



Genesis Air Systems: The most effective process available to improve indoor air quality in your facilities.

Today's facilities owners and managers face a complex array of threats to indoor air quality – and a confusing set of claims about what various air filtration and purification technologies can do. A closer look at the competing technologies reveals significant differences among them.

How major air-cleaning technologies stack up

	Removes Large Particles	Removes VOC's	Eliminates Mold	Eliminates Bacteria	Eliminates Viruses
Conventional air filters	Yes	No	No	No	No
HEPA filters	Yes	No	Yes	No	No
Charcoal media	No	Yes	No	No	No
UV lights	No	No	No	Some	Some
Ozone emitters	No	Some	Some	No	No
Genesis Air Systems	YES	YES	YES	YES	TIP¹

Conventional air filters trap large particles that are too big to pass through the filter, but allow smaller, often more harmful airborne bacteria, molds, pollen, chemical residue and dust mites to remain.

HEPA filters are more effective, removing up to 99.9 percent of particles as small as 0.3 microns, and do a good job of removing lead, asbestos and mold spores. However, HEPA filters are not air purifiers. They trap air particles and hold them, rather than eliminating them.

Charcoal media are sometimes used with HEPA filters to trap odors and fumes, but again, contaminants are trapped, not eliminated.

UV light effectiveness is dependent on the exposure time of the microorganism, the nature of the biological contamination and the exposure intensity. Germicidal effectiveness (intensity) varies with distance from the organism to the lamp.

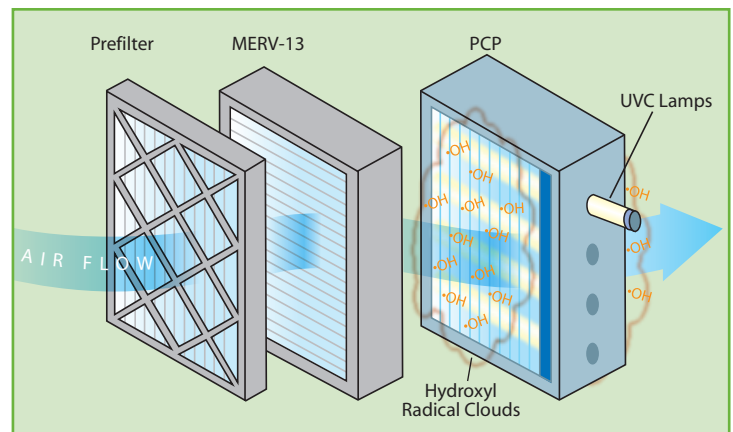
Ozone emitters have little potential to remove indoor air contaminants at concentrations that do not exceed public health standards, according to scientific evidence.²

Genesis Air Systems offer unique advantages for air purification.

Genesis Air Systems combine MERV 13 filtration with a revolutionary two-stage process to clean and purify the air better than any other process available.

- MERV 13 Filtration** removes most pollen, mold spores, ragweed, dust and many other sub-micron particles, allergens and irritants. This high-efficiency filter stage also serves to protect HVAC equipment and the final stages of the Genesis process from particle contamination.
- UVGI technology** is used to activate the photocatalyst and provides an additional measure of bactericidal irradiation.
- GAP™ technology** uses a patented titanium dioxide coated media, which, when activated by the UV light, creates a “cloud” that purifies the air passing through it by oxidizing organic compounds and converting them into benign carbon dioxide and water vapor. Bacteria and viruses are also inactivated and destroyed.

Genesis Air Photocatalysis GAP™ System



¹ Testing in progress. For more information, see the West Desert Test Center Document No. WDTC-TR-06-078 from the U.S. Army Dugway Proving Ground, July 2006, as prepared for Government Scientific Source, Inc.

² From “Ozone Generators that are Sold as Air Cleaners: An Assessment of Effectiveness and Health Consequences” published by the EPA.

Who needs Genesis Air technology?

Anyone who owns or manages a facility occupied by people needs technology that can safeguard against airborne contaminants. This includes healthcare facilities, government and military buildings, hotels, schools, airports, libraries, manufacturing plants and commercial buildings of all kinds.

What proof is there that Genesis Air Systems work better?

There are many documented examples of the superior performance of Genesis Air Systems in a wide range of applications. Testing conducted at the U.S. Army Dugway Proving Ground in Utah provides a good example of the proven value of Genesis Air Systems.

The Genesis Air 2002B.mil unit reduced the percentage of mold spores in the atmosphere an average of 93.5 percent and reduced the fungal activity 100 percent.

Dugway Proving Ground Results	Mold	Bacteria	Viruses
Removal Rate	93.5%	98%	98%
End Result ³	0% Live Spores	0% Live Bacteria	0% Live Viruses

Can Genesis Air Systems be installed in existing air handlers?

Absolutely! Genesis Air Systems are easily installed in both new and existing HVAC systems. This flexible technology can be installed in supply air ducts, return air ducts or in the existing filter plenum (depending on size and air volume requirements). Because every air handler is different, we will work with you to ensure the best fit and performance for your facility.

What does it cost to have truly clean air?

The benefits of Genesis Air Systems can quickly outweigh the costs. For example, the capital cost for a 50,000 CFM Genesis Air System is typically \$1.30-\$1.40 per CFM. The Genesis System also offers maintenance and operating costs significantly lower than the alternative of HEPA filters and charcoal beds. And only the Genesis Air System can provide protection from the full range of airborne contaminants, including molds, deadly viruses, and chemical and biological agents.

³ Mold results: No fungal activity for air in the Genesis exhaust stream.

Bacteria results: Data from the Genesis exhaust was below detection limits.

Virus results: 0% before and after use of Genesis Air System. See the West Desert Test Center Document No. WDTC-TR-06-078 from the U.S. Army Dugway Proving Ground, July 2006 for more detail.

Are there standards for indoor air quality?

The Indoor Air Quality Handbook, published in 2001, specifies optimal levels for air cleanliness, pollutants and comfort. All of these can be precisely measured and controlled using Genesis Air Systems and integrated monitoring equipment from Ingenuity IEQ.

Recommended Guidelines

Comfort and Ventilation	
CO ² (ppm)	< 1100
Temperature (°F)	68 - 78
Relative Humidity (%)	20 - 60
CFM (outdoor air PP)	> 15
Air Cleanliness	
PM 10 (µg/m ³)	< 40
PM 2.5 (µg/m ³)	< 20
TVOC (index)	< 35
Building Pollutants	
CO (ppm)	< 9
Radon (pCi/l)	< 4
Ozone (ppm)	< 0.1

What else can Ingenuity IEQ do to improve indoor environments?

Ingenuity IEQ offers a range of indoor environmental solutions that work together to make buildings more energy-efficient, healthier, cleaner and greener. Genesis Air Systems can be integrated with other best-in-class technologies from Ingenuity IEQ to reduce energy, minimize operating and maintenance costs and provide measurable improvements in air flow, air quality and environmental purity.

Set a new standard for air quality in your building.

To find out more about Ingenuity IEQ and what we can do to help improve the air quality and energy efficiency of your facility, call for an appointment today or visit our web site: www.ingenuityieq.com.

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