



**SAFE AND HEALTHY BUILDINGS**

# Ozone-Free, Needlepoint Bipolar Ionization Solution for Educational Environments

Make smart infrastructure part of your schools' infection control and air quality solution.

[usa.siemens.com/K12](http://usa.siemens.com/K12)

Offer reliable, long-term indoor air quality protection for your facility with this innovative, ozone-free approach to cleaner indoor air. Provided by our solution partner, Sustainability Management Partners, this needlepoint bipolar ionization solution, NPBI™, transforms your building's infrastructure into a front line of defense. NPBI equipment is easily installed in HVAC systems to flood the air with positive and negative ions that help reduce airborne and surface contaminants.

## Creating an environment that protects

This ionization solution treats the air by generating positive and negative ions that normally exist in nature and releases them into the forced air circulation of an HVAC system where they can travel into spaces throughout the building. The ions are capable of reducing and controlling airborne particulates, VOCs, mold, and other indoor air quality issues. Third-party testing has demonstrated effectiveness against certain viruses and bacteria\*.

\* Results available upon request.

## Key Benefits

- Ozone-Free – will not harm lungs
- Can run anytime, including when the space is occupied
- Rapid installation that integrates with building automation system

## Supporting Education

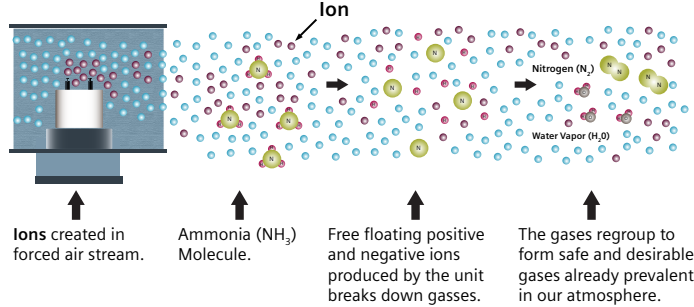
As the need for protection and risk reduction continues, we're harnessing our capabilities, expertise, and global network of partners to outfit and supply campuses in the following ways:

- Identifying sources of potential contamination and offering effective technology to mitigate the risk
- Developing a holistic approach to create environments so that education can continue safely and efficiently

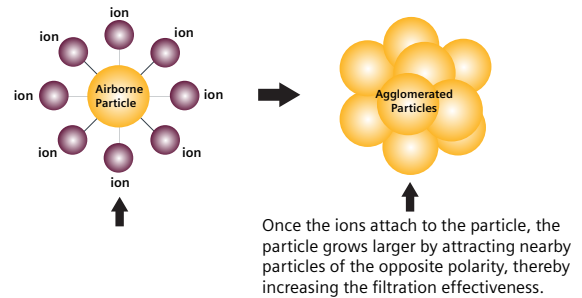


## Needlepoint Bipolar Ionization Technology

### VOC Effects



### Airborne Particle Effects



Ozone-Free Needlepoint Bipolar Ionization artificially creates millions of positive and negative ions and releases them into the forced air circulation of an HVAC system travelling into spaces inside building(s).

### How it works

This needlepoint bipolar ionization solution uses positive and negative ions, forced through a building's HVAC system that are capable of attacking indoor air quality issues such as reducing airborne particles, VOCs, molds, and other bacteria.

**Airborne Particle Removal** – NPBI technology reduces fine particulate matter by safely introducing ions into the air stream, causing particles to cluster together for easier filtration by your HVAC system. The smaller the particles, the more dangerous they are — as the most miniscule can pass deeper into human lungs. When ions disperse throughout a room, they combine with particles suspended in the air. This creates a snowball effect in which particles of opposite polarity cluster together. The larger a particle becomes, the easier it is to capture in filtration systems.

**VOC Removal** – NPBI™ technology breaks down chemical, pet, cooking, and other odors into basic harmless compounds, leaving indoor air smelling fresh and substantially reducing odor-causing VOCs.

### System and installation options

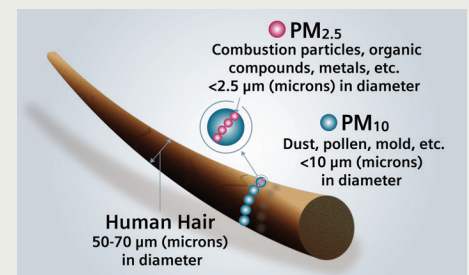
This ionization solution can be installed at the air handler, the inlet of the fan, or in the duct work. Siemens also offers sensors to monitor air quality levels, including temperature, humidity,  $\text{CO}_2$ , TVOC, and fine particulates.

### About Sustainability Management Partners (SMP)

Our mission at SMP is to provide indoor air quality solutions that lead to healthier occupants, increased productivity, and clean, fresh, healthy environments. By reducing the need for outside air, SMP and our NPBI technology promotes smaller, more cost-effective HVAC systems and can increase energy savings related to heating and cooling. Sustainability Management Partners is a certified and registered woman-owned business enterprise (WBE), women's business enterprise (WBENC), and woman-owned small business (WOSB).

### About Siemens Smart Infrastructure for Educational Environments

Siemens Smart Infrastructure brings innovations in smart building technologies to create environments that care for K-12 schools. Our smart education infrastructure solutions work to improve the educational experience for students, teachers, and staff at K-12 schools with the safety of those spaces at the forefront, along with efficiency and improved student experience.



Ozone-free, needlepoint bipolar ionization deactivates particles smaller than PM<sub>2.5</sub>.

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This document contains a general description of available technical options only, and its effectiveness will be subject to field conditions with project parameters defined in a formal contract.

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