

# Some IAQ upgrades cost you money. Our solutions pay you back!

Backed by science that enhance your image, save money and create a safer environment to live, work and breathe.

UV RESOURCES UV-C Lamps are a perfect energy-saving IAQ HVAC solution. UV-C restores cooling capacity and airflow levels while reducing HVAC/R energy **by up to 20%**. As air-conditioning equipment ages, its ability to maintain desired temperatures and humidity levels declines. To compensate, engineers increase fan speed or lower chilled water temperatures which can cause energy bills to skyrocket. Germicidal UV-C attacks the source of this inefficiency (microbial growth) and restores heat transfer performance.

In addition to being environmentally friendly, our UV-C solutions average less than a 24 month ROI. From reducing energy consumption and controlling costs, to optimizing human and mechanical productivity, UV Resources solutions can **pay measurable dividends to your financial health.**



Destroy up to 99.9% of pathogens

Boost heat transfer efficiency up to 14.5%



Inactivate microbes in <1 second

Reduce HVAC energy use by up to 20%



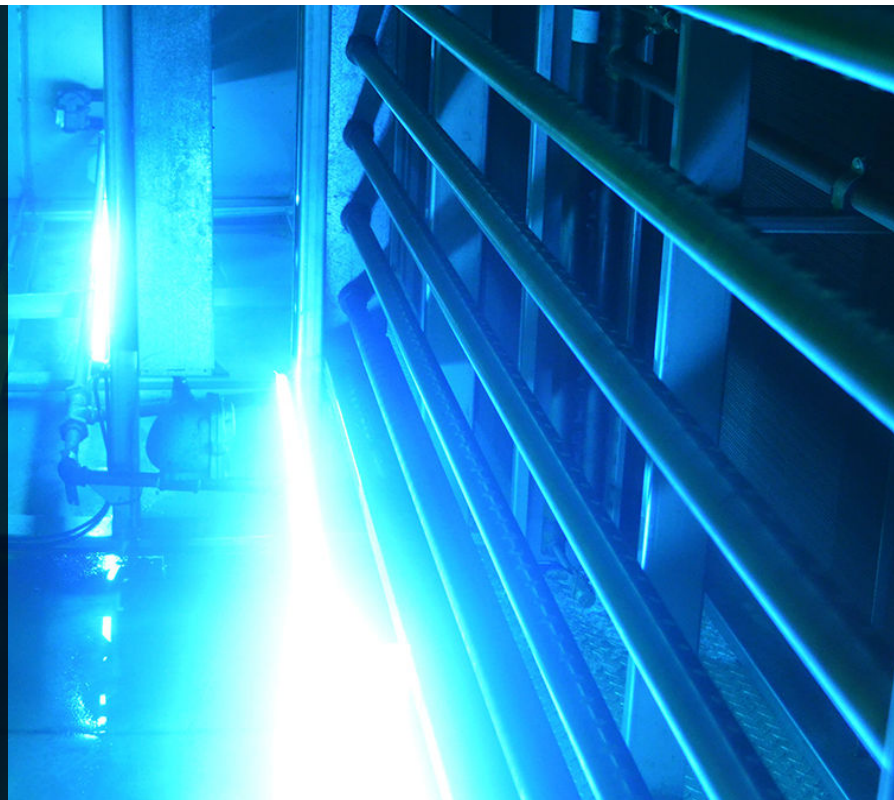
Produces NO ozone, VOCs or chemicals

Continuous operation UV-C disinfection



## AS BIO-FILM BUILDS UP SO DO ENERGY COSTS!

California Society of Healthcare Engineers 1998



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## Problem

Biological fouling of evaporator fin and tube heat exchangers is a key contributor to decreased HVAC capacity and occupant complaints. The biological fouling acts as an insulator, making the system less efficient at removing heat and humidity. Fans run longer to maintain the building at the desired temperature, increasing energy consumption and reducing cooling capacity. A mere 10% increase in fan motor use can significantly increase energy use. The chillers and pumps work harder to achieve set temperature points. For each degree the water temperature is increased, a savings of 1-2% will be realized.

## Solution

UV RESOURCES UV-C provides continuous cleaning of coils, eliminating the bio-film that makes AHUs less efficient.

Studies have shown that using UV-C to remove a .024" layer of bio-film can reduce HVAC energy usage by 21.5%. This decreases coil pressure drop and improves heat transfer efficiency, thus reducing fan energy use. Additionally, higher chilled water temperature set points allows the chiller plant to operate more efficiently.

UV-C use in HVAC systems is now recognized as an important contributor to improved indoor air quality, bio-film control, energy savings, and maintenance reductions in commercial, residential, health care and other environments.

## Costs and Payback

UV-C systems are easy to size, purchase and install. Many users report that their cost for an installed UV-C system featuring high output lamps averaged less than \$0.30 per cfm. For a 20,000 CFM system, that is **ONLY** roughly \$6000 to **provide year-round pathogen disinfection and increased energy savings!**

Installed downstream of the cooling coil in the direction of airflow, the cost of operation is less than 1% of the power required to operate the air conditioning system, and yet UV-C typically restores 15% or more in capacity!



Additionally, field reports indicate that the first-cost of a UV-C system is about the same as one properly performed coil cleaning procedure, and less when system shutdowns, off-hours work, associated overtime, and/or contractor labor costs, are considered. As a result, it might be more rational to make a one-time investment in a UV-C system that will keep cooling coils in like-new conditions...to cut energy waste and maximize health and comfort in most any occupied space.



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