# **Dynamic Air Quality Solutions**

We clean the air for hospitals, precision manufacturing, mines, pharmaceutical labs, **ASHRAE** headquarters and the world's most valuable art collection. We have designed solutions for anthrax clean-ups,

90% of the cost of providing clean air is energy. Our customers have saved hundreds of millions of kilowatt hours. We have designed solutions for anthrax clean-ups, marijuana grow facilities, casinos, wastewater treatment plants, and data centers.



### **Dynamic Air Quality Solutions**

Advanced engineered solutions for energy and air quality in commercial, institutional, medical, pharmaceutical and other critical applications

At the intersection of IAQ, energy and maintenance, Dynamic Air Quality Solutions provides sustainable solutions for new construction and existing buildings that save energy and reduce operating costs while providing maximum indoor air quality for people, productivity and processes.

#### Maintaining indoor air quality has a direct impact on:

- the health and productivity of employees, occupants, and guests
- the life and operation of electronics and equipment
- the energy, operation, and maintenance costs
- the size of the carbon footprint
- the bottom line

With over 30 years of experience and a broad range of award-winning products, we have the right tools to deliver effective and cost-effective solutions.



## **Technologies and Products**

Active-field, Polarized Media Air Cleaners



Dynamic Air Quality Solutions has developed and implemented many advanced engineered solutions for energy and air quality in medical, pharmicutical, and laboratory applications.

This is the basis for the original patents and the first family of Dynamic Air Cleaners. The technology combines the benefits of passive filtration with those of electro-static attraction. An active DC voltage is used to create an electro-static field inside a media pad. The field polarizes the media fibers and the particles in the air. This attracts the particles to the media and affects their loading and interaction with each other. The end result is high-performance contaminant removal, low pressure drop, and a long maintenance cycle.

The active field greatly enhances the ability to capture the ultrafine particles and the odors and reactive gas phase contaminants adsorbed onto their surface. These particles are the vast majority of what is in the air and have a very direct impact on people and equipment. They are also very difficult to capture with passive filters.

Since 1982, there have been seven generations of product advances and development. This has given Dynamic a solution for almost anything that moves air and for almost any application: from a 1" Air Cleaner Panel for a 200 cfm fan coil in an apartment to a bank of MERV 15 Dynamic V8's in a 250,000 cfm custom air handler for a clean room.

#### Activated Carbon Matrix

This puts the proven power of carbon in a form that allows for the precise control of gas phase contaminants. Long life, low pressure drop and no requirement for a post filter reduce the cost of ownership. Activated carbon is immobilized into a uniform grid that gives even airflow and full use of the carbon. Whether in a sewage treatment plant, an art museum or precision manufacturing, people, processes and equipment require air that is free of VOC's, acid gases and other gas phase contaminants.

Dynamic Air Quality Solutions Products



Active-field, Polarized Media Air Cleaners



1" V-Bank Air Cleaners



Activated Carbon Matrix Systems

Dynamic systems have been installed in universities, colleges, and schools around the globe.

#### Germicidal Ultra-Violet C Systems

For those applications where biological inactivation is important, highoutput UVC and a polarized glass media are combined to provide a catch, hold, kill solution. The key for UVC to be effective is contact time and proximity. The Dynamic system captures the biologicals in the airstream on essentially a translucent surface. A scanning parabolic reflector focuses a sterilizing beam of UVC that sweeps the media again and again, to provide the necessary contact time. A cowling keeps the lamp clean and the UVC contained. This is a far more efficient system with less potential for collateral exposure than one that bathes an entire coil or duct section with UVC.

### Supplemental and Targeted Air Cleaning Systems

Dynamic also provides stand-alone air cleaning/moving systems that bring the necessary technologies to bear to address specific air quality issues. These typically range in size from 800 to 10,000 cfm and help provide the air changes and airflow patterns necessary. Examples include units for odor mitigation in a marijuana grow facility or a system for pressurization control in a mail sorting room.



Dynamic has designed energysaving air quality systems for data centers around the world. Because indoor air quality and odor control are mission critical for marijuana grow facilities, this has become an emerging sector for Dynamic in North America.



Dynamic V8 Air Cleaning Systems



Dynamic V8 Side Loaded Systems



Dynamic RS2/RS3 Air Cleaning System - Sterile Sweep



Germicidal Ultra-Violet C Systems

## **Capabilities and Applications**

#### Solving for energy and maintenance reduction



Here the deliverable is a 2/3 reduction in energy and operating costs and a maintenance cycle measured in years. These jobs are typically Dynamic V8's replacing MERV13-14+ passive filters.

Typical paybacks run 1.5-4 years. In performance contract projects, the Dynamic V8 is one of the primary energy conservation measures. For example, retrofitting Dynamic V8's into a building saves as much utility energy as a photovoltaic system costing five times more.

This work represents the majority of Dynamic commercial business—a straight-forward installation into new or existing equipment. Dynamic Air Cleaners are installed as an option with most major manufacturers, into AHU sections at our factory, or in the field.

#### Solving for Indoor Air Quality



In these applications, there is an air quality issue that must be addressed. Dynamic has a proven track record and over three decades of experience in identifying and fixing IAQ issues in a vast range of situations. Whether the project involves a clean manufacturing facility where Dynamic diagnosed that a few parts per billion of hydrogen sulfide in the outdoor air was a few parts too many, a mailroom with the potential of dangerous micro-organisms, odors from a marijuana grow facility, or removing jet exhaust fumes from an airport terminal, Dynamic has designed and implemented a solution.

#### Solving for both: the IAQ Procedure



Using ventilation with outdoor air as the primary means of achieving indoor air quality made sense when smoking was permitted and people were the primary source of contaminants. Today, however, with no smoking and green building design, indoor sources are fewer and the outdoor air is a much more likely source of contaminants. This is especially true in urban environments, which are often classified by the EPA as nonattainment zones.

The Indoor Air Quality Procedure of ASHRAE Standard 62 looks at actual potential contaminant levels and allows the designer to take credit for air cleaning, good airflow patterns, low-emitting materials, etc. In many instances, there is the potential to reduce outdoor air levels, improve air quality and lower heating and cooling loads. Air cleaning is an important part of the picture. Dynamic has the experience, products, software and field data to help implement the IAQ Procedure.

### The Company

Over 30 years of experience saving energy and solving IAQ problems Founded by two university professors in 1982 as a vehicle for their creativity and inventions, Dynamic has been innovating ever since. Applications engineering, sales and corporate offices are based at our Princeton, New Jersey headquarters, while primary manufacturing and R&D are located in Carleton Place, Ontario.

*The company has over 100 patents wordwide* 

The first generation of products was geared towards the residential marketplace and that continues to be a significant sector for us. Dynamic supplies a wide range of products to most major OEM's, contractor groups and wholesalers, both under the Dynamic brand and numerous private labels. Dynamic product and IAQ training are the best in the industry.

In 1999, a separate division was created for the growing commercial business, with its own sales, engineering, and product development. This business now accounts for the majority of sales.

With a strong focus on R&D and product development, the company, the technologies, the intellectual property, and product lines have continued to grow and evolve. Our product range and application expertise enable us to meet and exceed the needs of our customers, even in the most challenging environments. Dynamic systems are installed throughout the world, and everyday millions of people breathe air that we have cleaned.





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