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HOMESHIELD™

ULTRA VIOLET LIGHT AIR PURIFICATION SYSTEMS



homeshield™
keeping your indoor environment healthy



ULTRAVIOLET LIGHT
PURIFICATION SYSTEM
FOR BETTER HEALTH
- ENERGY &
MAINTENANCE
SAVINGS THAT
PAYS FOR ITSELF



homeshieldsystems.com

THE SCIENCE

HOW IT WORKS:

Ultraviolet light (UV) is electromagnetic energy. UV light emits germicidal radiation into the surrounding air. This purification system is able to sterilize the air, stopping the spread and propagation of harmful viruses, molds, pet dander, bacteria, and allergens from passing through your HVAC system and into your home.



ULTRAVIOLET LIGHT PURIFICATION

HomeShield is installed into your HVAC system to disinfect the air in your home from harmful microorganisms. Ultraviolet Light Purification is instant - you will immediately benefit from the positive health effects of a decontaminated indoor environment.

Microorganisms cannot reproduce when properly exposed to Ultraviolet Light

THE HEALTH BENEFITS

PURIFIED AIR

HomeShield installs into the ductwork of your HVAC system. Contaminants such as dust particles, mold spores, animal hair, dander, pollen, dust mites, viruses and bacteria rob millions of people from greater health everyday. It is estimated that molds are the primary cause of 80 percent of allergies and asthma. By eliminating and preventing the growth of mold and other contaminants, HomeShield can help you breath easy and reduce the effects of seasonal allergies and other health issues.

TRUSTED TECHNOLOGY

Health and food industries have widely adopted the disinfection benefits of UV light technology. A chemical-free method of purification is a simple way to ensure healthier air for your home.

- MEDICAL GRADE EFFECTIVE • INTERCEPTS AIRBORNE PATHOGENS • CHEMICAL-FREE DISINFECTION
- HALTS BACTERIAL GROWTH FROM RE-OCCURRING • STERILIZES HVAC SYSTEM COMPONENTS



PROTECTS AGAINST:

VIRAL PATHOGENS

MOLDS

BACTERIA

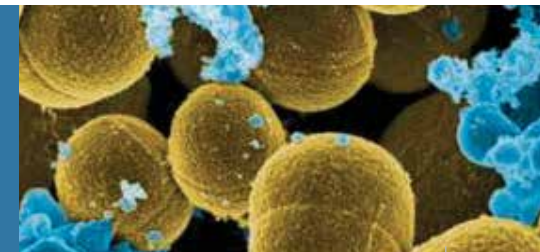
ALLERGENS

POLLEN

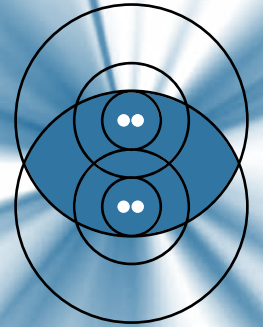
DUST MITES

VIRAL PATHOGENS

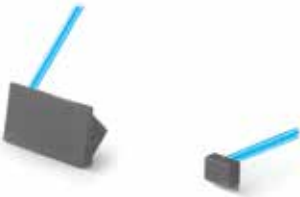
UV light prevents viruses from reproducing by damaging the microorganisms nucleic acids. Influenza, tuberculosis, chicken pox, shingles and E.coli are among a group of diseases that can be airborne and often carried via smaller dust particles through the HVAC system.



PRODUCT LINEUP



HOMESHIELD PRODUCTS FOR YOUR HVAC SYSTEM



FULL KIT

Available in both Medical Grade and Standard Grade, the HomeShield Full Kit is designed to purify the air entering and exiting your HVAC system. Lamps can be placed up to 6 ft apart.



TWIN LAMP

Available in both Medical Grade and Standard Grade, the HomeShield Twin Lamp is the perfect way to create a powerful sterilization area in your HVAC system. Adjustable bulbs allow for precise configurations around air conditioner coils.



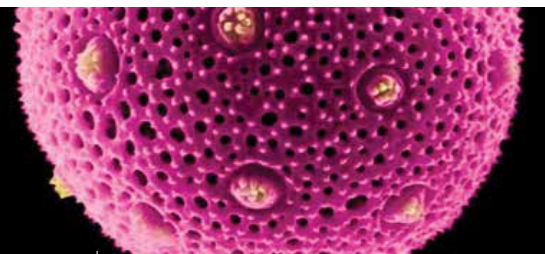
FURNACE LAMP

Available in Standard Grade, the HomeShield Furnace Kit fits inside your furnace to purify the air passing through. The Furnace Kit is compatible with select furnaces, consult your HVAC technician for more information.



Our twin lamp system creates ultra high intensity zones in the areas between the lamps. As the air is recirculated it is treated repeatedly ensuring a strong and effective dose of UV irradiation to any surviving microbes.

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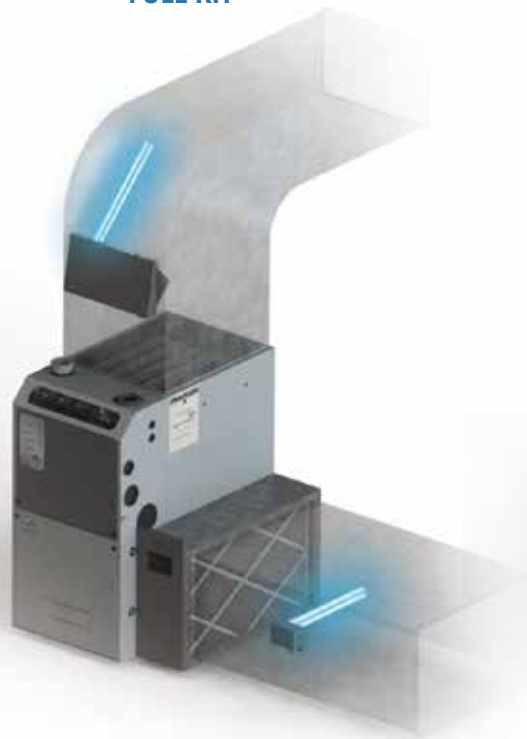
ALLERGENS

Allergens create a histamine response that causes inflammation. Moldy HVAC systems can cause allergic reactions resulting in headaches, sinus problems, respiratory illness and increase the severity of existing symptoms such as asthma. HomeShield is a safe, proactive, and cost effective choice in improving ones health.

IN ACTION

The illustrations below demonstrate the ways HomeShield products can be installed into your HVAC system. Consult your HVAC technician to learn which configurations and lamp angles best suit your system.

FULL KIT



TWIN LAMP



FURNACE LAMP



PET DANDER

Dander is microscopic, easily travelling through the air where it can irritate mucous membranes in the lungs and the eyes. HomeShield offers the ability for pet owners to stop allergens from proliferating the home environment by sterilizing them when they pass through the home's central HVAC system.





EFFICIENCY BENEFITS

HOMESHIELD INCREASES SYSTEM PERFORMANCE BY PURIFYING YOUR HVAC SYSTEM AND AIR CONDITIONER COIL.

With HomeShield ultra violet purification, all integral HVAC system components will perform more efficiently - extending the life of your system. Medical grade lamps are perfect for existing HVAC systems and coils as they can sterilize mold and bacterial build up that has already developed. Standard grade lamps are perfect for new HVAC systems and coils as they will prevent any build-up from occurring. Improving the efficiency and extending the life of your HVAC system is a clear economic benefit.



Even a minimum coil biofilm build up of debris 0.042 inches thick (imagine plastic wrap) will substantially **decrease system efficiency and performance by over 20 to 30 percent.**

Air Conditioner coils are the largest source of mold, microbial and endotoxin concentrations within the ventilation system. There is a complex yet direct relationship between biofouling, debris and efficiency of the HVAC system. The air conditioner evaporative coil is the biggest HVAC biofouling source and is a central cause of wasted energy. Dark and damp conditions provide prime opportunity for propagation of thousands of mold colonies, making the air conditioner coil the largest source of indoor mold contaminants. Biofilm comprising of mold and yeasts typically grow on the coils, shortening the life of your HVAC system. HomeShield will eliminate biofilm and make your coils like new again.



COST SAVINGS AT A GLANCE

- Less Maintenance
- Energy Savings
- Installation Ease
- Increased System Performance
- Avoid Costly Illness
- Increases HVAC system life cycle

CONFIGURATIONS

FLEXIBLE OPTIONS

HomeShield Twin Lamps and Full Kits have adjustable configurations. The easy-to-install design provides flexible options to meet the needs for your particular HVAC system. By customizing your bulb configuration, you'll achieve maximum sterilization results.

VERSATILE

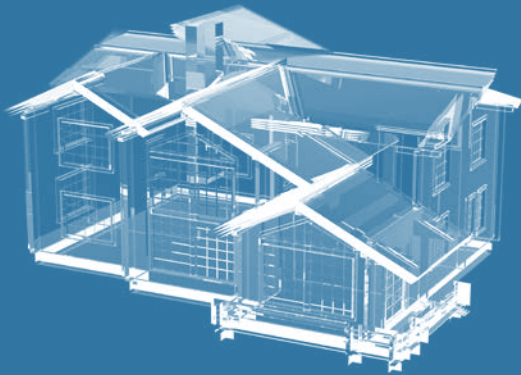
- AIR CONDITIONING • GAS FURNACES • WOOD FURNACES • MULTI FUEL FURNACES
- HEAT RECOVERY VENTILATORS • ELECTRONIC AIR CLEANING SYSTEMS



BACTERIUM

Bacteria has become more resistant to chemical disinfectants and antibiotics. Protozoa, Measles, Eberthella Typhosa are a few of the avoidable yet very dangerous microbial bacteria; especially to those already facing health challenges.





homeshield™

keeping your indoor environment healthy

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CONTAMINANT	STERILIZATION ENERGY		IN AIR TREATMENT - # OF PASSES REQUIRED FOR D-10 VALUE		COIL IRRADIATION - SECONDS TO 99% STERILIZATION BY DISTANCE TO BULB					
					HIGH OUTPUT 60-120 WATTS MODULES			18-36 WATT MODULE		
	D-10 (-1 LOG)	99%	AVG - 9,800	HIGH - 27,350	1"	4"	8"	1"	4"	8"
VIRUS / BACTERIA / MOLD										
Bacteriophage - E. Coli	2,600	6,600	0.3	0.1	0.03	0.48	1.90	0.1	1.6	6.2
Infectious Hepatitis	5,800	8,000	0.6	0.2	0.04	0.58	2.31	0.1	1.9	7.5
Influenza	3,400	6,600	0.3	0.1	0.03	0.48	1.90	0.1	1.6	6.2
Poliovirus	3,150	6,600	0.3	0.1	0.03	0.48	1.90	0.1	1.6	6.2
Bacillus Anthracis - Anthrax	24,320	46,200	2.5	0.9	0.21	3.33	13.32	0.7	10.9	43.6
Bacillus Subtilis	5,800	11,000	0.6	0.2	0.05	0.79	3.17	0.2	2.6	10.4
Clostridium Tetani	13,000	22,000	1.3	0.5	0.10	1.59	6.34	0.3	5.2	20.8
Corynebacterium Diphtheriae	3,370	6,510	0.3	0.1	0.03	0.47	1.88	0.1	1.5	6.1
Ebertelia Typhosa	2,140	4,100	0.2	0.1	0.02	0.30	1.18	0.1	1.0	3.9
Leptospirocanicola - Infectious Jaundice	3,150	6,000	0.3	0.1	0.03	0.43	1.73	0.1	1.4	5.7
Mycobaterium Tuberculosis	6,200	10,000	0.6	0.2	0.05	0.72	2.88	0.1	2.4	9.4
Salmonella Typhimurium	8,000	15,200	0.8	0.3	0.07	1.10	4.38	0.2	3.6	14.3
Serratia Marcescens	2,420	6,160	0.2	0.1	0.03	0.44	1.78	0.1	1.5	5.8
Shigella Dysenteriae - Dysentery	2,200	4,200	0.2	0.1	0.02	0.30	1.21	0.1	1.0	4.0
Shigella Paradyserteriae	1,680	3,400	0.2	0.1	0.02	0.25	0.98	0.1	0.8	3.2
Spirillum Rubrum	4,400	6,160	0.4	0.2	0.03	0.44	1.78	0.1	1.5	5.8
Staphylococcus Albus	1,840	5,720	0.2	0.1	0.03	0.41	1.65	0.1	1.3	5.4
Vibrio Comma - Cholera	3,375	6,500	0.3	0.1	0.03	0.47	1.87	0.1	1.5	6.1
Aspergillus Flavus	60,000	99,000	6.1	2.2	0.45	7.13	28.54	1.5	23.3	93.4
Aspergillus Glaucus	44,000	88,000	4.5	1.6	0.40	6.34	25.37	1.3	20.8	83.0
Aspergillus Niger	132,000	330,000	13.5	4.8	1.49	23.78	95.13	4.9	77.8	311.3
Mucor Racemosus A	17,000	35,200	1.7	0.6	0.16	2.54	10.15	0.5	8.3	33.2
Mucor Racemosus B	17,000	35,200	1.7	0.6	0.16	2.54	10.15	0.5	8.3	33.2
Oospora Lactis	5,000	11,000	0.5	0.2	0.05	0.79	3.17	0.2	2.6	10.4
Penicillium Expansum	13,000	22,000	1.3	0.5	0.10	1.59	6.34	0.3	5.2	20.8
Penicillium Roqueforti	13,000	26,400	1.3	0.5	0.12	1.90	7.61	0.4	6.2	24.9
Penicillium Digitatum	44,000	88,000	4.5	1.6	0.40	6.34	25.37	1.3	20.8	83.0
Rhisopus Nigricans	111,000	220,000	11.3	4.0	0.99	15.85	63.42	3.2	51.9	207.5

* All energy values are presented in microwatt seconds per cm squared - air sterilization determines energy absorbed per pass - coil irradiation shows time frame required

In some cases, contaminants will pass by the Ultra Violet lamp and literally hit the surface of the lamp, exposing themselves to as much as 220000 pW/cm². As indicated in the chart above, that is enough energy to tackle the toughest molds.

A High Output head will provide an absolute minimum dose to the entire air stream of 525 pW/cm² @2000cfm in a 24.5" plenum, and a maximum dose over 27,350 pW/cm² @ 600cfm in a single pass. The average UV dosage with the High Output module is 9800 pW/cm² @ 600 CFM in a 24.5" plenum.

As air circulates in your home and makes multiple passes by the Ultra Violet lamps the more effective the sterilization of the indoor air.