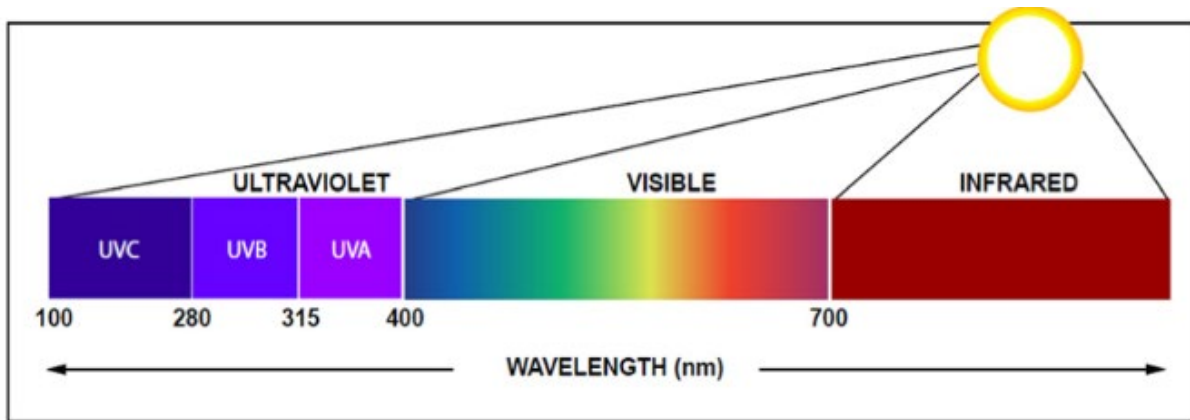
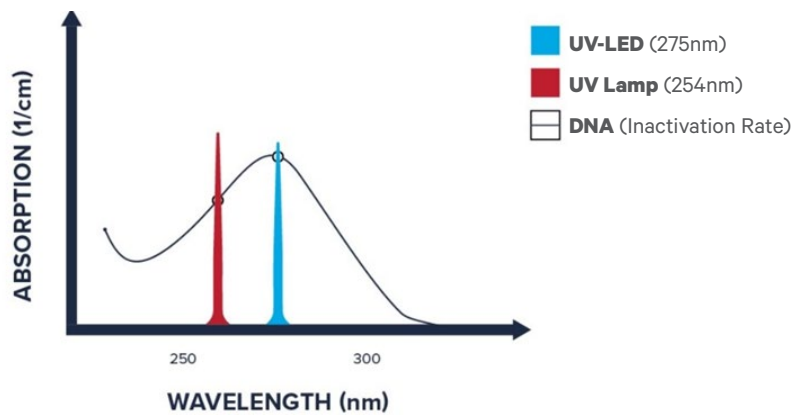


UV-C Lighting

Coronet integrates UV-C lighting at 275 nanometers (nm) into our product as upper air germicidal UV to combat virus and bacteria in a space while also providing illumination. UVC wavelengths can break the bonds in the DNA and RNA of viruses and bacteria making them unable to multiply and inactivating them. As the light directly affects the DNA/RNA of the organism, it works on drug resistant strains of viruses and bacteria; this technology has been used in hospitals since the 1940's. There are three bands of UV lighting; UVC is the safest and most effective germicidal solution.



There is an 'Action Curve' that determines how effective specific wavelengths are on Viruses. Below is an example:



Upper Air UV

Upper Air UV uses a UVC light source to clean the air in a room as it circulates. Natural convection that occupants produce combine with the HVAC system and circulate throughout the space. By providing the appropriate dosing (total UV Energy x Time of Exposure), the goal of a well-designed UVC system is to simulate 20-24 air exchanges per hour in a space, helping sanitize against airborne bacteria and viruses by keeping the air clean. Upper Air UV is effective on aerosolized particles (ie- from a sneeze), but will not clean surfaces below the fixture where droplets may land. As UV-C will not reflect off a ceiling surface, it is "line of sight" disinfection only and should be used in conjunction with a good cleaning/sanitation program.

Safety and Design Considerations

Directly viewing UV-C sources can cause harmful effects to the cornea of the eye, Coronet's fixtures are designed to prevent this during normal use in conjunction with important design requirements that allow for safety and optimal germicidal effectiveness:

- All fixtures must be mounted at a minimum of 7'6" to ensure there is no possibility of direct view into the UVC light.
- Fixtures should be at least 2ft from the ceiling to allow for an ideal spread of light and a large enough disinfection zone.
- Fixtures should be evenly spaced throughout a room.
- The lens on the indirect side of the fixture will need to be kept clean for best results otherwise UVC light could be absorbed by dust and lose its efficiency.
- An integrated occupancy sensor will turn off the UV LEDs if motion is detected above the fixture.

The Coronet Approach

Coronet aims to bring this proven technology from the medical community to commercial spaces (offices, retail, hospitality) to be used to help prevent illness in conjunction with a cleaning/disinfection plan to clean surfaces below. By using indirect UV lighting, we can shield the UV-C sources from direct view and ensure there are no safety issues while still providing standard direct LED lighting to illuminate a space. As the fixtures are evenly spaced throughout the room, a less powerful dosage can be used reducing any potential issues of UV-C exposure. Coronet targets the IES recommended 12mW per Cubic Meter of air in the disinfection region for optimal results.

References

With the Covid-19 crisis, worldwide standards organizations have issued opinions on the use of UV-C to target disinfection of space. Respected organizations are recommending Upper Air GUV as it has been proven safe and effective for the last 80 years.

- IES paper on Germicidal UV: <https://www.ies.org/standards/committee-reports/>
- CIE's Position Report on Germicidal UV: <http://cie.co.at/publications/cie-position-statement-use-ultraviolet-uv-radiation-manage-risk-covid-19-transmission>