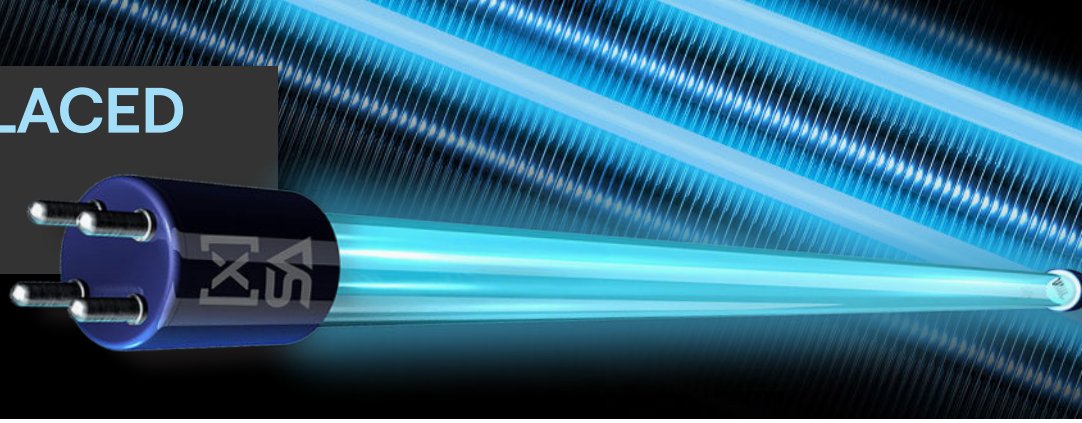
HAVE YOU REPLACED YOUR LAMPS RECENTLY?



Importance of UV-C Lamp Replacement

Replacing UV-C lamps in HVAC systems is critical for controlling microorganisms, preventing the buildup of contaminants, ensuring heat-transfer efficiency, and promoting healthy indoor air quality. **At just pennies per CFM, here's why germicidal lamps should be replaced annually:**

- **1-Year Rating:** According to ASHRAE, UV-C lamps' typical life is 9,000 hours of operation[1] and its experts recommend regular lamp replacement.[2]
- **20% Energy Savings:** UV-C lamps can reduce HVAC energy use by up to 20%.[3] UV-C restores cooling capacity and airflow to increase the potential for energy savings.
- **Cleaner, Healthier Air:** Improved ventilation has been linked to higher cognitive function levels for office workers, better classroom performance, fewer missed school days, and increased teacher retention and morale.[4]
- **Full Strength Germicide:** UV-C output can decrease by up to 20% after one year. Don't let the same happen to HVAC efficiency and occupants' respiratory health.

Don't jeopardize HVAC system performance or your building's indoor air quality. Replacing germicidal UV-C lamps **ANNUALLY** is a critical maintenance practice to ensure optimal HVAC performance.

- Destroy up to 99.9% of pathogens
- Boost heat transfer efficiency up to 14.5%
- Inactive microbes in <1 second
- Reduce HVAC energy use by up to 20%
- Produces NO ozone, VOCs or chemicals
- Continuous operation UV-C disinfection

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1 ASHRAE, 2019. "ASHRAE Handbook," HVAC applications (62.14). Atlanta.
2 ASHRAE, 2021. ASHRAE Position Document on Filtration and Air Cleaning. Peachtree Corners, GA: ASHRAE. Web. https://www.ashrae.org/file%20library/about/position%20documents/filtration-and-air-cleaning-pd-feb.2.2021.pdf
3 Firrantello, J., & Bahnfleth, W. (2018). Field measurement and modeling of UVC cooling coil irradiation for heating, ventilating, and air conditioning energy use reduction (RP-1738)—Part 2: Energy, indoor air quality, and economic modeling. Science and Technology for the Built Environment, 24(6), 600–611. https://doi.org/10.1080/23744731.2017.1383821
4 Menzies, D., Popa, J., Hanley, J. A., Rand, T., & Milton, D. K. (2003). Effect of ultraviolet germicidal lights installed in office ventilation systems on workers' health and wellbeing: double-blind multiple crossover trial. The Lancet, 362(9398), 1785–1791. https://doi.org/10.1016/S0140-6736(03)14897-0

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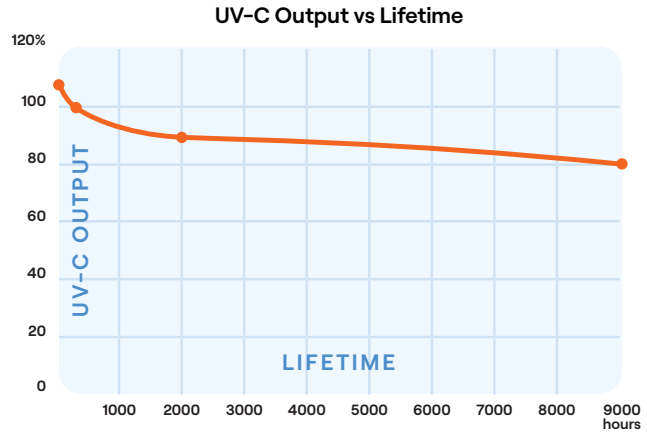
Replacement Best Practices

By reducing biological growth on HVAC cooling coils and drain pans, UV-C lamps contribute to the overall health of HVAC equipment, potentially **saving on repair or replacement costs.**

- **Protect HVAC Performance:** Between 50-70% of all HVAC equipment comes with UV-C systems installed "at the factory." HVAC manufacturers know UV-C keeps AHUs operating efficiently.
- **Pennies Per CFM:** Typically, high-output UV-C lamps can be replaced at less than $0.05 per CFM. For a 10,000 CFM application, that's just $500. A small price to boost AHU capacity, improve efficiency and save energy.
- **Proven Antimicrobial:** UV-C energy produces no VOCs, ozone or dangerous chemical byproducts.
- **Lower Coil Maintenance:** The initial cost of a UV-C lamp system is about the same as a single mechanical coil-cleaning procedure, and the germicidal energy works 24/7/365 to keep AHUs performing at factory-built conditions.

Annual Preventative Maintenance

A well-maintained HVAC system with functional germicidal lamps contributes to a healthier and safer indoor environment for building occupants. Moreover, fouled or dirty coils restrict airflow and decrease the AHU's overall efficiency, leading to higher energy consumption and reduced comfort for building occupants. Most lamp manufacturers recommend that facility managers establish an annual replacement schedule whereby all lamps are methodically swapped out at a designated interval.



An annual preventative maintenance strategy eliminates the labor-intense practice of individual inspections and consolidates change-outs into one service period.

Additionally, since UV-C lamp manufacturers warn of a decrease in germicidal output following 9,000 hours, facility managers should not jeopardize critical air stream disinfection applications or the sizable energy savings just to spare a few pennies. UV-C is a fundamental HVAC component that protects system capacity, cooling efficiency and occupant health.

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