

The cleaning industry is constantly innovating and developing cleaning technologies to respond to the latest challenges and pathogens. The following includes a sample of technologies that facility managers and business leaders should consider based on the unique needs of each building.

Electrostatic Spraying

Electrostatic sprayers use charged particles to coat surfaces and provide for easy large-scale dispersal of EPA-registered disinfectants. This technology should be operated away from human traffic and exclusively by a trained professional with proper personal protective equipment (PPE).

Ultraviolet Germicidal Irradiation

A completely safe disinfection method that uses ultraviolet (UV) energy to kill viral, bacterial, and fungal organisms in water, air, and surface treatments. This technology can be used with a portable device or installed within existing air filtration systems.

ATP Testing

Evidence-based testing with adenosine triphosphate (ATP) is designed to quantify the cleanliness of a surface. ATP bioluminescence – a glow given off by organic matter – detects the amount of residue or biofilms on a surface that have the potential to support microbial growth. A facilitator, equipped with an ATP monitoring device, uses a specialized swab and takes a surface sample from a sixteen square inch test site. The swab is shaken by hand in a tube containing a testing solution to activate, then inserted in the device. Within seconds, PASS or FAIL results are returned to validate the competence of the worker as part of the training process, and performance of the work and cleaning program.



Needlepoint Bipolar Ionization

This technology relies on nature's air-cleaning agents: electrically charged oxygen ions. When generated inside the HVAC system, these ions group fine particles into filterable clusters – a process called agglomeration – break down harmful VOCs, and inactivate microorganisms. Bipolar ionization has demonstrated effectiveness on a broad range of airborne contaminants as well as unpleasant odors.



HVAC Dry Hydrogen Peroxide Generation

Dry hydrogen peroxide technology is an ion generating process placed inside HVAC ductwork and uses a catalytic converter to react with a multi-wavelength ultraviolet light to illuminate a target surface. The target surface is a honeycomb matrix treated with a proprietary photocatalytic coating. It then converts water and oxygen molecules found naturally in the humidity of the air into safe but effective levels of hydroxyl radicals (OH⁻), oxygen ions (O₂⁻) and hydrogen peroxide (H₂O₂). This technology claims to produce no ozone and generates hydrogen peroxide levels well below OSHA airborne limits.



Photo-Hydro-Ionization (PHI) / Hydro-Peroxide Generation

PHI units disinfect the air traveling through HVAC systems by projecting a broad spectrum HE/UV light onto a quad metallic catalyst target in a low ozone and moist atmosphere. This process causes a unique oxidation reaction that produces friendly oxidizers called ionized hydroperoxides. These are naturally occurring disinfection agents that are then circulated throughout spaces via the fan. As long as the fans continue to circulate indoor air, the PHI circulates its neutralizing ionized hydroperoxides, providing continuous air disinfection.
