- ❑ Commercial & Office Buildings
- ❑ Schools
- ❑ Daycare Centres
- ❑ Hospital & Clean Rooms
- ❑ Smoking Environment
- ❑ Manufacturing/Factories
- ❑ Government Buildings & Facilities
- ❑ Fire Departments
- ❑ Police Departments

The Science of Quality Air, The Art of Healthy Living

SOMA MEDICAL

www.somamedical.net

It's All in the Air

If you knew what we know about indoor air, you'd stop breathing completely

What is IAQ ?

Indoor Air Quality as defined by OSHA Malaysia, OSHA Singapore and ASHRAE standard 62-1989.

“Wherein it is stated that air in which there are no known contaminants at harmful concentrations”. So quality air is always related to fresh air.

3 main causes of IAQ problems

- Source of contamination
- Susceptible occupants
- Mechanism of transport of contaminants

Type of IAQ contaminants

Gases

- Volatile Organic Compounds (V.O.C).
- Potential VOC's come from **gases of building furnishings** i.e. carpets, furniture etc. and life cycle byproducts of micro-organism that lives in the building (or its HVAC system).
- Aldehyde vapors are typical byproducts of both off gassing and chemical processes, that occur inside or outside the building.

Particles

- Mostly counted in the diameter range from 0.1 micron or greater.
- Bio-aerosol are defined as airborne particles, which are living organisms, spores and fragments of organisms released from living organisms.
- **These include pathogens (disease causing viruses), fungi (mold) and bacteria.**

What IAQA problems should we be concerned about?

1. How can people eject flu viruses into the air.
2. What different forms can airborne viruses take.
3. How far can those viruses travel & how can they circulate within buildings and inside their HVAC units.
4. What conditions increase airborne flu virus survival.
5. What systems are available to sterilize, capture and/or kill airborne flu viruses.

Airborne transmission depends on people to launch viruses into the air. People can shed this many flu virus into the air:

1. Coughing	3,000+
2. Sneezing	3,000+
3. Breathing	200+ natural sterilization , nose hair & mucus.
4. Talking/Singing	1,000+
5. Vomiting	1,000+
6. Diarrhea	*20,000+

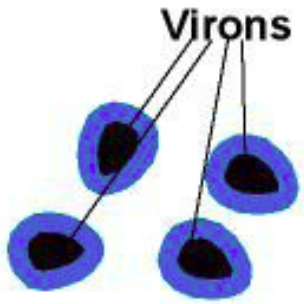
How far can Airborne Viruses Travel?

		Large/Small Droplets	Droplet Nuclei
1.	Coughing	1-5 feet	160+ feet
2.	Sneezing	8-15 feet	160+ feet
3.	Singing, Talking	1-3 feet	160+ feet
4.	Mouth Breathing	1-3 feet	160+ feet
5.	Diarrhea*	5 feet+	160+ feet

*As a result of toilet water aerosolization, air contamination in toilets need to be effectively sterilized and contained.

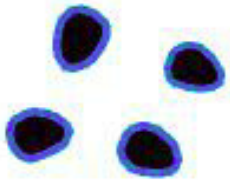
Stages of Infectious Droplets & Droplet Nuclei

Large Infectious droplets



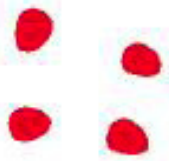
1. Mucus/water encased Viruses are aerosolized by the infector or by toilet water. These quickly fall to the ground after traveling up to 1-3 feet.

Small Infectious droplets



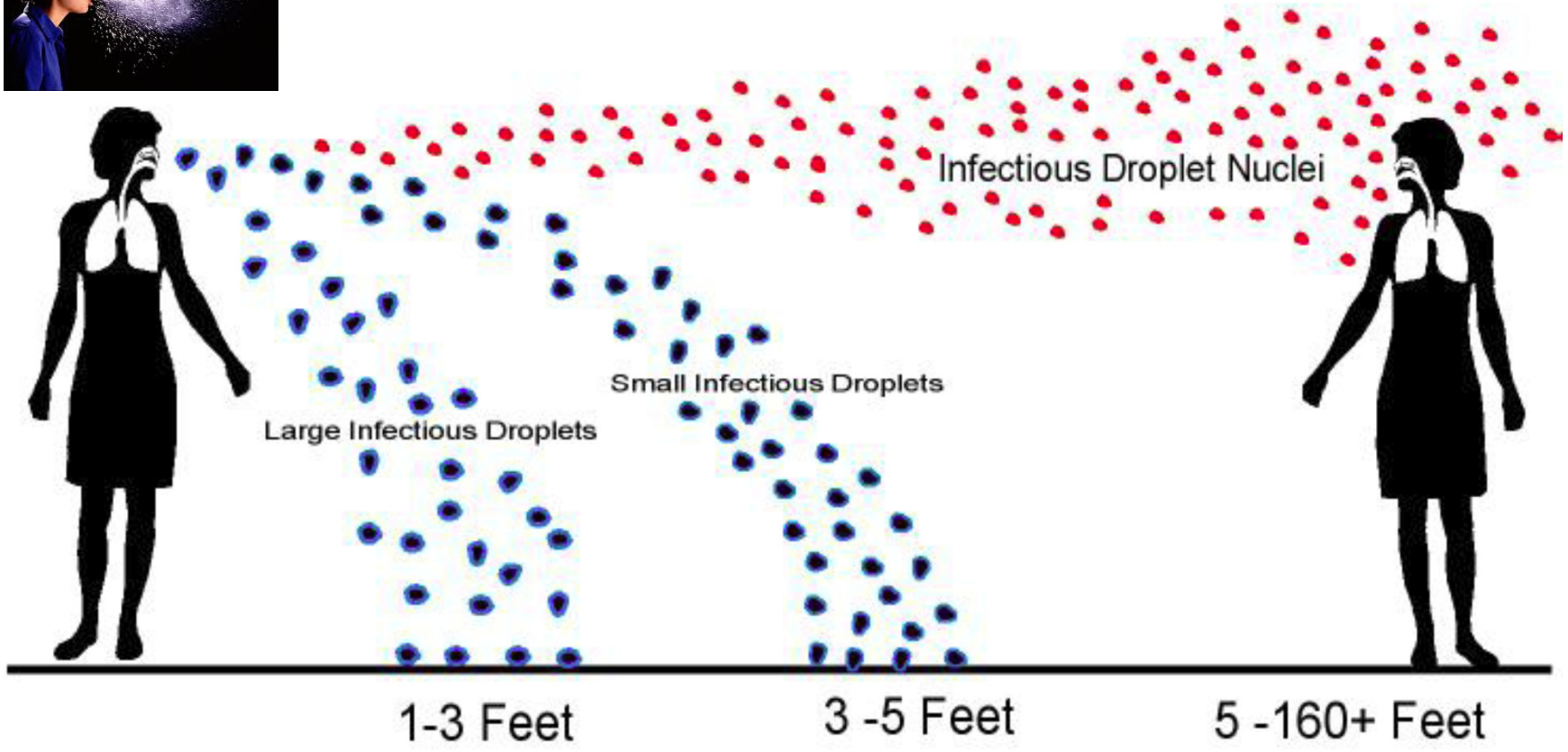
2. Mucus/water coating starts to evaporate. These will travel 3-5 feet before falling to the ground. These droplets can become droplet nuclei.

Infectious Droplet Nuclei

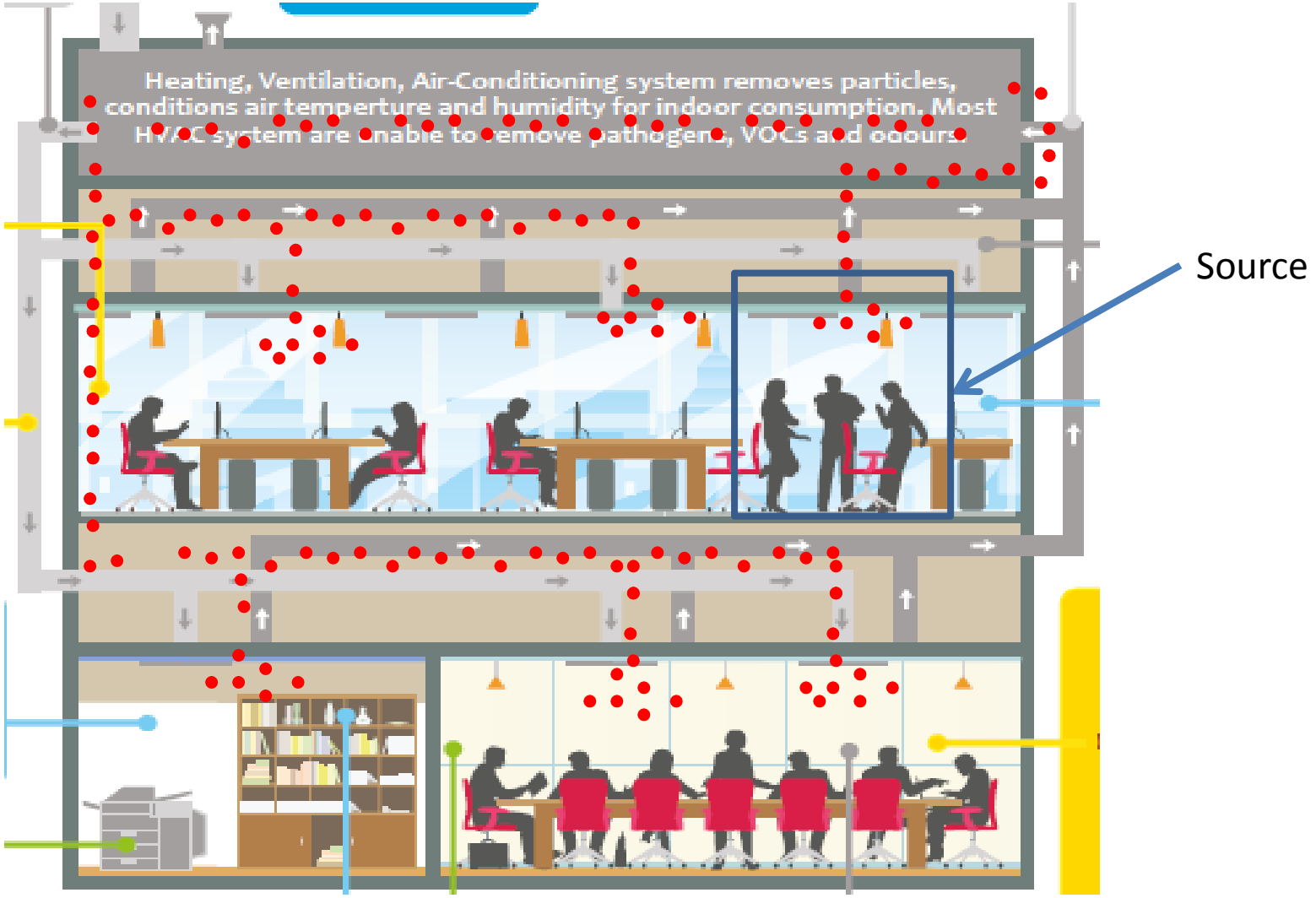


3. Mucus/water coating has totally evaporated leaving only the viron. This is a **Droplet Nuclei**. Droplet Nuclei are so micro-scopic that they can float in the air indefinitely.

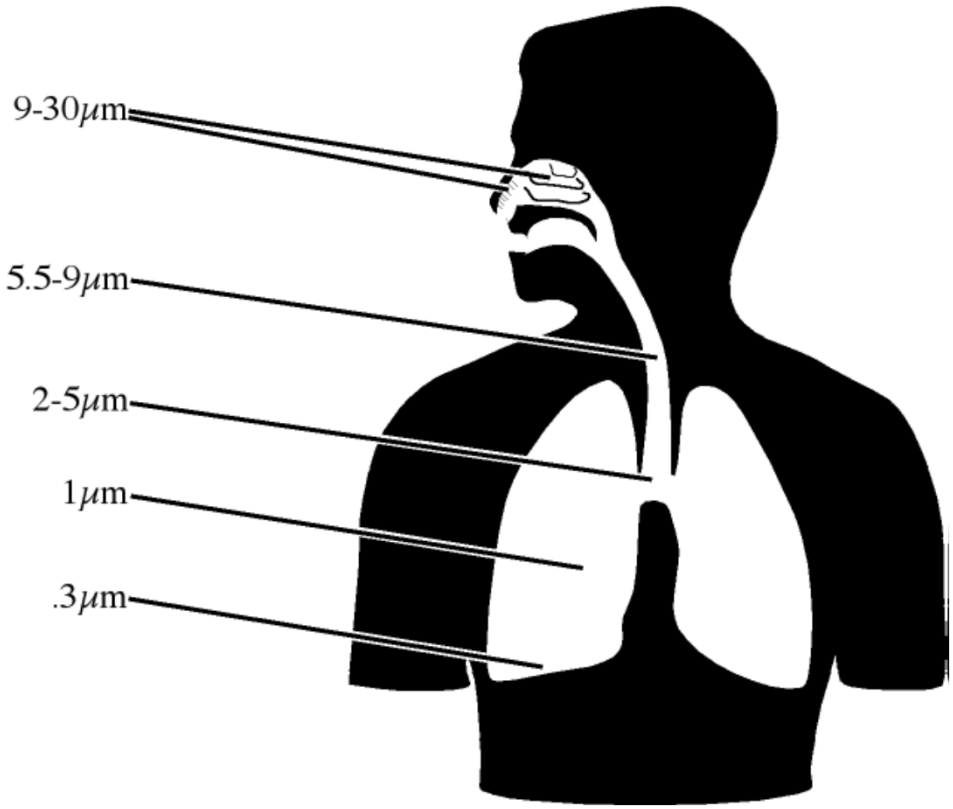
Infectious Droplets & Droplet Nuclei Travel Lengths



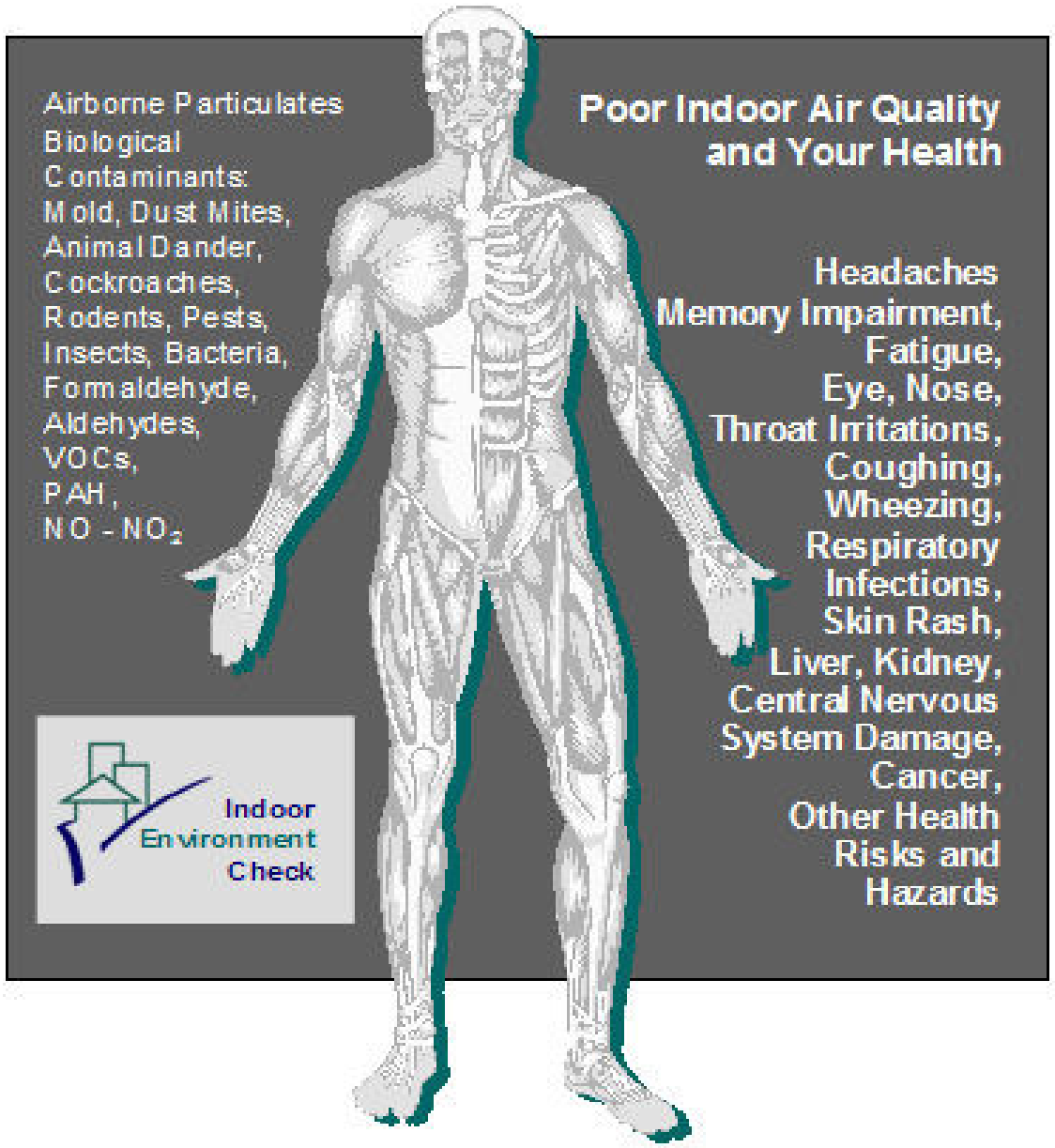
How do Occupant Droplet Nuclei travel both within indoor spaces and then throughout a building?



Droplet Nuclei Viruses are 0.3µ or less, it can penetrate deeply into the human lungs



A µm is a micron or 1/1,000,000 of a meter.
The smallest particle you can see is 30µm.



Poor Indoor Air Quality and related health problems.

Symptoms related to Indoor Air Pollutants

	Particles			Bioaerosols				Gases		
	Dust, Soil, Ash…	Tobacco Smoke	Pollen	Molds, Mildew, Fungus	Bacteria, Virus	Pet Dander	Dust Mites	Carbon Monoxide	Formaldehyde	VOCs
Headaches		X	X					X	X	X
Dizziness	X			X		X	X			
Fatigue			X					X		X
Nausea								X	X	
Vomiting									X	
Skin Rash					X					X
Eye Irritation	X	X	X	X	X	X			X	X
Nose Irritation	X	X	X	X	X	X	X		X	X
Throat Irritation	X	X							X	
Respiratory Irritation		X		X	X		X		X	X
Cough	X	X	X	X	X	X	X		X	
Chest Tightness				X	X	X	X		X	
Respiratory Infections	X	X		X	X					X
Asthma (exacerbation of)	X	X	X	X	X	X	X		X	
Allergic Reactions	X		X	X	X	X	X			
Lung Cancer		X								

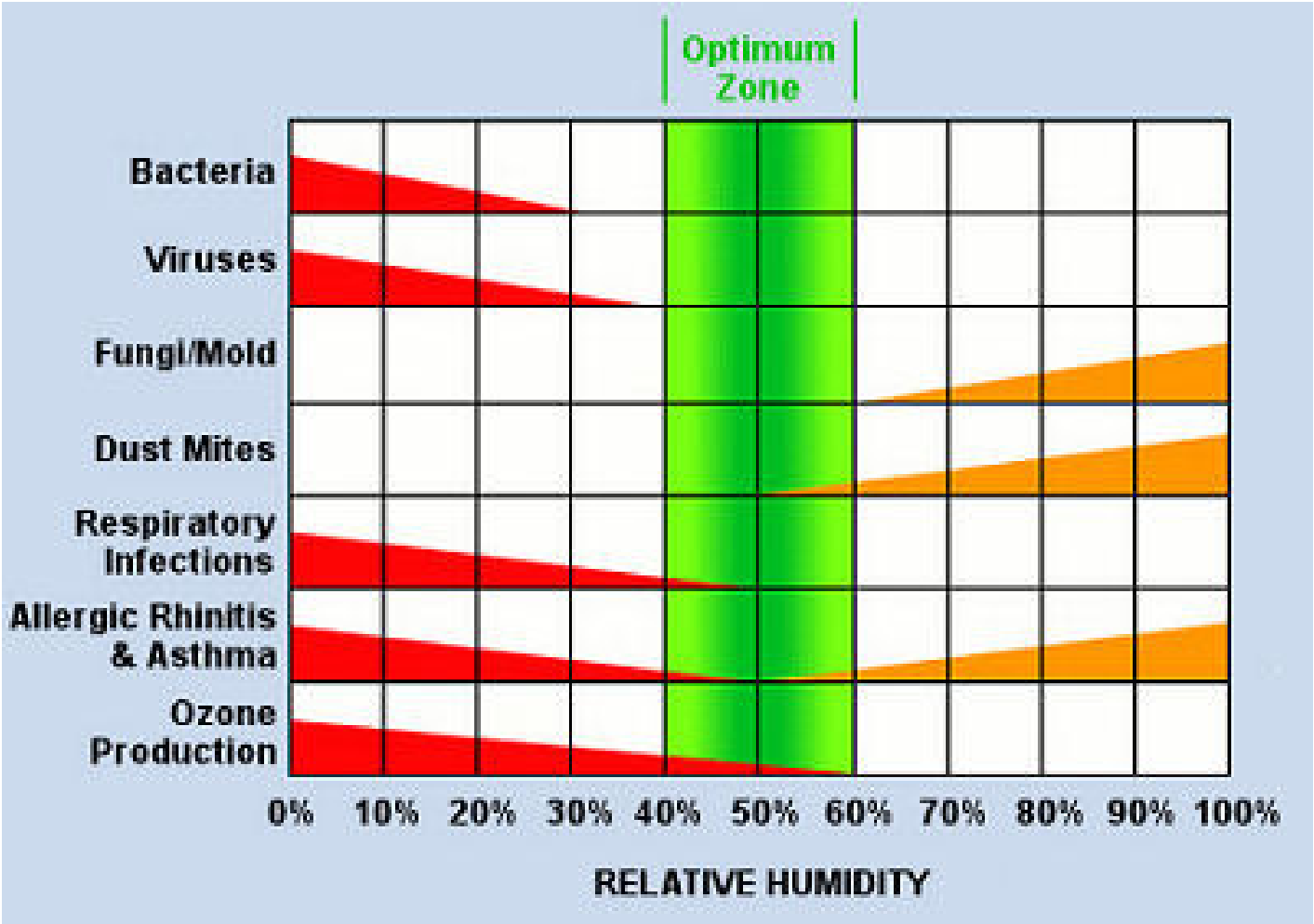
Let’s not forget the detrimental effects of swine flu!

So, is there a flu season?
Does flu take a vacation?
Why are there flu epidemics?

The answer is found in

HUMIDITY LEVELS

Optimum Humidity



For optimum air quality, Indoor Relative Humidity should always be maintained between 40% and 60%!

Low indoor humidity increases Droplet Nuclei Levels

- Viruses evaporate faster in low humidity levels thus creating **More** Droplet Nuclei.
- Low humidity allows droplet nuclei to stay airborne longer as the droplets do not absorb water weight which would cause them to fall to the ground.
- Indoor Air currents both created by HVAC systems and people movement assure that droplet nuclei will remain airborne ***Indefinitely***.
- This allows HVAC systems to remove and redistribute droplet nuclei throughout the building to infect more occupants.

So, is there a solution to resolve I.A.Q.A problem?

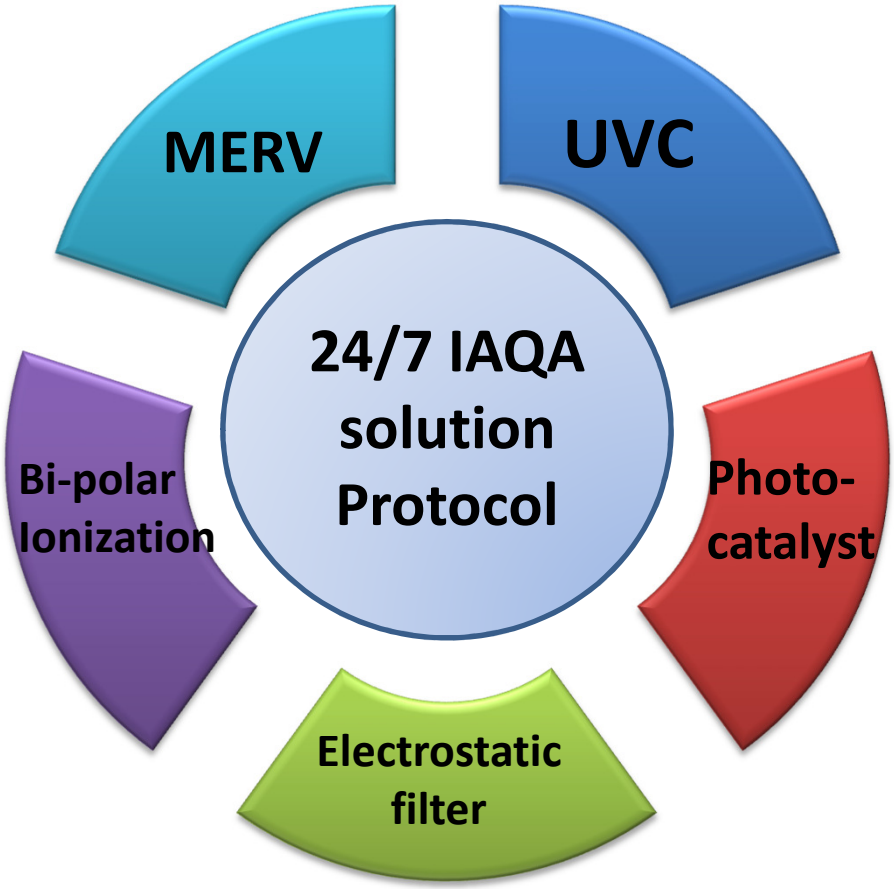
Yes!

According to Environmental Protection Agency These are the recommended technologies

According to EPA guidelines…

1. MERV (Minimum Efficiency Reporting Value) Rated Filters (H.E.P.A)
2. Germicidal UV Lights (UV-C)
3. Magnetized Air Media Filtration (ELECTROSTATIC FILTERS)
4. Bi-Polar Ionization (GERMICIDAL MEDICAL LAMP)
5. Photo-Catalytic Oxidation (NANO TiO_2)

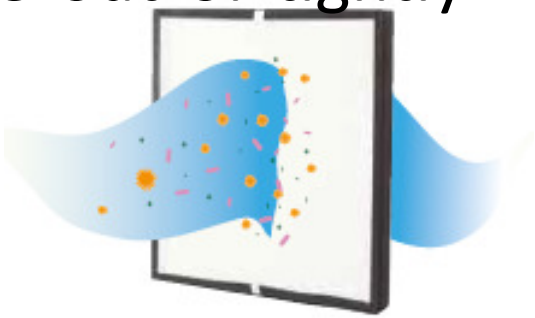
So in essence, if we follow all five sterilization recommended by EPA, we would effectively have a 24/7 sterilization solution protocol



Lets explore and understand each of the 5 technologies recommended by Environmental Protection Agency (EPA)

1. MERV (Minimum Efficiency Reporting Value) Rated Filters (H.E.P.A)

- Particulate matter contain pathogens (viruses, bacteria and infectious organisms), allergens and carcinogens.
- Mechanical air filters, like High Efficiency Particulate Air (HEPA) filters, remove 99.97% of all airborne particulates of 0.3 microns and above in size.
- They trap the particles in filters made out of tightly woven fibers.



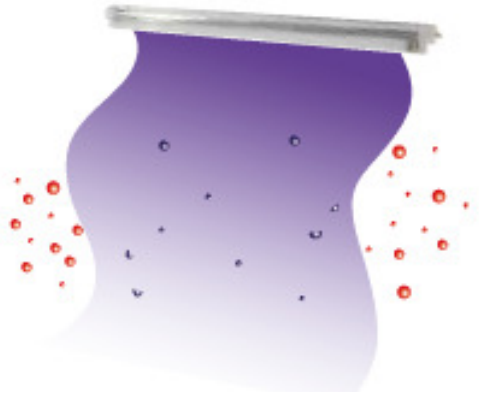
2.Germicidal UV Lights (UV-C)

How does UV-C Work?

- UV-C light emits germicidal wavelengths between 200-300nm. This reacts with the DNA and permanently alters the structure and the molecular bonds of microbiological contaminants such as *bacteria, viruses, germs, molds* and *mildews*.

Its scientifically proven that Ultraviolet Germicidal lamps (UVC) working at 253.7 nanometers at the correct intensity can effectively prevent cross contamination of the following airborne diseases:-

- Aspergillosis Niger
- Legionella
- SARS
- Bacillus Anthracis
- Dust Mites
- Allergy & Sinusitis
- Tuberculosis (TB)
- H1N1



UV dosage for the inactivation of various microbes

Sourced from: Centre for Disease Control (CDC) & World Health Organization (WHO)

Bacteria	UV Dose	Bacteria	UV Dose
Agrobacterium lumefaciens 5	8,500	*Pseudomonas aeruginosa* (Environ.Strain) 1,2,3,4,5,9	10,500
***Bacillus anthracis* 1,4,5,7,9 (anthrax veg.)**	8,700	*Pseudomonas aeruginosa* (Lab. Strain) 5,7	3,900
Bacillus anthracis* Spores (anthrax spores)	46,200	*Pseudomonas fluorescens* 4,9	6,600
Bacillus megatherium Sp. (veg) 4,5,9	2,500	*Rhodospirillum rubrum* 5	6,200
Bacillus megatherium Sp. (spores) 4,9	5,200	***Salmonella enteritidis* 3,4,5,9**	7,600
Bacillus paratyphosus 4,9	6,100	***Salmonella paratyphi* (Enteric Fever) 5,7**	6,100
Bacillus subtilis 3,4,5,6,9	11,000	***Salmonella Species* 4,7,9**	15,200
Bacillus subtilis Spores 2,3,4,6,9	22,000	***Salmonella typhimurium* 4,5,9**	15,200
Clostridium tetani	23,100	***Salmonella typhi* (Typhoid Fever) 7**	7,000
Clostridium botulinum	11,200	**Salmonella**	10,500
Corynebacterium diphtheriae 1,4,5,7,8,9	6,500	*Sarcina lutea* 1,4,5,6,9	26,400
Dysentery bacilli 3,4,7,9	4,200	*Serratia marcescens* 1,4,6,9	6,160
Eberthella typhosa 1,4,9	4,100	*Shigella dysenteriae* - Dysentery 1,5,7,9	4,200
Escherichia coli 1,2,3,4,9	6,600	*Shigella flexneri* - Dysentery 5,7	3,400
Legionella bozemanii 5	3,500	*Shigella paradysenteriae* 4,9	3,400
Legionella dumoffill 5	5,500	*Shigella sonnei* 5	7,000
Legionella gormanil 5	4,900	*Spirillum rubrum* 1,4,6,9	6,160
Legionella micdadei 5	3,100	*Staphylococcus albus* 1,6,9	5,720
Legionella longbeachae 5	2,900	***Staphylococcus aureus*** (incl. MRSA) 3,4,6,9	6,600
Legionella pneumophila (Legionnaire's Disease)	12,300	*Staphylococcus epidermidis* 5,7	5,800
Leptospira canicola-Infectious Jaundice 1,9	6,000	*Streptococcus faecaila* 5,7,8	10,000
Leptospira interrogans 1,5,9	6,000	*Streptococcus hemolyticus* 1,3,4,5,6,9	5,500

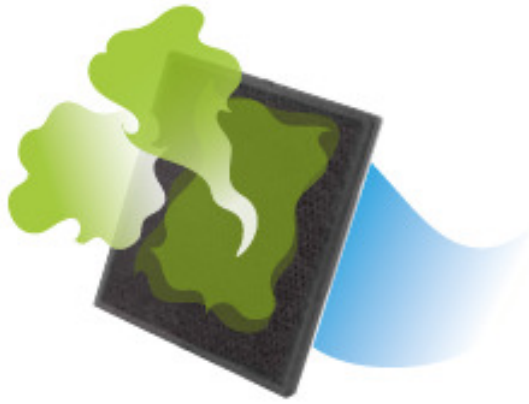
Dosage table continued….

Micrococcus candidus 4,9	12,300	*Streptococcus lactis* 1,3,4,5,6	8,800
Micrococcus sphaeroides 1,4,6,9	15,400	*Streptococcus pyrogenes*	4,200
Mycobacterium tuberculosis 1,3,4,5,7,8,9	10,000	*Streptococcus salivarius*	4,200
Neisseria catarrhalis 1,4,5,9	8,500	*Streptococcus viridans* 3,4,5,9	3,800
Phytomonas tumefaciens 1,4,9	8,500	*Vibrio comma* (Cholera) 3,7	6,500
Proteus vulgaris 1,4,5,9	6,600	*Vibrio cholerae* 1,5,8,9	6,500
Molds	**UV Dose**	**Molds**	**UV Dose**
Penicillium expansum 1,4,5,6,9	22,000	*Oospora lactis* 1,3,4,6,9	11,000
Penicillium roqueforti 1,2,3,4,5,6	26,400	*Penicillium chrysogenum*	56,000
Mucor racemosus (A & B) 1,3,4,6,9	35,200		
Protozoa	**UV Dose**	**Protozoa**	**UV Dose**
Chlorella vulgaris (algae) 1,2,3,4,5,9	22,000	Nematode Eggs 6	40,000
Virus	**UV Dose**	**Virus**	**UV Dose**
Adeno Virus Type III 3	4,500	**Influenza 1,2,3,4,5,7,9**	6,600
Bacteriophage 1,3,4,5,6,9	6,600	Rotavirus 5	24,000
Coxsackie	6,300	Infectious Hepatitis 1,5,7,9	8,000
Yeasts	**UV Dose**	**Yeasts**	UV Dose
Baker's Yeast 1,3,4,5,6,7,9	8,800	*Saccharomyces cerevisiae* 4,6,9	13,200
Brewer's Yeast 1,2,3,4,5,6,9	6,600	*Saccharomyces ellipsoideus* 4,5,6,9	13,200
Common Yeast Cake 1,4,5,6,9	13,200	*Saccharomyces sp.* 2,3,4,5,6,9	17,600

3. Magnetized Air Media Filtration (ELECTROSTATIC FILTERS)

- Electrostatic air precipitators use a process called electrostatic attraction to trap charged particles.
- They draw air through an ionization section where particles obtain an electrical charge.
- The charged particles then accumulate on a series of

  Flat plates called collectors that are oppositely charged.



4. Bi-Polar Ionization (Medilites)

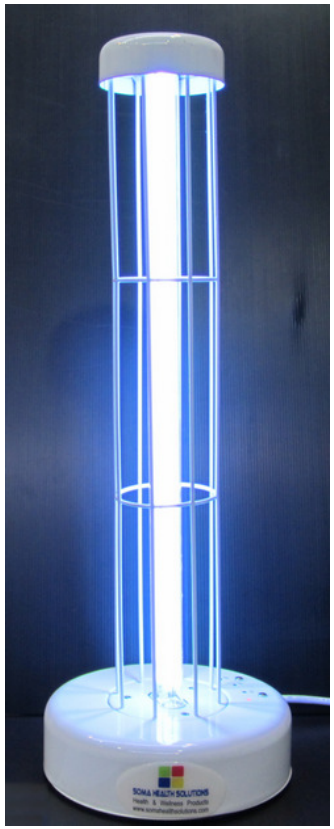
- Air ion generators, or ionizers disperse negatively charged ions (anions) into the air, similar to the electronic air cleaners but without a collector plate.
- These ions attach to airborne particles, making them heavier and causing them to settle on the ground faster, away from the nasal breathing zone.
- Negatively charged oxygen molecules will behave like hydroxyl radicals to neutralize odors and destroy the DNA of pathogens and allergens.
- Studies have shown that anions can freshen indoor air, reduce tiredness, relieve stress, alleviate affective depression, reinforce collagen, and strengthen the functions of autonomic nerves and the immune system.

5. Photo-Catalytic Oxidation -NANO Titanium Dioxide (TiO_2)

- Nano Titanium Dioxide (TiO2) transforms biological and gaseous pollutants into harmless products by a process called photo catalytic oxidation (PCO).
- When applied as a coating and exposed to ultra-violet or ambient light, Nano-TiO_2 produces hydroxyl radicals and superoxide ions that will neutralize biological and gaseous contaminants in indoor air.

- We now know IAQA problems exist!.
- We now understand the recommendations by EPA for effective sterilization!.
- So, what kind of equipments and technologies does Soma Medical have to resolve these IAQA problems?

LEO-1 : UVGI Air Sterilizer



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Specifications :

Lightwave: UV-C primarily in the 253.7nm wavelength
UV intensity @1 meter: 170 ?W/cm2
Bulb lifespan: 8000 hours operational
Voltage supply: AC220-230V, 50Hz
Power of bulb / UVC power: 55 watts
Bulb length: 21”
DimensionS: 20 x 20 x 58 cm
Ballast (included) lifespan: 20 000 operational hours
PCO inside
Remote control
Includes a timer setting : 15' 30' 60' timer (30 seconds delayed when powered on)

Ozone option available

LEO-1 : UVGI Air Sterilizer

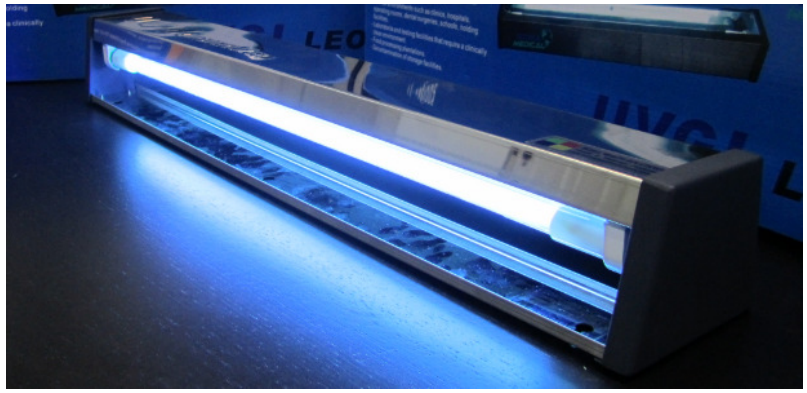
Hospital

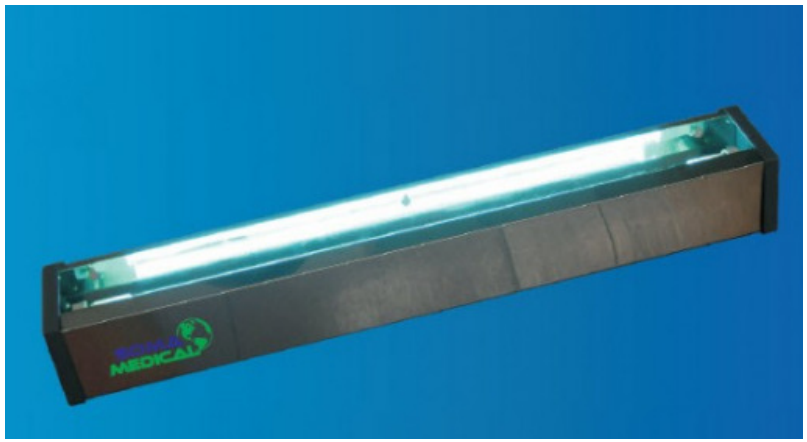
Food Processing Plant

Some examples of rooms/facilities suitable for Leo 1 UVGI Sterilizer

Laboratory

LEO-2 : UVGI Air Sterilizer (wall mounted)





Specifications:

Lightwave: UV-C primarily in the 253.7nm wavelength

Power: AC220-230V, 50Hz
UV intensity: 65 ?W/cm2
Bulb lifespan: 8 000 operational hours
Ballast lifespan: 30 000 operational hours
Bulb length: 23”

Power of bulb: 20 watts
Stainless steel housing

Ozone option available
Replacement lamps are available.

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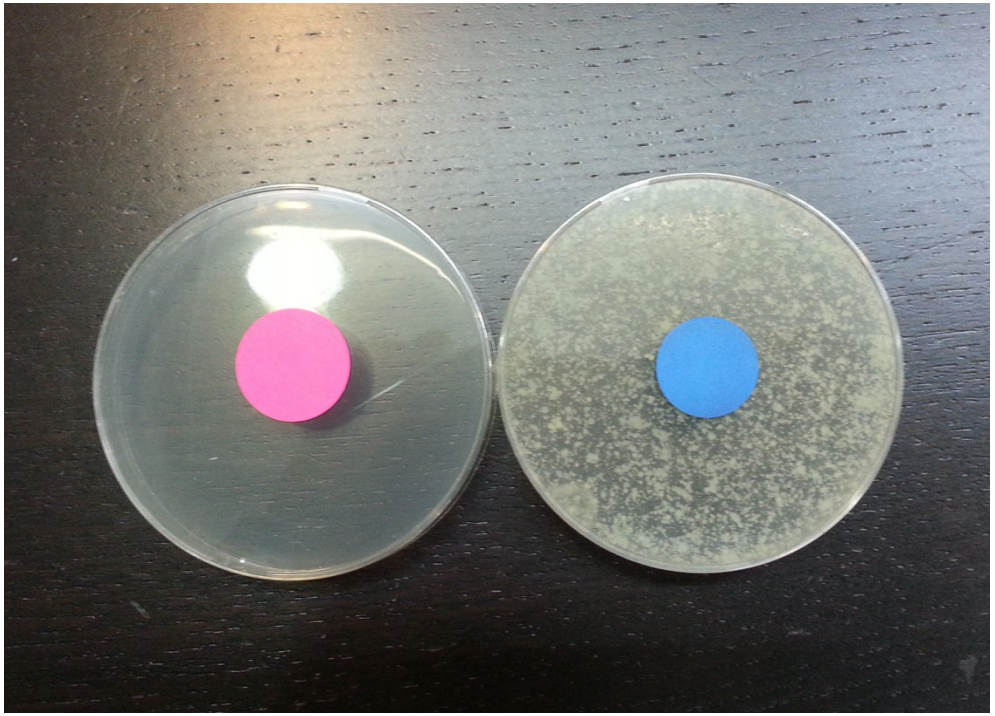
LEO-2 : UVGI Air Sterilizer (wall mounted)



Agar plates extracted from the room with our LEO 2 measuring 20' x 20' . The Agar Plate with the red circle is with UVGI LEO 2 and the blue is the control

LEO-3 : UVGI Air Sterilizer

www.cleanature.com.my

Specifications:

Lightwave: UV-C primarily in the 253.7nm wavelength

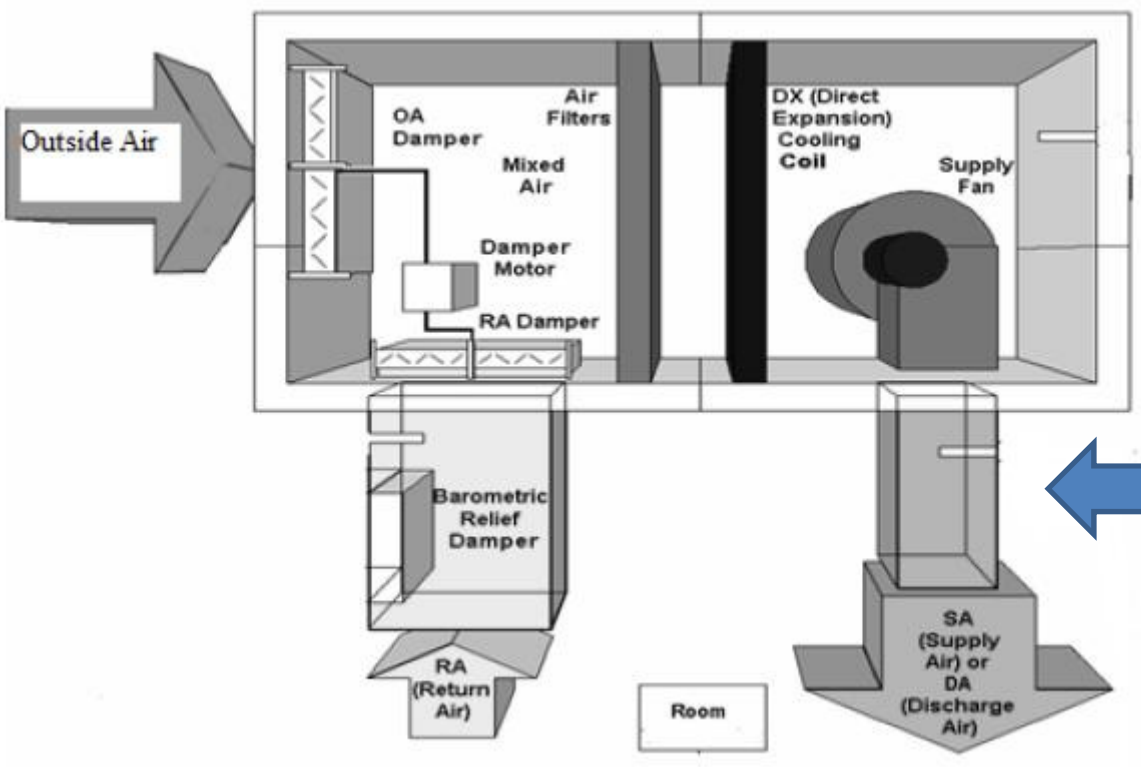
UV intensity @ 1m: 85 ?W/cm2
Bulb lifespan: 8 000 operational hours
Bulb length: 21.5”
UVC power: 28 watts

Dimensions: 120 x 90 x 400 mm
Ballast lifespan: 30 000 operational hours
Power Voltage supply: AC220-230V, 50Hz
PCO inside (with Ozone option)
SM 1152 with Nano TiO coating

Metal housing

Embed the LEO-3 on strategic places in the HVAC / Ducting

LEO-3 : UVGI Air Sterilizer



Location to install Leo 3 UVGI in the AHU

Infection Control Unit- ICU 100

Designation of product:	
Model:	
Physical dimension:	2600 x 420 x 320 mm
Input voltage	AC220V±15% (187V~253V)： 50Hz±10% (45 Hz~55 Hz)
Operating power:	200 W
Working voltage of ionizer:	DC8200V，±1.5%
Working voltage of dust collector:	DC4100V，±1.5%
Temp range of working environment:	0～45℃
Humidity of working environment:	＜90% RH (40℃)
Synchronous control voltage:	AC25V～AC300V
Audible noise:	＜25dB
Purification efficiency:	96.2% (test condition) 85.3% (actual measured condition)
Sterilization efficiency:	99.90%
Dust removal efficiency:	95%
Product description:	1、Installation location: ceiling mounted
	2、Product size: 2600*420*320 mm Weight: 45 kg
	3、UVC: 80 watts x 4 pieces working @ 60,000 microwatts intensity each
	4、Air exchange speed: Low- 500 m^3/hour High- 700 m^3/hour **Coverage Area: 1,200 ft^2**
	5、Features:
	A. Multi-purification and sterilization system
	B. High efficiency aluminum filter size 38.5 cm x 40 cm filtrating E6 + 4R6AL filtrating efficiency L5 ASHRAE 52.2-1999. Rated MERV 16 and coated with SM Nano 1152 TiO_2 solution
	C. 254 Nm UVC (4 pieces 80 watts working at 253.7 nanometers)
	D. LED display
	E. Remote control
	F. Bi-polar negative ion generation @ 9 million ions per cm^3
	G. Electrostatic filter
	6、Application:
	Hospitals, hotels, office buildings, schools, shopping malls, supermarket, etc.

All 5 EPA recommended solutions

Ultraviolet light (UVC)

MERV filter + TiO_2

Bipolar ionization

Electrostatic

Infection Control Unit ICU 200

INFECTION CONTROL UNIT

- Model: ICU 200
- Power: AC220-230V,50Hz
- Negative ion: 1.2 x 10^6 ions/cm^3
- Filters: Prepositive Filter Screen + HEPA MERV 17 + Titanium Dioxide TiO_2 Photo Catalyst (6 units of filters)
- LCD full screen display
- Static Plasma Electric field intensity: 6800V/m, 3-stage electrostatic field
- Anti-bacteria rate: ⩾ 90%
- Purification rate: ⩾ 80%
- Airflow rate: ⩾ 600m^3/H
- Noise: ⩽ 50dB
- Purification lifetime: ⩾ 10,000 hours
- Effective sterilizing time: 60 minutes
- Efficient area: 40-50 m^2
- Product dimensions: 480 x 350 x 955 mm
- UV intensity: 24,000 μw/cm^2 x 2 units UVC lamps in the 253.7nm wavelength
- Bulb lifespan: 12,000 operational hours
- Failure indication is displayed one by one
- Remote control or manual

All 5 systems

Bipolar ionization

MERV filter + TiO_2

Electrostatic

Ultraviolet light (UVC)

Cleanature SM600

All 5 EPA recommended solutions.

- Bipolar ionization
- MERV filter + TiO_2
- Electrostatic
- Ultraviolet light (UVC)

PURIFICATION MODULES				TECHNICAL PARAMETERS							
HEPA(MERV16) filter screen	Catalyzed and modified activated carbon	VOC/PCO + UVC	High-concentration anion generator	Rated Voltage (V)	Rated power (W)	CADR Clean Air Delivery Rate (m^3/h)	Noise (dB)	Anion concentration (ions/sec)	Applicable area (ft^2)	Weight (kg)	Produce size (mm)
√	√	11 watts x 4 pieces	√	230	122	210	<43	$2.0x10^6$	861 (subjected to actual conditions on site)	21	770x770x580

Model: IONS 8000

- Power: 2 watts
- Voltage supply: 220V/50Hz
- Negative ion density: 8 million ion/cc
- Generating head: 4 metal pins
- Dimension: 130 x 65 x 50mm
- With negative ion working indicator

Benefits of Negative Ion Generating Technology

- Reduce airborne pollutants, dust, cigarette smoke, pet dander, pollen, mold spores, viruses, and bacteria from the air.
- Negative ions have long been attributed to improvements in mood and physical health. Research supports the view that negative ions have a net positive effect on health, including improved mood, stabilized catecholamine regulation and circadian rhythm, enhanced recovery from physical exertion and protection from positive ion-related stress and exhaustion disorders.

Cleanature SM767A

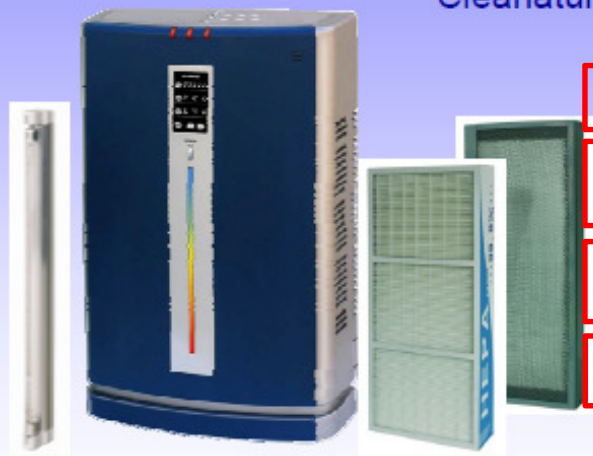
All 5 EPA recommended solutions.

- Bipolar ionization
- MERV filter + TiO_2
- Electrostatic
- Ultraviolet light (UVC)

PURIFICATION MODULES				TECHNICAL PARAMETERS							
HEPA(MERV16) filter screen	Catalyzed and modified activated carbon	VOC/PCO + UVC	High-concentration anion generator	Rated Voltage (V)	Rated power (W)	CADR Clean Air Delivery Rate (m^3/h)	Noise (dB)	Anion concentration (ions/sec)	Applicable area (ft^2)	Weight (kg)	Produce size (mm)
√	√	√	√	230	8.8～97	260	29～52	$5.0*10^6$	1800	12.5	650*450*230

Cleanature SM767B

Medical Germicidal Air Purification System
Cleanature SM767B



AIR IONIZER - remove allergens, bacteria, chemicals & other particles from the air.

ULPA /MERV 16 (HEPA) AIR FILTER - 99.97% effective at removing particles such as dust & mould.

GERMICIDAL UVC LAMP - destroys micro-organism like germs, viruses, bacteria and moulds.

ACTIVATED CARBON FILTER - eliminates chemicals gases, odours and cigarette smoke.

ANTI-BACTERIAL PRE-FILTER - extends the life of other filters by removing larger particles.

Additional features
- ➢LCD full screen display
- ➢Remote control

Cleanature

Specifications

Filter : Electrostatic + MERV 16 (HEPA) + Activate carbon + Photocatalyst static plasma: with honeycomb-type of aluminium

Negative Ion generation rate: 5 x 10^6 ions/sec
Ultraviolet light : Yes, intensity 23,000 μW/cm^2 (Quartz Lamp)
Air Sensor : Dust, odour, hydrogen, ammonia, hydrogen sulphide, ethane, methane, butane and carbon
Purification rate : ≥ 99.997%
Anti-bacteria rate : ≥ 90%
Airflow rate : 400 cfm/70m^3/H (low) 450 cfm/150m^3/H (medium) 500 cfm/210m^3/h (high)
Air exchange rate : 2 hours (low) 1 hour (medium) 0.6 hour (high)
Recommended room use : 60 m^2 (650 ft^2)
Power supply : 110 – 230V, 50Hz (≤ 65W)
Product dimension : 580 x 450 x 240 mm

Bipolar ionization

MERV filter + TiO_2

Ultraviolet light (UVC)

Electrostatic

SOMA MEDICAL

SOMA MEDICAL

Features

- LCD Touch control panel
- Wireless remote control
- Measures: 15” x 9” x 23.6”
- Effective up to 1000 sq.ft.

Technical Specifications

- The intensity of the UV-C is 20,000 µw/cm^2
- Dual 5-stage filtration and purification system
- Filters pollen, smoke, air pollutants, odors, bacteria, germs, mold, pet dander & more
- Automatic air quality sensor
- Negative ion generator
- 4 automatic timer
- 3-speed AC fan

MEDICAL GERMICIDAL
AIR PURIFICATION SYSTEM

MODEL: SHS 565A

5 PURIFICATION MODULES

Medilite GFL

Germicidal Fluorescent Lamp with Nanotechnology and Titanium Dioxide (TiO_2)

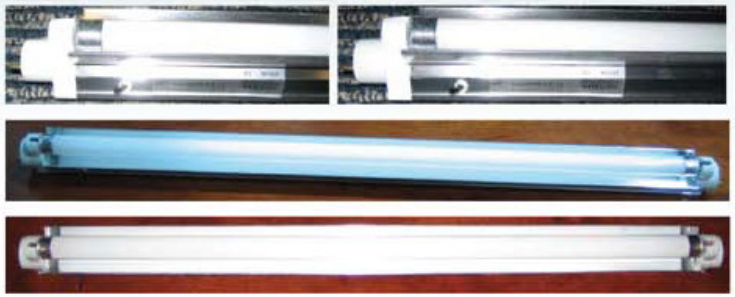
The T8/T5 retrofit kit is the latest Medilite product, being the result of many years of research and development.

This kit is used to convert an existing T8 (25 mm diameter 36 watt fluorescent tube) into a T5 (a more efficient and thinner 17 mm diameter fluorescent tube) complete with a Medilite patented long-life electronic ballast and anion generator.

Also included in the kit is a high-quality reflector which focuses the light downwards, thus increasing lighting efficiency.

Bipolar ionization

TiO_2



How to Install?

1. Turn off the power of the existing T8-36W tube.
2. Remove the existing T8-36W tube.
3. Remove the starter from the existing fixture and discard.
4. Install the T5 ballast into the existing socket.
5. Turn the power back on and the tube will instantly illuminate.

Why Do We Need a Medilite Germicidal Fluorescent Lamp?

- > Energy Saving
- > Poor Indoor Air Quality
- > Airborne Diseases
- > Allergens & Pathogens
- > Asthmatic Issues
- > Foul Odours, Smoke & Haze
- > Sick Building Syndrome
- > Dust Mites
- > Mold, Mildew & Yeast Infestation
- > Volatile Organic Compounds

Where to use Medilite GFL?

Medilite GML

Bipolar ionization

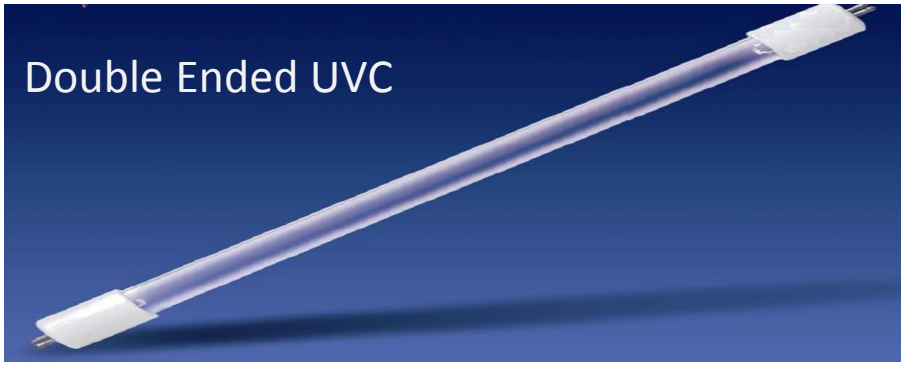
TiO_2

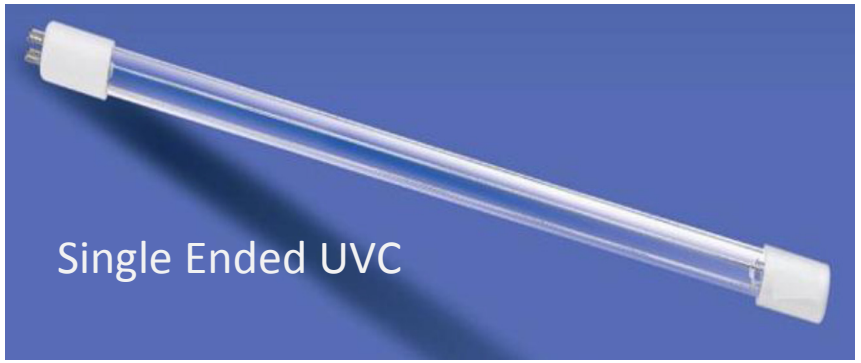
UVmax™ Series

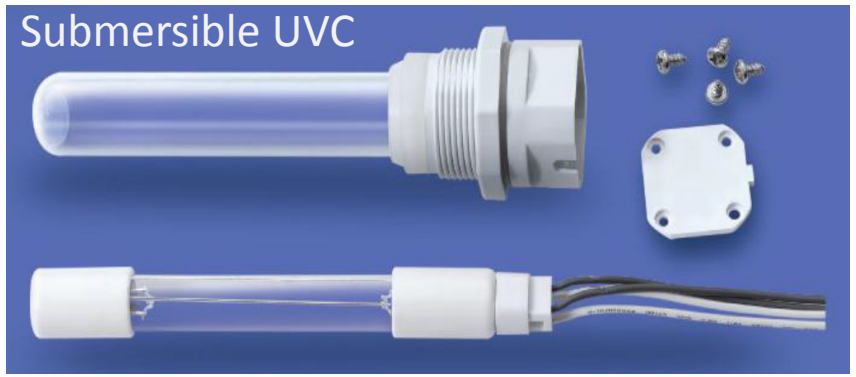
Ultraviolet light (UVC) for various applications

Customized UVC Series

Ultraviolet light (UVC) for
projects based applications







SOMA MEDICAL

Ceiling UVGI System

- Deluxe intelligent ceiling UVGI system
- 3 pieces of 40 watts UVC quartz lamps working at 136 μw/cm^2 intensity @ 1 meter
- LED indicates the working status of each UVC lamps
- Easy operation

MEDICAL GERMICIDAL
AIR PURIFICATION SYSTEM

Cleanature

Model: Optimax 40 C

PURIFICATION MODULES		TECHNICAL PARAMETERS					
VOC/PCO + UVC	Intensity @ 1 meter	Rated Voltage (V)	Rated power (W)	Noise (dB)	Applicable area (ft^2)	Weight (kg)	Produce size (mm)
40 watts x 3 pieces	(136 μw/cm^2 x 3)	230	130	<43	450 (subjected to actual conditions on site)	19	1200x600x80

CE GS CQC cULus

www.somamedical.net

SM Nano 1152 Titanium Dioxide

[Physicochemical Data Sheet]	
Product Series	Nano TiO_2 Sol Coating Agent (SM1152)
Appearance	Transparent liquid
Dispersive type	Solution
Odor	None
PH	7-8.5
Boiling Point	100°C/212°F
Volatility	None
Freezing Point	0°C/32°F
Flash Point	Non flammable
Average primary particle size - Acc. to GB/T 19591-2004	< 4nm
Crystal structure - Acc. to GB/T 19591-2004	Anatase
Specific surface area (BET) - Acc. to ISO 9277:1995	160± 30m^2/g
Coagulation index - Acc. to GB/T 19591-2004	2-4
Material academic duration	Permanent
Coating duration - Acc. to outdoor simulation environment	> 2 years
Primary drying time	30 minutes
Final setting time	2 weeks
Saturated stream pressure	2333Pa acc. to H_2O 1 PN 20°C
Opposite stream density	< 1.0 acc. to H_2O
Solubility	Dissolve in water, miscible in oil
True specific gravity	1.0075 – 1.01
Viscosity, dynamic	1.0050 mPa.s
Vaporize velocity	< 1.00 acc. to H_2O

The proof is in the pudding!!

Our recommended sterilization solution protocol and products can be effectively tested through a pre and post microbial challenge test, VOC count test and particulate testing

Our equipments used for testing

Kanomax Particle scanner & stand

Air Ion Counter

Voc Tester

Carbon Dioxide tester

Rechargeable battery

The importance of testing for Volatile organic compounds (VOC)

Volatile organic compounds (VOCs) refers to organic chemical compounds which have significant vapor pressures and can affect the environment and human health.

The importance of testing for negative ions

Negative ions help freshen and purify the air by neutralizing allergens such as pollen, mold spores, dust, and animal dander floating in the air. Negative ions will cause floating particulates to be attracted and stick to each other, forming 'clumps', this eventually falls to the ground and thus purifies the air.

The importance of testing for Particulate count

Particle counters are used to determine the air quality by counting and sizing the number of particles in the air. This information is useful in determining the concentration and micron size of particulates since it has a direct relationship to human well being and IAQA.

ISO 14644-1 clean room standards

Class	maximum particles/m³						FED STD 209E equivalent
	≥0.1 µm	≥0.2 µm	≥0.3 µm	≥0.5 µm	≥1 µm	≥5 µm	
ISO 1	10	2					
ISO 2	100	24	10	4			
ISO 3	1,000	237	102	35	8		Class 1
ISO 4	10,000	2,370	1,020	352	83		Class 10
ISO 5	100,000	23,700	10,200	3,520	832	29	Class 100
ISO 6	**1,000,000**	**237,000**	**102,000**	**35,200**	**8,320**	**293**	**Class 1000**
ISO 7				352,000	83,200	2,930	Class 10,000
ISO 8				3,520,000	832,000	29,300	Class 100,000
ISO 9				35,200,000	8,320,000	293,000	Room air

Sourced from: http://en.wikipedia.org/wiki/Cleanroom

THANK YOU

SOMA MEDICAL SDN. BHD.

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