

Reduce the spread

of airborne and surface contaminants

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Improve air quality

Optimize energy performance

Enable social distancing in healthy enviroments

Provide real-time updates

Sustain healthy & safe environments

Defer capital budgets

Introduction

Now more than ever, people are expecting safe and open indoor spaces where they can move forward to live, work, and play. Siemens Smart Infrastructure helps you transform the everyday by creating places that students, patients, and occupants can enjoy with confidence. And you can do it all while enabling future resiliency for your organization.

In this paper, we present one of our strategies to help organizations create safer, healthier buildings: **reducing the spread of airborne and surface contaminants**. It has long been a priority for many organizations, but it is more important now than ever before. A number of technologies and strategies are available to organizations to help achieve this objective.

Objective	Approach
Reduce bacteria, fungi, and some viruses with fast and safe ultraviolet (UV) technology	Pulsed Xenon ultraviolet (UV) light technology
Cause particles to cominbe and fall out of the breathing zone so they can be removed more efficiently with existing filtration	Ozone-free needlepoint bipolar ionization
Combine technology and HVAC maintenance strategies to reduce the spread of airborne and surface contaminatants	Optimization strategies powered by machine learning
	Combination of technology with updated HVAC maintenance strategies

Minimizing risk in the workplace: building employee trust for the return to work journey

Although much uncertainty around this global pandemic remains, organizations have the power to implement a range of solutions, services, and technologies to help protect both people and business continuity as part of their reentry strategies.

Benefits of pulsed Xenon UV light



UV light has long been proven as an effective, eco-friendly, and chemical-free method of killing harmful germs indoors, helping to reduce contamination in the air and on surfaces. The light kills 99.9%* of harmful pathogens reapidly by targeting the DNA and RNA of microbes, resulting in inactivation and therefore a failure to reproduce. And, unlike traditional cleaning methods, micorbial cells cannot develop a resistance to this technology.

Although it is highly effective at destroying pathogens, **pulsed Xenon UV** light is not safe to use when people are present. Thus, organizations that implement this technology must do so with a range of safety protocols in place; from occupany sensors to automation protocols that employ the technology only when spaces are unoccupied, such as overnight or between meetings in a conference room.

Understanding ozone-free needlepoint bipolar ionization technology

Ozone-free needlepoint bipolar ionization integrates with a building's HVAC system to release millions of positively and negatively-charged ions that break down free-floating molecules. By robbing airborne and surface-level contaminants of their hydrogen molecules, which are necessary for survival,

Ionization technology means that viruses



like the novel coronavirus become unstable and incapable of infecting people nearby. **Ozone-free needlepoint bipolar ionization** is safe to use regardless of whether or not buildings are occupied.

Optimization strategies powered by machine learning to enable precise system control

Emerging machine learning-powered strategies, such as **Siemens Dynamic VAV Optimization**, enable organizations to achieve precise system control efficiently and automatically following ASHRAE guidelines for **temperature**, **humidity**, and **ventilation**. Siemens solution offers three modes of operation:



Green Mode – Intelligently control AHU fan speed and supply temperature, enabling energy savings.



Defense Mode – Establish environmental conditions, that minimize virus tranmission white still operating within acceptable comfort bounds.



Decontamination Mode – Assist in accelerating the rate of decay for viruses by using elevated temperature during unoccupied periods.

Technology combines with baseline maintenance and new HVAC strategies for a holistic approach



Technologies alone are not enough to create a safe and healthy indoor environment. In fact, the use of UV and ionization technologies makes **baseline HVAC**

maintenance more important than ever. If this system and its associated equipment are not properly maintained, air handlers, for example, can spread contaminants from one

area to another through the movement of return air. When using AHUs as part of an air treatment regime, ensuring they are in proper working order is essential to achieving overall goals. In addition to performing maintenance, **recommissioning** building systems to they operate as designed – or in accordance with facility requirements – is also essential.

Optimizing and precisely controlling HVAC system pressurization, air flow, temperature, and humidity levels in accordance with guidance from ASHRAE, the CDC, and other government entities and professional organizations can help create a healthy indoor environment.

Ready to learn more about how healthy buildings can create places for a **Safer, healthier, and more confident everyday**?

Visit us at usa.siemens.com/smartbuildings

* violetdefense.com