

HEALTHY BUILDINGS

HEALTHY TENANTS

Indoor Air Quality

Surface Based Cleaning



TRANSWESTERN

REAL ESTATE SERVICES

Determining the right process for your property

Every building is unique, and our broad expertise effectively aligns your needs with the appropriate technology solution.

Bipolar Ionization (BPI)

Utilizes a device placed in the air handler and air stream to reduce or eliminate bacteria, volatile organic compounds (VOCs), some viruses and particulates within the air stream. As air is returned from the building systems, it is cleaned and redistributed through the supply ventilation.

Needlepoint Bipolar Ionization (NBPI)

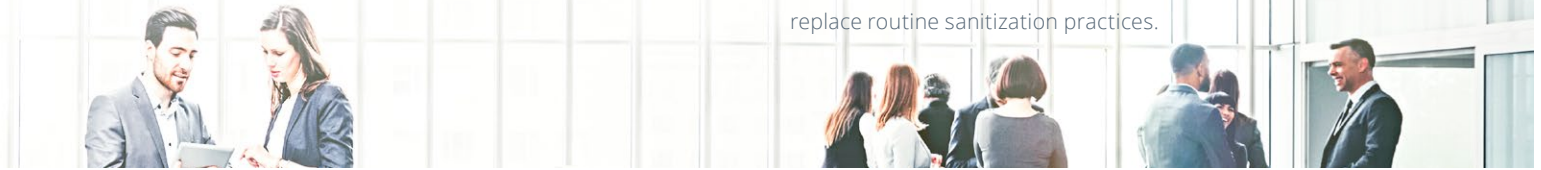
Like BPI, Needlepoint uses a device placed in the air handler, but includes a set of energized needles or bar system that emits ions into the air stream. The system self-cleans the needles on a scheduled basis, allowing new particles to be attracted to the device.

Ultraviolet Germicidal Irradiation (UVGI)

UVGI lighting is placed inside an air handler within the air stream. As the air passes through the air handler, the UVGI system eliminates or inactivates bacteria, mold, small particles and some viruses, and irradiates surfaces inside of the air handler.

Surface-Based Self Cleaning

Surface-based self-cleaning technologies such as NanoSeptic Surfaces are adhesive strips placed on door handles, elevator buttons and other frequently used surfaces. Once applied, the strips continuously self-clean, aiding in the reduction of person-to-person bacteria transfer. The typical use period is 90 days; then strips are peeled off and replaced. This solution should be deployed in conjunction with typical janitorial cleaning and is not meant to replace routine sanitization practices.



APPLICATION ASSESSMENT

APPLICATION	BIPOLAR IONIZATION	NEEDLEPOINT BIPOLAR IONIZATION	ULTRAVIOLET GERMICIDAL IRRADIATION	SURFACE-BASED SELF CLEANING
IAQ: HVAC	X	X	X	
IAQ: Lobby/Common Areas	X	X	X	
IAQ: Tenant Spaces	X	X	X	
Escalators			X	
Door Handles				X
Elevator Buttons				X
Door Push Pads				X
Desktop Skins				X
Pros	Cleans coils; zero ozone emitting; combats bacteria, VOCs and some viruses	Cleans coils; combats bacteria, VOCs and some viruses; device is self-cleaning	Cleans coils; combats bacteria, VOCs and some viruses	Ease of installation; can be used in conjunction with typical cleanings; low cost
Cons	High cost of installation	High cost of installation; needles or bar system wear out and require replacement	High cost of installation; annual lamp replacement; requires UV protection inside air handler; line-of-sight technology (i.e., anything in a shadow will not be reached); complementary technology (i.e., area must be cleaned for it to be effective)	Not CDC or EPA approved, though third-party testing has been completed

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**INDOOR AIR
QUALITY:**

**Bipolar
Ionization**

Health

Protection



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Application Assessment

HVAC | LOBBY/ COMMON AREAS | TENANT SPACES

Pros: Cleans coils, zero ozone emitting, combats bacteria, VOCs and some viruses

Cons: High cost of installation

Technically Speaking...

BPI delivers ionized oxygen molecules into the air space to neutralize various chemical compounds, VOCs and bacteria which then attach themselves to airborne pollutants, such as dust, increasing particle weight and allowing them to drop below breathing areas.

Tell Me More...

BPI is a process in which the decomposition of gas molecules into atoms is affected by high energy sources (UV solar radiation and soil radioactivity). This decomposition process assures that bipolar Air Ions (AI) occur within the natural breathable atmosphere and, that in an enclosed indoor environment, ions may not exist.

The decomposition of a molecule into atoms is accompanied by the generation of free electrons. A molecule with a free electron attached is a negative ion, while a molecule lacking an electron is a positive ion. The air ionization process is always accompanied by the generation of ozone. BPI restores and rebalances these ion levels in indoor, closed environments, where UV solar radiation and soil radioactivity are unavailable - such as air handlers.

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INDOOR AIR QUALITY:

Needlepoint Bipolar Ionization

Health

Protection



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Application Assessment

HVAC | LOBBY/ COMMON AREAS | TENANT SPACES

Pros: Cleans coils, combats bacteria, VOCs and some viruses. Device is self-cleaning

Cons: Needles or bar system wear out and require replacement. High cost of installation

Technically Speaking...

Similar to BPI, Needlepoint technology works to safely clean the air inside commercial office buildings by breaking down harmful VOCs into harmless compounds within the HVAC system.

What's the difference?

NBPI uses a set of energized needles or bar system that emits ions into the air stream. These needles are brushed on a scheduled basis, allowing for the attraction of new particles. Over time, the needles or bar can wear out and require maintenance based upon device emittance. Some NBPI devices are UL-rated as a zero-ozone emitting device.

Traditional BPI uses a glass tube to ionize the air and requires maintenance every two years. No bipolar devices are UL-rated for zero ozone emittance.

Tell Me More...

NBPI uses an electronic charge to create a plasma field filled with a high concentration of positive and negative ions. As the ions travel with the air stream, they attach to particles, pathogens and gases. The ions help to agglomerate fine sub-micron particles, making them filterable. The ions kill pathogens by robbing them of life-sustaining hydrogen. The ions breakdown harmful VOCs into harmless compounds like O₂, CO₂, N₂ and H₂O. The ions produced travel within the air stream into the occupied spaces, cleaning the air everywhere the ions travel, even in unseen areas.



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INDOOR AIR QUALITY:

Ultraviolet Germicidal Irradiation

Health

Protection



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REAL ESTATE SERVICES

Application Assessment

HVAC | ESCALATORS | LOBBY/ COMMON AREAS | TENANT SPACES

Pros: Cleans coils, combats bacteria, VOCs and some viruses

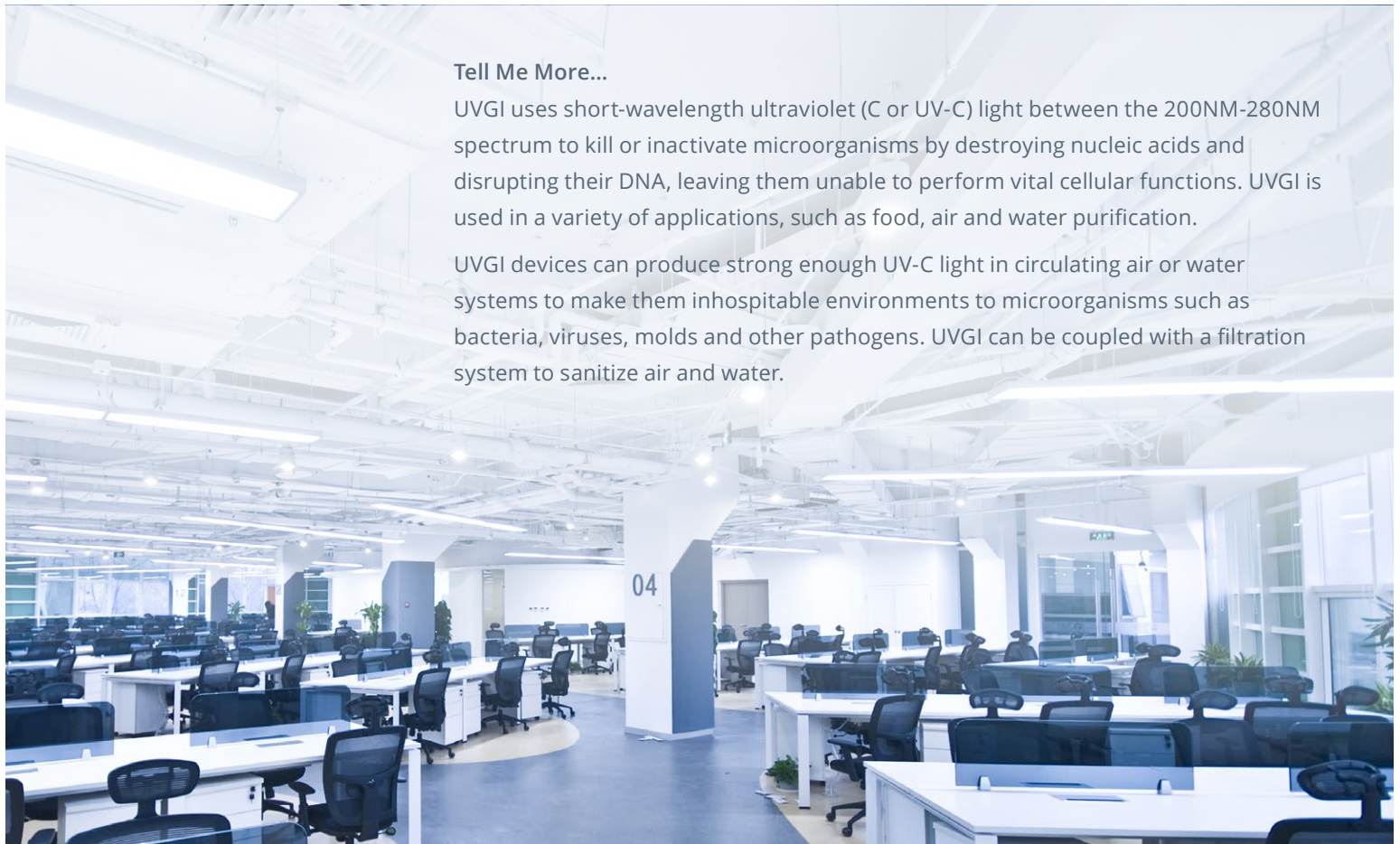
Cons:

- Annual lamp replacement, requirement of UV protection inside air handler. Requires special PPE to prevent damage to eyes and/or skin from overexposure. UVGI lighting must be turned off while individuals are inside of the equipment. Safety switches are typically installed on the air handler door. Once the door is open, the UVGI lighting turns off automatically.
- Line-of-sight technology; anything in a shadow will not be reached.
- Complementary technology, the area should be cleaned for it to be effective.
- High cost of installation.

Tell Me More...

UVGI uses short-wavelength ultraviolet (C or UV-C) light between the 200NM-280NM spectrum to kill or inactivate microorganisms by destroying nucleic acids and disrupting their DNA, leaving them unable to perform vital cellular functions. UVGI is used in a variety of applications, such as food, air and water purification.

UVGI devices can produce strong enough UV-C light in circulating air or water systems to make them inhospitable environments to microorganisms such as bacteria, viruses, molds and other pathogens. UVGI can be coupled with a filtration system to sanitize air and water.



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SURFACE-BASED SELF-CLEANING

Health

Protection



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Application Assessment

DOOR HANDLES | ELEVATOR BUTTONS | DOOR | PUSH PADS | DESKTOP SKINS

Pros: Ease of installation, can be used in conjunction with typical cleanings.

Cons: Not CDC, EPA approved, although third-party testing has been completed.

Technically Speaking...

NanoSeptic Surfaces is a continuously self-cleaning surface that works 24/7 to oxidize organic contaminants and reduce the transmission of bacteria and some viruses.

Tell Me More...

Powered by light, NanoSeptic Surfaces use mineral nano-crystals to create a powerful reaction that continually oxidizes organic contaminants. Unlike traditional disinfectants and cleaners, NanoSeptic uses no poisons, heavy metals or chemicals, and nothing is released from the surface since the nano-crystals are molecularly bonded to the material.

NanoSeptic is not meant to replace disinfectants and sanitizers; rather, they effectively complement conventional cleaning. While conventional approaches will clean a touchpoint or a person's hand, contamination happens with the next contact or from airborne contaminants. The purpose of continuously self-cleaning products is to reduce the likelihood that contaminants will be transferred from one contact to the next.

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