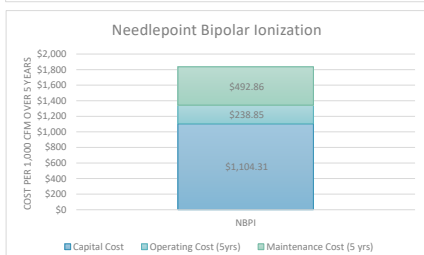
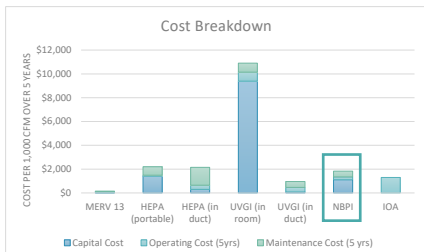
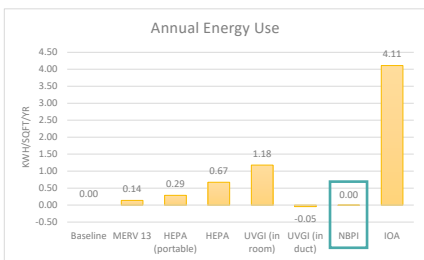


Needlepoint Bipolar Ionization



NBPI shows great potential at being a low energy air cleaner. While some studies have shown NBPI destroys certain viral components, open questions remain on its effectiveness against Sars-Covid2. Low quality equipment may produce ozone, which is harmful at high concentrations and should be monitored.

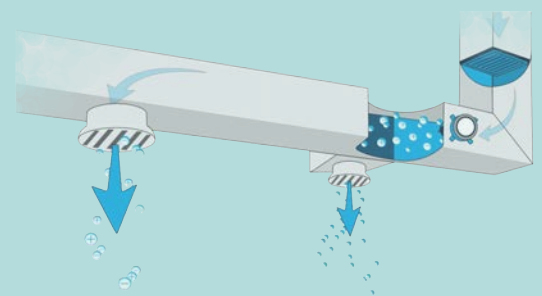
High voltage electrodes create reactive ions in air that react with airborne contaminants, including viruses. The design of the systems can be modified to create mixtures of reactive oxygen species (ROS), ozone, hydroxyl radicals and super-oxide anions .



⚡
+ 0.00 kWh/sqft

\$
+ \$47.77 /1,000cfm

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DESIGN GUIDELINES

- NBPI is an emerging technology and while the technology itself is sound, its efficacy in cleaning/disinfecting large and fast volumes of air within HVAC systems is not yet well documented. For this reason, NBPI is well suited for use with HEPA filtration systems.
- Ozone generation is a concern with NBPI. Ensure that your equipment meets **UL 2998** standard certification (Environmental Claim Validation Procedure for Zero Ozone Emissions from Air Cleaners)
- Installation in Rooftop Units is often cheaper and easier than with other HVAC systems due to ease of accessibility.

1. ASHRAE. "ASHRAE Epidemic Task Force" Core Recommendations for Reducing Airborne Infectious Aerosol Exposure., 2021, Accessed 2021.
 2. ASHRAE. "Filtration and Air Cleaning Summary", ASHRAE, 25 May 2021, COVID-19@ashrae.org, Accessed 10 Sept. 2021.
 3. Zeng, Yicheng, et al. "Evaluating a Commercially Available in-Duct Bipolar Ionization Device for Pollutant Removal and Potential Byproduct Formation" Building and Environment, vol. 195, 2021, p. 107750, https://doi.org/10.1016/j.buildenv.2021.107750.
 4. Licht, Stephanie, et al. "Use of Bipolar Ionization for Disinfection within Airplanes" Boeing, 2021, Accessed 2021.