

2021



INDOOR AIR QUALITY

BROUDY PRECISION

Indoor Air Quality (IAQ) means exactly what it states. It is a measure of the purity of breathing air a space has to offer. IAQ is affected, for better or worse, by many factors. The inhabitants of a space, in conjunction with a well thought out HVAC strategy, are contributing factors to the cleanliness of indoor air.

From a physiological stance, the human body is accustomed to breathing air as it is found in most parts of nature. Largely made of Nitrogen (about 78%) and Oxygen (about 21%). When people are crammed into indoors spaces, this makeup of “quality air” can get misshapen.



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As opposed to outdoors, most indoor spaces lack the natural mechanisms to decontaminate air. The most notable of these purifiers is plant life photosynthesis (the production of Oxygen as a byproduct of sunlight and CO₂ intake). Another less recognized is the production of negative and positive charged ions from bodies of water, moving water, wind, and other elements. These ions bind to and deactivate particulate, bacteria, viruses, etc. Sunlight is a huge cleanser of air in itself and can neutralize many common Indoor Air Quality invaders. Lastly, for note here, the earth's soil and bodies of water act as a large carbon sink, helping to reduce the amount of carbon in the air humans breathe. Disclosure: for purposes here, we are not taking into account the pollution of our natural outdoor air. We are speaking of outdoor air as it is found in nature, unharmed by earthly pollution. For health, humans must breathe a makeup of air that is as close to nature as possible. Now, the human body is very

resilient and capable of amazing adaptations but the destruction caused by air quality cannot be ignored. It may be slow or hard to see, but poor air has massive effects down to our organs, blood, cells, connective tissue, metabolism, energy production, homeostasis, etc. Moreover, in times of Flu or pandemic, we are doubling down on the pollutants found in air. More people coupled with weak IAQ deployment in a building is a recipe for disaster.

In terms of HVAC tactics, IAQ is the practice in which we aim to bring the makeup of indoor breathing air as close to nature as possible, as well as to filter out contaminants from illness. We can do this in a variety of ways. First and foremost, would be the introduction of "fresh" outdoor air to spaces via Economization. Economization is Strictly following ASHRAE's recommended number of air changes per hour for your type of space, and/or reading the amount of CO₂ and introducing more outdoor air as that

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number increases. Both of these are fine and considered industry standards. Economization is simple, and with a few system modifications, it can be extremely beneficial to health and wellness. The second largest IAQ approach is using devices and strategies to specifically purify the air that is inside a building. Starting at most simple, media filtration (passive). Every building has media filters, but the important part is the quality of said filters and the longevity. Low-end filters tend to consist of very slim horsehair fibers that can easily be seen through with the naked eye. At the opposite end of the spectrum is HEPA high MERV rated filters. It is obvious that you would want to opt for a higher level filter that has the ability to clean out more and smaller particulate. Once you have the appropriate filter, maintaining them becomes vital. A good building automation control system will tell you when filters need to be replaced. These alerts are not to be ignored! Beyond media filtration would be active air purifiers, such as UV light

and Ionization. Both of which use energy to negate or neutralize particulate, bacteria, viruses, etc. Where they differ is in the approach. UV mimics the ability of the sun to kill these air pollutants with physical light bulb structures added to air handling units. As air is fed past them, they use ultraviolet rays to do the job. Ionizers release positive and negative charged ions in the air stream, and, in turn, the space. These ions bind to the impurities and deactivate and/or make them large and sticky so that the media filter catches them. Ionization, most importantly needlepoint ionization, is safe and mimics the ability of water, moving water, wind, etc. to clean breathing air. A quality HVAC IAQ deployment has quickly become the standard. Gone are the days of hack and weak system installations and maintenance. The purity of breathing air is now principal, and that is the way it should be to ensure the health and prosperity of workers and team members.

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"ASHRAE leadership has approved the following two statements regarding transmission of SARS-CoV-2 and the operation of HVAC systems during the COVID-19 pandemic. Transmission of SARS-CoV-2 through the air is sufficiently likely that airborne exposure to the virus should be controlled. Changes to building operations, including the operation of heating, ventilating, and air-conditioning systems, can reduce airborne exposures. Ventilation and filtration provided by heating, ventilating, and air-conditioning systems can reduce the airborne concentration of SARS-CoV-2 and thus the risk of transmission through the air. Unconditioned spaces can cause thermal stress to people that may be directly life threatening and that may also lower resistance to infection. In general, disabling of heating, ventilating, and air-conditioning systems is not a recommended measure to reduce the transmission of the virus." *cited from <https://www.ashrae.org/technical-resources/resources>*

In efforts to assist in improving indoor air quality (IAQ), we have developed a list of 10 quality products that have been vetted and proven to fight harmful contaminants and increase your building's air quality. For a full list of these hand-selected products, continue reading. For more information on these products, how they work, and how you can purchase them, please contact your local Broudy Precision representative who will be happy to assist. If you do not have a dedicated representative email us at sales@broudyprecision.com or visit our website at <https://www.broudyprecision.com>

10 QUALITY PRODUCTS: BROUDY PRECISION



QUALITY PRODUCTS

*FOR HEALTHIER
INDOOR AIR QUALITY*



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1

HONEYWELL: UV-C LIGHT TECHNOLOGY

"THE ULTIMATE DISINFECTION SOLUTION FOR YOUR BUILDING"

UV light at the HVAC coils can deactivate biological contaminants growing on cooling coils and help mitigate the spread to the building. UV lights provide cleaner coils to improve the energy efficiency for better coil heat transfer.



2

HONEYWELL: IAQ MULTI-SENSORS

"FOR HEALTHIER BUILDINGS"

Your building's air quality should be frequently checked and optimized to comply with industry regulations and guidelines, especially in times of change. In addition to our TVOC and PM indoor air quality sensors, we are now excited to introduce IAQ Multi-Sensors!



3

HONEYWELL: IAQ SENSORS*"IMPROVE THE HEALTH OF YOUR BUILDING"*

Honeywell's line of Indoor Air Quality (IAQ) sensors monitor indoor air for harmful particles and allow building owners to develop strategies to address them, creating a healthier environment. With options specific to Particulate Matter or TVOC, Honeywell has an IAQ Sensor to tackle customers' air quality challenges.



4

HONEYWELL: MEDIA AIR CLEANERS

With single room media air cleaners, there is no need to retrofit HVAC systems for high-efficiency air cleaning of particles, gas, odors, and volatile organic compounds (VOCs). It operates independently of your HVAC systems with steady-state air changes per hour. These media air cleaners can lower the initial cost of ventilation systems while maximizing ventilation effectiveness.



5

NUCALGON: IWAVE AIR PURIFIERS

"iWave is an air purifying device that installs in any air conditioning or heating system. When air passes over the iWave, ions produced by the device reduce pathogens, allergens, particles, smoke and odors in the air, creating a healthy environment without producing any harmful byproducts."

Covid-19 REDUCTION RESULTS IN LINK BIO

<https://www.broudyprecision.com/iwave-air-purifiers-covid-19-pathogen-test-results/>

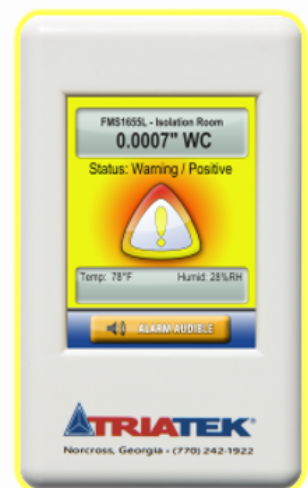


6

TRIA TEK'S FMS-1655 ROOM PRESSURE CONTROLLER

"THE ULTIMATE DISINFECTION SOLUTION FOR YOUR BUILDING"

UV light at the HVAC coils can deactivate biological contaminants growing on cooling coils and help mitigate the spread to the building. UV lights provide cleaner coils to improve the energy efficiency for better coil heat transfer.



7

SETRA: AIIR WATCH NEGATIVE PRESSURE AIR QUALITY MODULE

Setra AIIR Watch is an advanced air cleaner designed to be quiet, portable, and effective at killing 99.9% of airborne germs while also increasing air circulation. AIIR Watch has a dual filtration method forcing air through a HEPA filter and by UV light.



8

BELIMO: AIR QUALITY SENSORS

Air quality sensors provide occupant comfort and energy efficiency. We offer a wide range of combined multi-sensors for CO₂, humidity, temperature, and VOCs designed to ensure air quality and maximize energy savings over the life cycle of the building.



9

ENVIRCO ISOCLEAN 400 PORTABLE HEPA AIR CLEANING SYSTEM

Engineered to provide the optimum combination of efficient HEPA air cleaning and provide a large number of room air changes per hour to minimize the spread of airborne diseases. The IsoClean 400 comes equipped with a hospital grade HEPA filter that has an efficiency of 99.99%. The unit can be set up in three modes: 100% recirculation, 100% exhaust (negative pressure) and partial exhaust. Both the prefilter and HEPA filter are easily accessible for quick and easy replacement. Easy to use and move, the IsoClean 400 fits easily in areas with limited floor space.



IsoClean 800

IsoClean 400

10

ENVIRCO ISOCLEAN 800 PORTABLE HEPA AIR CLEANING SYSTEM

The ENVIRCO IsoClean 800 is engineered to provide the optimum combination of efficient HEPA air cleaning and provide a large number of room air changes per hour to minimize the spread of airborne diseases to patients and health care workers. The IsoClean 800 can be used in a wide range of applications, including hospitals, offices, retirement facilities, waiting rooms, correctional facilities and other environments where a positive pressure clean air recirculating system is needed.

"Portable, self-contained High Efficiency Particulate Air (HEPA) filtration system with optional UV-C light."



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