CLEARWAVE AIR TECHNOLOGY VS. HEPA FILTRATION & IONIZATION

The ClearWave Air purifier was specifically designed to address serious health problems associated with disease-causing airborne pathogens. These pathogens include airborne bacteria, viruses, mold and fungal spores, which are responsible for many common illnesses such as colds, influenza, tuberculosis, whooping cough, etc. Some of the most pervasive airborne irritants in indoor spaces are mold and fungal spores, which can be major triggers of allergies and asthma, as well as an underlying or contributing cause of many serious diseases. ClearWave Air's potent, ultra-violet microbial kill chamber destroys these organisms with each air pass through the unit. Recent tests at Intertek Laboratories have proven the ClearWave Air unit's ability to continually destroy over 7 million Penicillium Citrinum mold spores with each minute of operation. It is noteworthy that these mold spores are over 50 times more difficult to destroy with ultra-violet light than e-coli bacteria, which is representative of most other airborne bacteria and viruses. The inlet air filter in the ClearWave Air unit is intentionally designed with a porosity that allows airborne pathogens and odor-causing compounds to pass through the filter and into the microbial kill chamber where they are annihilated. The purpose of the coconut carbon-based filter is to retain larger dust particles and reduce chemical compounds through the process of adsorption.

HEPA filtration is the most common technology sold for indoor air treatment. HEPA filters attempt to trap and contain airborne contaminants. Typically, the best available HEPA filters can retain particles larger than 0.3 microns in size. Many airborne pathogens are smaller than this, and as such can easily pass through a HEPA filter. The influenza virus, for instance, has an approximate diameter of 0.1microns.

Drawbacks of HEPA filters include:

- Many disease-causing pathogens can pass through a HEPA filter unharmed. Larger pathogens, including mold and fungal spores can be retained by the HEPA filter where they can breed and proliferate into sizable colonies. By continually feeding more nutrients into the filter material, and especially in the presence of humidity, the HEPA filter can become a perfect breeding ground for mold, fungus and bacteria, creating an unhealthy living environment for the building's inhabitants. This phenomenon is especially well known in air-conditioning units that include air filters.

- HEPA filters are expensive, and in many cases require significant instructions for replacement. As a result, many owners do not replace their filters on a regular basis thereby potentially producing an unhealthier living environment vs. having no filter at all.

- Clean Air Delivery Rate (CADR) is a standard that was essentially developed by and for the HEPA filter industry. The standard measures only particulate reduction capabilities and does not address microbial air purity. The rating is only valid for a given filter as used in a specific equipment design, and when the filter is brand new. The rating is based on a 20-minute test. As such, the CADR rating gives no indication on how this filter will perform after several hours, days, weeks or months of operation.

Advantages of HEPA filters include:

- Because of environmental conditions in many cases, it may be desirable to clean the air of airborne particulates, which is the strength of new HEPA filters. However, most homes in North America have central forced air heating/cooling systems, which already include a filter. These filters are of a standard size, and home improvement stores offer a myriad of replacement filters for these units, including high-quality HEPA filters at a much lower cost than specialized replacement filters for HEPA air cleaner units, making it much more likely that the consumer will replace these filters at regular intervals. Because of their high flow rates and large filter areas, these home forced-air systems are far more efficient in cleaning the indoor air of dust and particulates than even the most expensive HEPA air cleaner units.

Ionization is another technology, which is often used as a stand-alone or in conjunction with air filtration systems. Ionization attaches a weak electrostatic charge to particulate matter, which can cause several smaller particles to group together. Ionization can also cause particulate matter to attach to surfaces such as walls and flooring. Ionization does not destroy or remove any contaminants from indoor air. The more contaminated the indoor air is to start with, the greater the accumulation of these contaminants on the various surfaces. Long-term ionization could result in surface contamination that is difficult and expensive to remedy.