

# How About a Little Peace of Mind from the SARS-CoV-2 Pandemic? (and any other virus that should come along...)

The entire world is living in unprecedented times, brought on by the SARS-CoV-2 virus pandemic and the resulting COVID-19 disease.

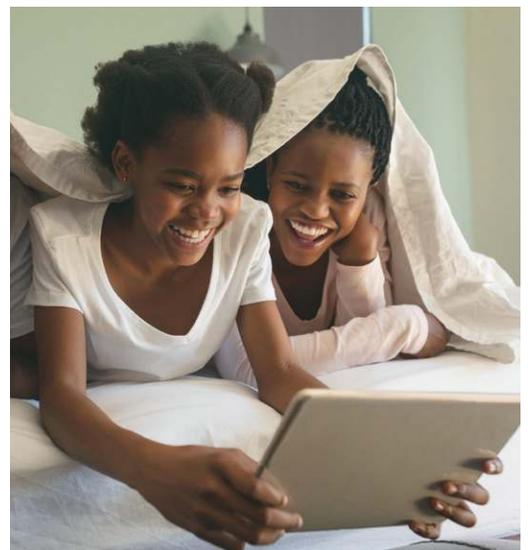
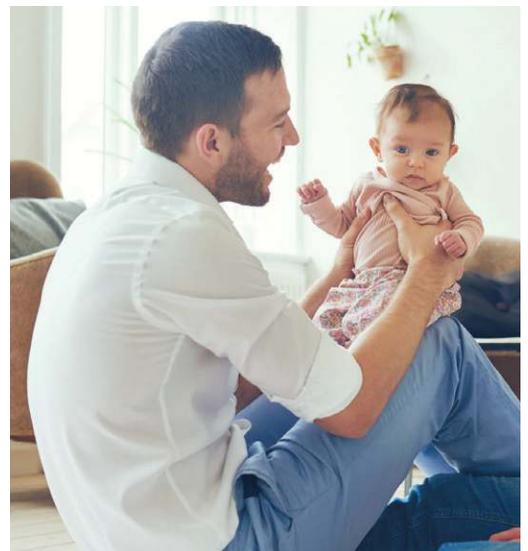
At the time of the writing of this document, the entire world is waiting for a correct vaccine to protect our families and loved ones from this virus. We Americans are usually not very patient about waiting on solutions, and desire to do all we can to deal with the challenges with which we are confronted.

We all desire to have comfortable, safe, healthy homes and buildings in which we live our lives. We want to take advantage of all the technologies, and systems available to us to accomplish having indoor living environments which meet our expectations for health and safety.

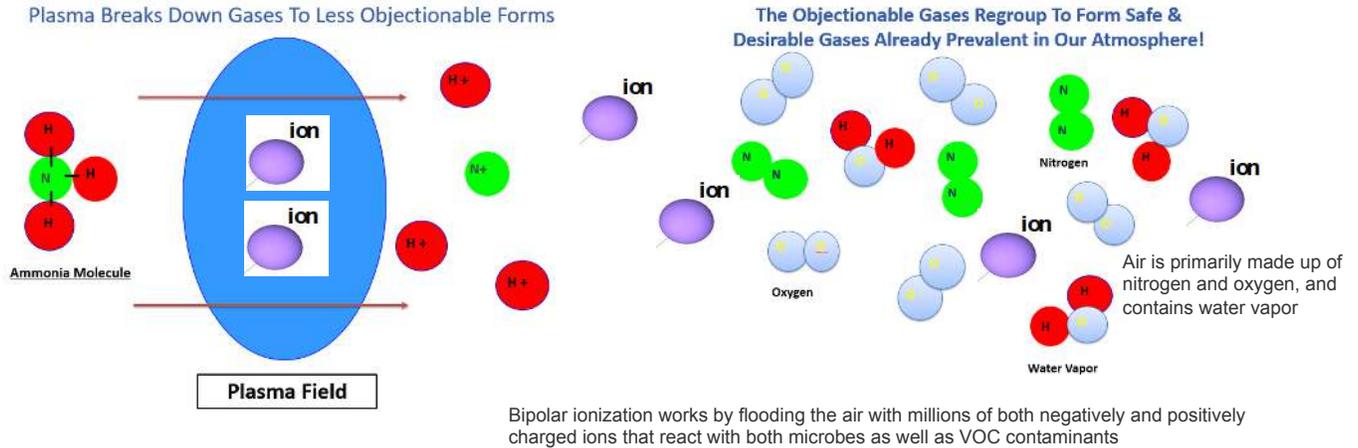
As your Indoor Air Quality (IAQ) Professionals, we would like to offer our knowledge and experience in helping and educating all, in an effort to help you make wise choices about your investments in protecting your family and friends.



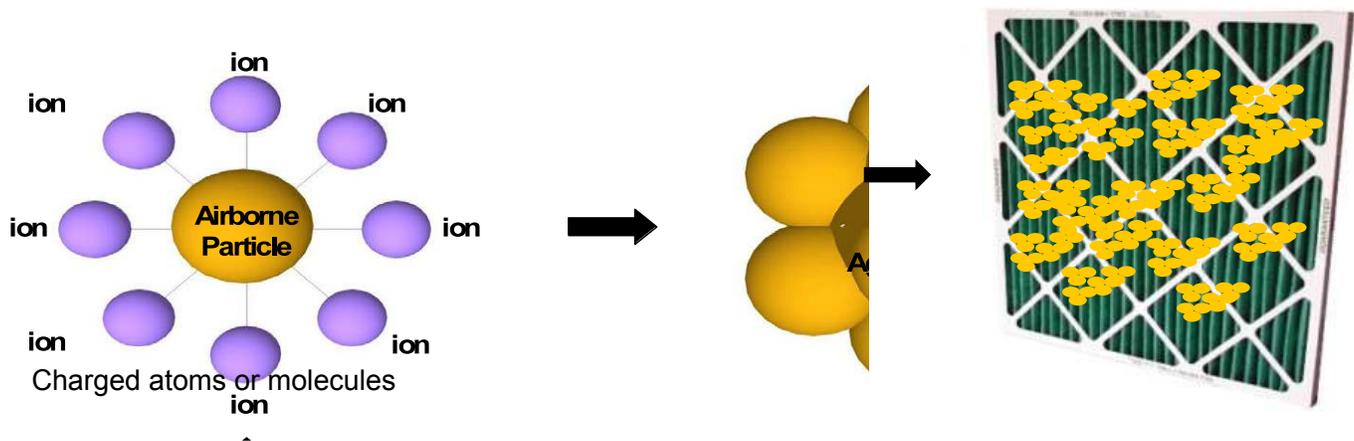
(303) 277-0140



# Step One: Needlepoint Bipolar Air Ionization Air Purification Systems



## Breakdown VOCs

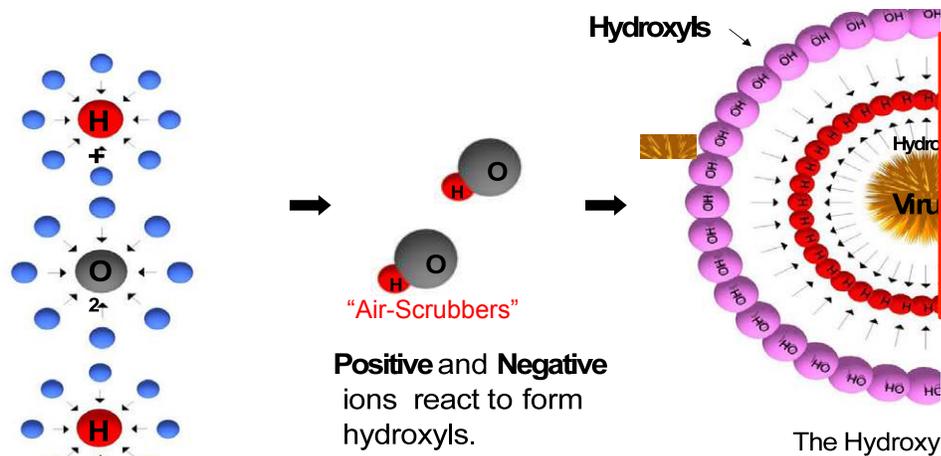


## Agglomeration by Attraction

The American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) has expressed great concern, along with the Centers for Disease Control and Prevention (CDC) and others, have issued guidance on how our homes and buildings can be operated to help provide higher levels of Indoor Air Quality (IAQ) in order to produce safer, healthier

and more comfortable environments in all types of structures.

It's important to implement proven HVAC best practices that, when combined with proper filtration, humidification, and ventilation, will provide the superior result desired. A proven technology with



A viable active air treatment option that not only affects contaminants and microbes in the air, but also on surfaces, even hidden surfaces. This means contaminants are addressed in the space, and don't have to make their way back through the HVAC system (if they can) before being filtered or treated.

## Kills Living Pathogens

### 3rd Party Testing Summary

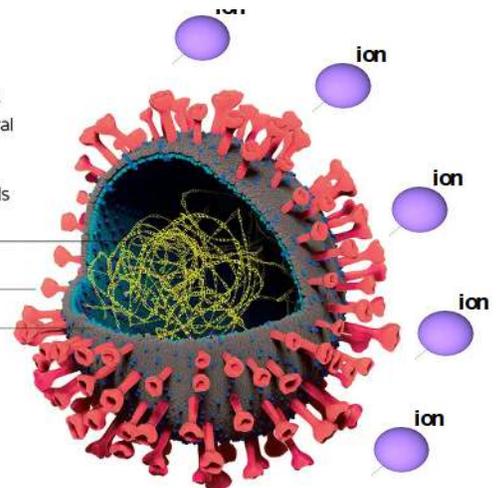
| Pathogen                     | Time in Chamber | Kill Rate | Test Agency |
|------------------------------|-----------------|-----------|-------------|
| <b>Tuberculosis</b>          | 60 minutes      | 69.09%    | EMSL        |
| <b>Clostridium Difficile</b> | 30 minutes      | 86.87%    | EMSL        |
| <b>Norovirus</b>             | 30 minutes      | 93.50%    | ATS Labs    |
| <b>MRSA</b>                  | 30 minutes      | 96.24%    | EMSL        |
| <b>Staphylococcus</b>        | 30 minutes      | 96.24%    | EMSL        |
| <b>Mold Spores</b>           | 24 hours        | 99.50%    | GCA         |
| <b>E.coli</b>                | 15 minutes      | 99.68%    | EMSL        |
| <b>Legionella</b>            | 30 minutes      | 99.71%    | EMSL        |

A viable active air treatment option that not only affects contaminants and microbes in the air, but also on surfaces, even hidden surfaces

### Anatomy of a virus

The covid-19 virus has several features we may be able to target with drugs to break it down and stop it entering cells

- RNA enclosed in protein
- Spike protein
- Lipid membranes



## Disrupts DNA/RNA of Viruses

outstanding IAQ benefits is “Needlepoint Bipolar Air-Ionization” (NPBI), manufactured by Global Plasma Solution (GPS) in Charlotte, NC. GPS IAQ solutions have the ability to remediate issues attributed to both airborne particulates and pathogens, either removing them from the air or rendering them incapable

or infective of harm. The end result is a cleaner indoors that keeps people happier, healthier, and more productive. This allows our homes to be safer, buildings to reoccupy, businesses to reengage, and the general public to realize more Peace of Mind as we move forward.



# IAQ Products for Better Indoor Environments

## AUTO-CLEANING NPBI

**GPS-FC48-AC™**

An automatic self-cleaning, lightweight NPBI system that handles up to 4,800 CFM or 12 tons. Designed for multiple mounting options including fan inlet, interior duct walls or floors. The composite construction allows for mounting in corrosive environments.

**Features**

- > 400 Million + and – Ions Per c/Sec
- Universal Voltage Input (24 – 240 VAC)
- Programmable Auto-Cleaning Cycle
- Carbon Fiber Brush Emitters
- Alarm Contacts

UNIVERSAL VOLTAGE



**GPS-FC24-AC™**

An automatic self-cleaning, lightweight NPBI system that handles up to 2,400 CFM or 6 tons. Designed for multiple mounting options including fan inlet, interior duct walls or floors. The composite construction allows for mounting in corrosive environments.

**Features**

- > 300 Million + and – Ions Per c/Sec
- Universal Voltage Input (24 – 240 VAC)
- Programmable Auto-Cleaning Cycle
- Carbon Fiber Brush Emitters
- Alarm Contacts

MAINTENANCE FREE

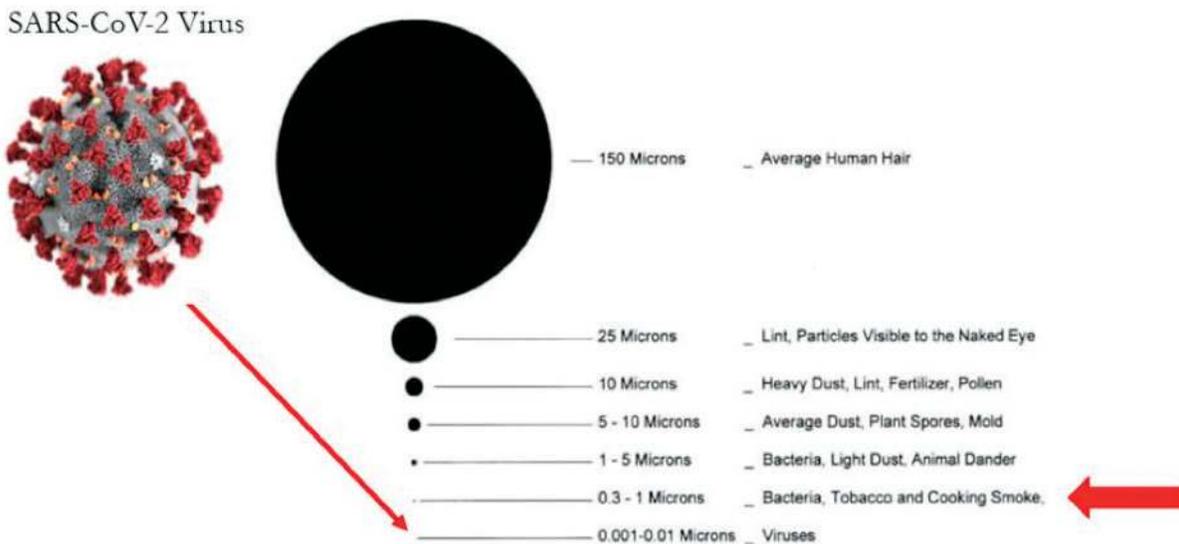



This GPS-NPBI technology is available in many other models and types, and for most all applications. It has been installed and utilized in churches, schools, hospitals, long term care facilities, airports, arenas and stadiums, animal care facilities, banks, theaters, fitness centers, office buildings. There are no buildings or dwellings where GPS-NPBI cannot be utilized.

Who do you know that needs it in their home? What buildings do you enter that need to hear about a great means of creating a more safe and healthy indoor living environment?

## Step 2: Improve Your Filtration to MERV 13 or Better

ASHRAE and the CDC have been stating the importance of higher efficiency FILTRATION systems in our indoor residential and commercial HVAC systems.



As already stated, the GPS – Needlepoint Bipolar Air Ionization (NPBI) technology will operate more efficiently if operating in concert with high efficiency filtration, as smaller particles will agglomerate or congeal to make larger particles, and more easily be captured in the filtration system.

In 1987, ASHRAE created the MERV system, whereby all filters have to be tested and are rated with a Minimum Efficiency Reporting Value (or MERV rating). MERV ratings are based on how well an air filter traps common airborne pollutants within specific size ranges. Basically the higher the MERV rating, the more efficient the filtration is at capturing smaller particles, and more of those smaller particles. MERV ratings generally range from MERV 1 to MERV 20. Most homes, businesses, and buildings currently utilize only MERV 2 to MERV 8 filtration.

Since the SARS-CoV-2 virus and COVID-19 disease appeared on the scene, we are seeing more and more recommendations to move America to utilize MERV

13 filtration as the new minimum standard. Up to MERV 16 filtration is readily available for homes.

MERV 13 filtration when combined with GPS-NPBI air purification technology will control 97% of virus and pathogens, and does not include the ionization kills within the space on surfaces..

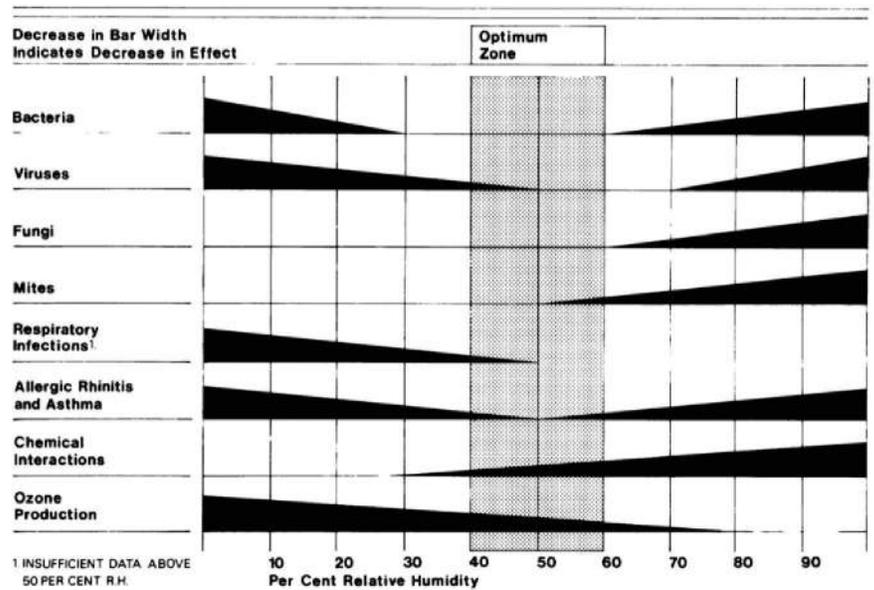
MERV 13 and MERV 16 filtration is much more effective, and recommended to be used (only) in concert with Electronically Commutated Motors (ECM). With EC motors the blower RPM can increase as the filter loads with more and more particulate, to overcome the static pressure increases. In July 2019, the Department of Energy (DoE) enacted the Fan Efficiency Rating (FER) mandating and allowing furnace and air handler manufacturers to only produce equipment utilizing ECM technology.

\*\*Full MERV efficiency charts are available and may be supplied upon request.

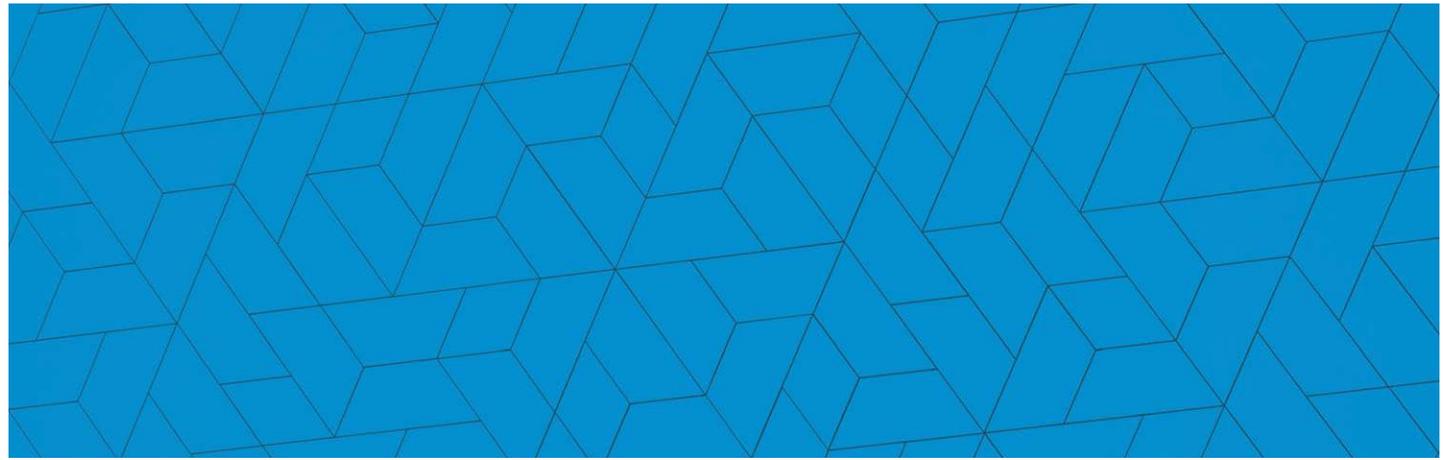
## Step 3: Humidification Systems Can Reduce the Risk of Infection

ASHRAE and the CDC have stated that “there is sufficient evidence that pathogen survival rates are much lower when relative humidity (RH) levels are maintained between 40%-60% RH. The primary effect on pathogens at these RH levels is that the risk of infection is reduced.”

Arundel AV, Sterling EM et al. *Indirect Health Effects of Relative Humidity in Indoor Environments*, Environmental Health Perspectives Vol 65, 351-61, 1986.



Optimum relative humidity range for minimizing adverse health effects.



## There are two basic types of humidification systems that are typically utilized in homes.

**1. Bypass Evaporative Type Humidifiers.** These types of humidifiers have supply water that runs down and saturates a “honeycomb type” pad or panel. The heated air supplied from the top of the furnace carries the moisture or humidity into the home or space. Any humidity (water) that is not evaporated, and carried into the home, goes down the floor drain. (So no bacteria is allowed to grow inside the humidifier.)

The problem experienced with evaporative type humidifiers in Colorado has been discovered in the fact that we get 300 days of sun annually, and our furnaces do not “fire” as much as in other northern states. The temperature coming off the supply side of the furnace is about 140 degrees F. If the furnace is NOT fired, the circulated air is around room temperature or 70 degrees F. Simply stated, 70 degree air will not hold the moisture that 140 degree air will hold.

Due to this fact, it is very difficult, maybe near impossible, to hold humidity levels at 40%-60% RH using an evaporative type humidifier. Perhaps the only time we can reach these required humidity levels is in the heart of winter, when we get a cold streak where our furnaces are operating most of the time.

It is recommended that we operate our humidifiers any time our air conditioners are NOT operating. A

central air conditioning system removes humidity from the air, so we do not recommend operating two “competing” home comfort system components at the same time—except in cases where the occupants have severe respiratory challenges.

**2. Steam Humidification Systems.** The best and perhaps only choice/solution for being able to hold the safer 40%-60% RH in our homes and businesses are steam humidification systems!

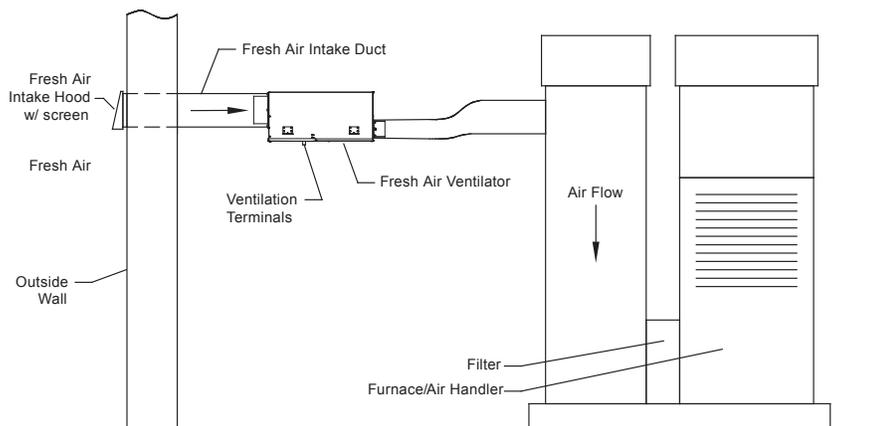
A steam humidification system has its own heating element which boils the water to steam. Pure water vapor is released into the space, carried by a blower system of some type, and any minerals or impurities remain in the steam canister, and are drained away later. Since steam humidity is a vapor “it takes the shape of its container”, and fills the entire space at the same humidity level.

The steam humidification systems do cost more to operate because of the heating elements. We encourage operating on 230 Volt power for highest capacity and lowest utility investment. Most people report that they have experienced that the health and safety benefits of steam systems far outweigh the expense, and have proven to provide a very satisfactory return on investment.

# OUTSIDE FRESH AIR VENTILATION Systems May Help Improve and Maintain Healthy Indoor Air

ASHRAE and the CDC have stated that introducing outside fresh air ventilation into our homes and buildings can have a very positive impact on improving the indoor air quality and living environments.

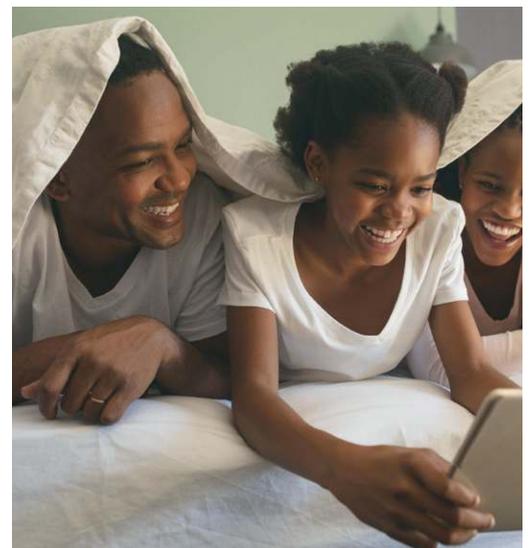
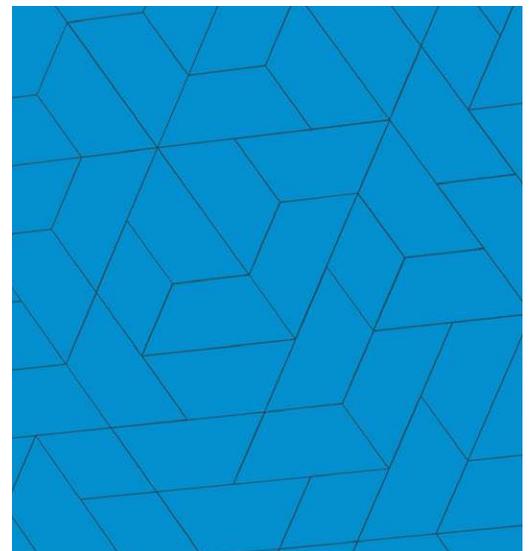
## Typical Basement Installation



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“Dilution is a solution” is the saying many will use when explaining the benefits of utilizing outside fresh air ventilation as a means of introducing 100% outside air into HVAC and home comfort systems.

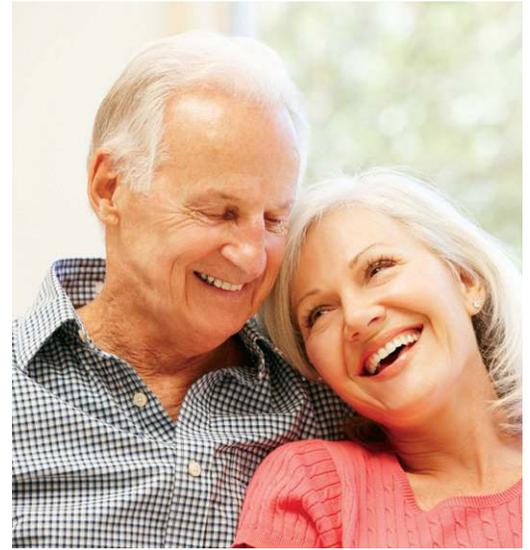
The simplest and most economical outside air systems simply supply or introduce outside air into the return air duct of the HVAC system through a 6” round duct (for example) with a weatherproof hood connected to the outside. This outside air should be controlled by a motorized damper of some type, which can be regulated by proper control systems based on outside air conditions and even closed during times of extreme adverse temperature or humidity conditions.



There are systems available that have a high efficiency motor to “pull” the air from the outside, or systems that utilize the motor/blower system in the existing furnace or air handling unit. Systems are also available that have a small filter installed to further filter the outside air, or if sufficient existing filtration is available, can simply utilize the existing filtration system on the main HVAC or Home Comfort system.

Due to “cross contamination” during SARS-CoV-2, other virus, or influenza seasons, it is not recommended that Heat Recovery or Energy Recovery Ventilation Systems and technology be utilized at this time

NOTE: With our GPS – NPBI systems installed, the requirement for outside fresh air ventilation can often times be significantly reduced!



## BREATHE EASY

This facility is using



Air Cleaning Technology



[www.GlobalPlasmaSolutions.com](http://www.GlobalPlasmaSolutions.com)

SCAN ME

**May 2020 update: Only HVAC IAQ Technology with third party verified testing for 99.4% inactivation of SARS-CoV-2 viral particles in 30 minutes!**



(303) 277-0140

**Contact us today to design a customized IAQ system and put together a customized proposal for your home or building.**