



# Applied Concepts & Technologies Corp.

**Professional Application Integrators**

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## UVGI Effectively Destroys Infectious Diseases in Facilities and Homes

*Reduce Your Risk Of Getting Sick At Work Or Home*

*By: Sarah Radford*

Ultraviolet Germicidal Irradiation (UVGI) has been used effectively since the 1920's to reduce infectious disease transmission in Health Care Facilities. For the past 40 years hospitals, schools, universities and colleges, office buildings, government facilities and municipalities, food processing, homes and many other facilities are using UVGI to reduce electricity usage, minimize maintenance and lower operating costs. Added benefits include easy installation and use, improving indoor air and environmental quality (IAQ/IEQ), improved productivity and reducing the risks associated with secondary infections for recovering patients.

Today UVGI is being widely adopted as a critical component for any facility owner and homeowner's quest for cleaner and safer environments and it is even considered an easy to use green technology. One critical area UVGI works very well in is destroying viruses. Because the size of a virus is extremely small very few air filters will actually catch a virus. Even HEPA grade filters have a hard time catching these small and nasty "bugs".

"Consider what is potentially coming down the road with the Swine Flu (H1N1) virus or any other virus in the future. Suggestions include wearing masks, not shaking hands, not kissing and always washing you hands with sanitizer as well as washing everything with expensive chemicals and sanitizers. This works for a virus that is transmitted by touch. But the real risk is that since a virus is so small it is carried by air currents in any room and easily picked up by the ventilation and air conditioning systems. This means a virus can infect anyone even if they take the necessary precautions", says Susan Albert, President and CEO of Applied Concepts & Technologies Corp. in Joliet, IL.

So what can be done to prevent all these viruses from being inhaled from the air? The answer is simple, use an application that's proven effective and deploy it with the other measures being implemented. That application is Ultraviolet Germicidal Irradiation (UVGI). Dr. W.J. Kowalski, former Architectural Engineer at Pennsylvania State University's Indoor Environment Center and a leading expert on immune buildings reported in a research paper, *"If a large number of schools, office buildings and residences were modified (With UVGI), a number of airborne respiratory diseases could be eradicated by interrupting the transmission cycle. Reducing the transmission rate sufficiently would... halt epidemics in their path."*

The addition of UVGI in air distribution systems will destroy the virus on surfaces where it propagates and deactivate it before it is released and re-circulates through a facility or home. Adding UVGI to the cooling coil or the return air duct of a home air conditioning system is equally effective. Sanitizing all the surfaces and objects in a vacant room (Class room, hospital room, etc.) is also easily done with portable UVGI systems.

UVGI is used to satisfy specific concerns of end users such as facility managers, owners, operators, and homeowners in the following areas:

### MOVING AIR STREAMS

Problem: Infectious diseases in the air are automatically distributed throughout a facility or home by the HVAC system.

Goal: Eliminate or reduce distribution risks.

UVGI System Type: In-Duct Air Stream Disinfection

Practical Use: Easily mounted in air handling equipment, supply, return and exhaust duct work.

Benefits: Destruction of target microbes in a moving air stream is accomplished before they are distributed throughout a facility resulting in cleaner & safer air / environments, reduced risk of transmission, and reduced risk of secondary infections.

### SURFACES IN COMMERCIAL AIR HANDLING EQUIPMENT & HOME AIR CONDITIONERS

Problem: Infectious diseases continuously propagate in the HVAC systems and are automatically distributed throughout a facility or home.

Goal: Eliminate or reduce continuous growth and distribution risks.

UVGI System Type: Air Handler Component Surface Disinfection UVGI Systems

Practical Use: Easily mounted in air handling equipment to shine on cooling coils, drain pans & interior surfaces of AHU's. Also used in duct work to destroy mold growth on surfaces.

Benefits: Destruction of bacteria, molds and viruses on surfaces in air handling equipment resulting in energy savings, cleaner & safer air / environments, reduced HVAC maintenance, reduced risk of transmission, and reduced risk of secondary infections.

### AIR TREATMENT IN ROOMS

Problem: Sick people are in the same rooms / areas occupied by healthy people.

Goal: Eliminate or reduce risks of infection to healthy people and secondary infections to patients.

UVGI System Type: Upper-Air UVGI Systems

Practical Use: Easily mounted in or near the ceiling in waiting rooms, emergency rooms, classrooms, patient rooms, common areas and hallways.

Benefits: Destruction of airborne microbes floating in rooms resulting in cleaner & safer air / environments, reduced risk of transmission, reduced risk of secondary infections.

### SURFACES & AIR IN ROOMS

Problem: Infectious diseases living on surfaces and inanimate objects in rooms. Wipe down of rooms and objects is time consuming, costly, and areas can easily be missed.

Goal: Eliminate diseases on objects and in rooms while significantly reducing time and labor required to clean room and objects.

UVGI System Type: Portable UVGI Irradiation Systems

Practical Use: Used in all rooms to sanitize exposed surfaces, objects and air in room. Easily moved from room to room. (Note: Room must not be occupied when in use)

Benefits: Destruction of bacteria, molds and viruses on surfaces, objects and air in rooms resulting in cleaner & safer air / environments, shortened and more effective wipe down time of hospital rooms and classrooms, reduced risk of transmission, and reduced risk of secondary infections.

Numerous applications are in use today and in every case measurable positive results are noticed by end users. They are also very pleased with the ease of installation and use. The cost of using UVGI is low and

affordable. The American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) 2008 Handbook on HVAC Systems and Equipment states that, "UVGI reduces microbial levels on HVAC surfaces and often in the air. Coil pressured drop is reduced, and air flow is restored. Because heat transfer is also restored, this combination can result in energy savings, which can be significant, with payback of possibly less than two years." When other costs associated with infectious disease transmission are factored in the payback can become months or even days.

There are many manufacturers of various UVGI products available today. Each manufacturer has specific features and benefits associated with their products. Choosing the right UVGI application and system(s) to meet your needs is easily done by working with the Professional Application Integrators at Applied Concepts & Technologies Corp. They will help you appraise your needs and recommend the precise solutions and equipment needed to meet your budget and requirements.

The findings from highly published comprehensive study in 2003 by McGill University in Montreal Canada sum up the effectiveness of UVGI by saying, "Installation of UGVI in most North American offices could resolve work-related symptoms in about 4 million employees, caused by microbial contamination of heating, ventilation, and air-conditioning systems." The application of UVGI in facilities and homes is a very effective solution that has been around for decades and will continue to be an effective tool for reducing the risk of infectious disease transmission in facilities and homes around the world.

**About Applied Concepts & Technologies Corp.**

Applied Concepts & Technologies Corp. works with proven green technologies to provide customized solutions, services, equipment, systems and retrofits for commercial & institutional facilities as well as homes around the world. Applications feature high rates of return, and short paybacks while providing critical enhancements to indoor environments and reduced operating budgets. Professional Application Integrators from Applied Concepts & Technologies Corp. are your source for proven solutions that meet a facilities needs in the most economical way possible.

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