

# UVGI IN-DUCT DISINFECTION



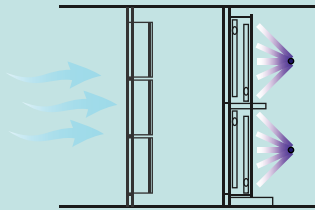
- ⚡ - 0.05 kWh/sqft**
- 💰 + \$74.25 /1,000cfm**
- 👍 85% effective with typical single pass [3].**

In-duct UVGI prevents microbial growth on cooling coils which can reduce fan energy and result in net savings. Proper installation is necessary to ensure effective air disinfection and cooling coil maintenance.

## DESIGN GUIDELINES

**AIRSTREAM**

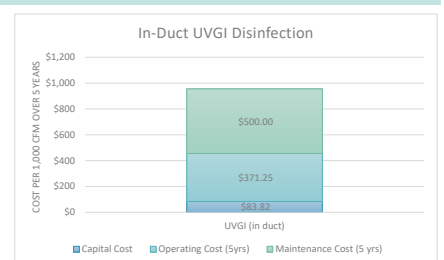
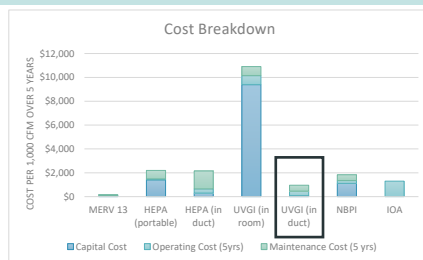
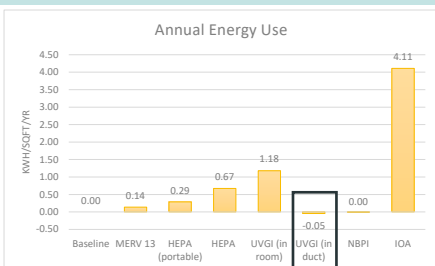
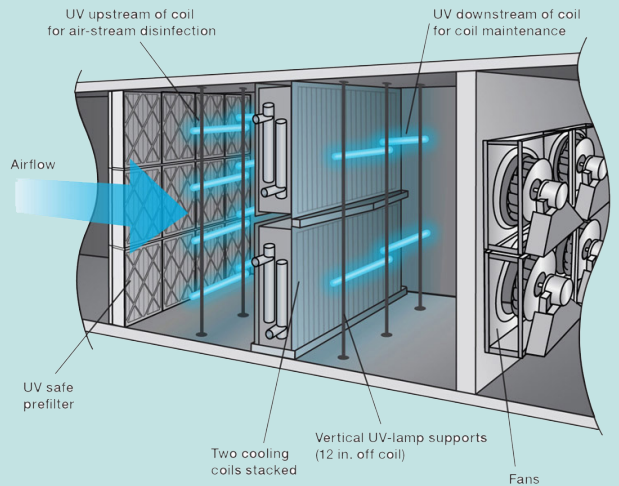
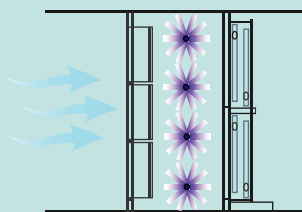
- Irradiance: 1,000 - 10,000  $\mu\text{W}/\text{cm}^2$
- Exposure: > 0.25 sec (air speed < 500 fpm)
- Upstream or downstream of cooling coils



**VS**

**SURFACE**

- Irradiance: 50 - 100  $\mu\text{W}/\text{cm}^2$
- Exposure: 24/7
- Downstream of cooling coils (most common)



1 ASHRAE "ASHRAE Epidemic Task Force" Core Recommendations for Reducing Airborne Infectious Aerosol Exposure, 2021, Accessed 2021.  
 2 ASHRAE "Filtration and Air Clearing Summary," ASHRAE, 25 May 2021, COVID-19@ashrae.org, Accessed 10 Sept. 2021.  
 3 Conlan, Wade H., et al. "Virus Mitigation in K-12 Schools." ASHRAE, 2021.  
 4 "Fundamentals of UVGI" ASHRAE, 12 May 2021, Online Webinar, Accessed 2021.  
 5 Firantello, Joseph, and William Bahr. "Simulation and Monetization of Collateral Airborne Infection Risk Improvements from Ultraviolet Germicidal Irradiation for Coil Maintenance." Science and Technology for the Built Environment, vol. 24, no. 2, 2017, pp. 135-148.  
 6 "Ultraviolet Air and Surface Treatment," 2019 Ashrae Handbook: Heating, Ventilating, and Air-Conditioning Applications, ASHRAE, Atlanta, GA, 2011, pp. 621-627, Accessed 2021.  
 7 Rowalski, Wladyslaw J. Immune Building Systems Technology, The McGraw-Hill Companies, Inc., 2003.