
AlpinePure
INDOOR AIR QUALITY PRODUCTS
WaterFurnace
Smarter from the Ground Up™

INDOOR AIR QUALITY: Problems & Solutions

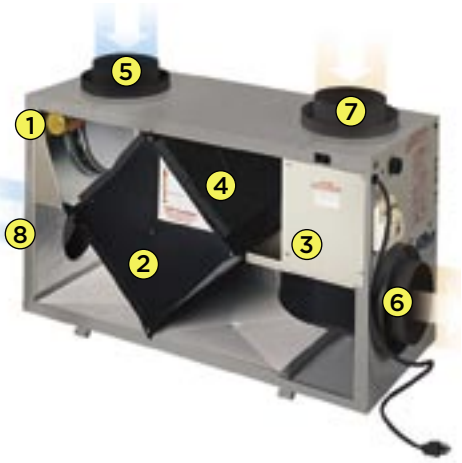
Most of us spend about 90% of our day indoors—at home, at work or school. And in the last several years, much attention from the scientific community has been focused on the quality of air inside our homes and buildings. Individually, some pollutants may not pose a significant risk to our health. However, the combination of multiple sources over extended periods of time can be a serious risk to many people.

Primary indoor pollutants are gasses and particles released into the air. In new homes, many building materials are manufactured with synthetics, glues and chemicals. These materials can emit or "off-gas" minute particles of fumes for several years, giving a home that "new home smell". To compound the problem, many builders now construct homes tighter and tighter to reduce energy costs. This effectively seals up the building "envelope" minimizing the natural air movement through walls and around windows that were common in older homes.

While older homes may not have off-gassing concerns associated with new materials, air quality problems can be caused by other materials including deteriorating wood, furnishings and fabrics, asbestos-coated insulation, mold from previously wet or damp duct systems or carpet, and radon.

Regardless of whether a home is new or old, other contaminants are often found indoors including pollen, smog, plant spores, tobacco smoke, cleaning supplies, solvents, gasoline fumes, odors from improperly ventilated bathrooms, combustion gasses from fossil fuel appliances, pet dander, soiled carpets, and unfiltered outdoor air entering the building. When not enough fresh outdoor air enters a home, pollutants can accumulate to levels that could pose health concerns.

Exposure to poor indoor air quality can cause health problems that are experienced either immediately or over the course of many years depending on the intensity, cause, type of pollutant and the health or susceptibility of the occupants. Adverse health effects include coughing, dizziness, fatigue, asthma, hypersensitivity pneumonitis, irritation of the eyes, nose and throat and other symptoms. Serious cases could induce respiratory diseases,



1. **Automatic Defrost**
   Electronic control opens and closes damper to prevent ice build-up.
2. **Aluminum Heat Exchange Core**
   Highly conductive aluminum transfers maximum amount of heat to incoming air. Don't settle for plastic.
3. **Premium Ball Bearing Motor**
   Energy efficient and designed for maintenance free life. Quiet and reliable.
4. **Easy Clean Filters**
   Protect the heat exchange core. Just rinse and replace.
5. **Fresh outdoor air**
6. **Fresh conditioned air to home**
7. **Stale indoor air**
8. **Stale air to outside**

AlpinePure HRV

The WaterFurnace AlpinePure HRV (Heat Recovery Ventilator) is a device that moves stale contaminated air from bathrooms and kitchens from inside the home to the outdoors. At the same time it draws fresh, oxygen-rich air from outside, filters it and delivers it throughout your home. Stale, polluted air is constantly being replenished by an equal amount fresh, clean air. As the two air streams pass each other through the HRV they do not mix. However, they do pass on either side of an aluminum heat exchange core that transfers the heat from the air exiting the home to the fresh air coming in. The efficiency (around 83%) is high enough that virtually all of the energy is transferred and little energy is used to condition the incoming fresh air. During cooling the HRV removes the heat from the incoming fresh air and transfers it to the stale exiting air so that the incoming air is "pre-cooled".

AlpinePure HRVs are designed to be connected to bathroom and kitchen exhaust ducts, replacing the bathroom/kitchen fans. Independent switches activated in any bathroom turns on the HRV for a 20-minute period. The HRV can also be activated whenever the WaterFurnace unit is heating or cooling, or for continuous operation by activating a separate switch conveniently located in the home. By utilizing the AlpinePure HRV for bathroom ventilation, ordinary noisy exhaust fans are eliminated, and fresh outdoor air is introduced indoors without a major efficiency loss.

With the AlpinePure HRV, the volume of stale discharged air and the amount of incoming fresh air is equal, providing a balanced system. Other ventilation strategies may cause depressurization of the home, causing air infiltration into wall cavities which can lead to moisture damage, rot or harmful mold.

Specifications:

- Delivers 150 or 200 CFM using efficient ECM blower
- Will operate with two on-line fan speeds (4 speeds to choose from)
- Patented all-aluminum heat exchange core is 83% efficient
- Heat exchange core is washable
- Can be installed with up to four switches
- Runs on normal 120 volt household current, less than 50 watts on low speed

heart disease or cancer. Unfortunately, there is some uncertainty in the medical community about what concentrations are problematic and what period of exposure is required to produce health related problems. There are simply too many variables to precisely determine the long term effects of indoor pollutants. Therefore, the safest approach is to take reasonable steps to eliminate or minimize the risk.

There are three key strategies to improving indoor air quality: Ventilation, Eliminating the source and Filtration. It is important to note that all three strategies must be employed to achieve the best indoor air quality possible. Using only one or two methods is generally insufficient.

Ventilate the Space— The concentrations of indoor air pollutants are dramatically reduced when they are mixed with fresh outdoor air. Although ventilation can be achieved by simply opening a window, the air coming inside is unfiltered, and enters the home at a generally higher or lower temperature than the indoor air, causing additional heating or cooling requirements.

Eliminate the Sources— With the exception of off-gassing of new building materials, other sources of indoor air contaminants can usually be controlled or managed by the homeowner. These include proper use of bathroom and kitchen exhaust fans, proper ventilation of gas stoves and furnaces, proper storage of cleaning supplies, fuels and chemicals, adequate cleaning procedures, and periodic cleaning of the indoor air conditioning coil and duct system.

Filter the Air— Proper filtration using high efficiency filters (unlike the most common, inexpensive filters found in hardware stores) is a key strategy to improve air quality. Forced air heating and cooling systems move air within the home constantly during operation. Homeowners who neglect to change or clean the system's filter subject themselves to higher levels of indoor airborne particles, along with higher heating & cooling costs.

The WaterFurnace AlpinePure line of products is specifically designed to improve the indoor air quality in your home by offering solutions to ventilation and filtration.

AlpinePure HEPA

For the ultimate in air filtration, the AlpinePure HEPA filter is the best choice. It uses the type of filtration technology required in hospitals and operating rooms. HEPA filters are the most efficient mechanical filters for removing small particles which can be breathed deep into the lungs. The AlpinePure HEPA has a 99.97% efficiency for particle sizes 0.30 microns and larger.

The AlpinePure HEPA incorporates Turbulent Flow Precipitation (TFP) technology. This process involves a principle which illustrates when particle-laden air is forced through a narrow airway, the particles are repeatedly flung against the internal walls. If the walls are smooth, the particles bounce off and re-enter the airstream. The airway walls of the AlpinePure HEPA are made of fabric that traps pollutants as they are flung from the airstream. The result is a high rate of removal of even the smallest debris. Any particles not removed in the TFP process are captured by the primary HEPA filter cartridge.

HEPA filter technology is the most effective way of removing large numbers of the smallest particles. Other less-efficient filtration technologies rate the efficiency in terms of weight, not volume of particles captured. It's easy to understand that larger-sized contaminates (more than 5 microns) weigh more than smaller ones. However, the number of large particles in the air may actually account for less than 1% of the total number of pollutants in the air. The vast majority of the particles in the air are smaller than 5 microns, and these smaller ones can be more detrimental to your health, so it's important to remove those by using devices like the AlpinePure HEPA.

Specifications:

- Efficiency is rated at 99.97% for particles down to 0.30 microns
- Low maintenance—TFP collector is one year replacement, HEPA filter media lasts up to three years
- Foil faced interior cabinet is easily cleaned
- Whisper-quiet operation
- High efficiency fan motor runs on 120 volts, less than 50 watts on low speed

1. **Contaminated Air Supply**
2. **Flow Through TFP Connector**
   One year replacement.
3. **Foil Faced Insulated Cabinet**
   Easily cleaned and whisper quiet.
4. **HEPA Filter**
   Lasts up to three years.
5. **High Efficiency Fan Motor**
6. **Clean, Filtered Exhaust Air**

AlpinePure Filters

For homeowners who don't require the extreme efficiency levels of the AlpinePure HEPA filter, there are three additional varieties of filters.

ELECTRONIC AIR CLEANERS

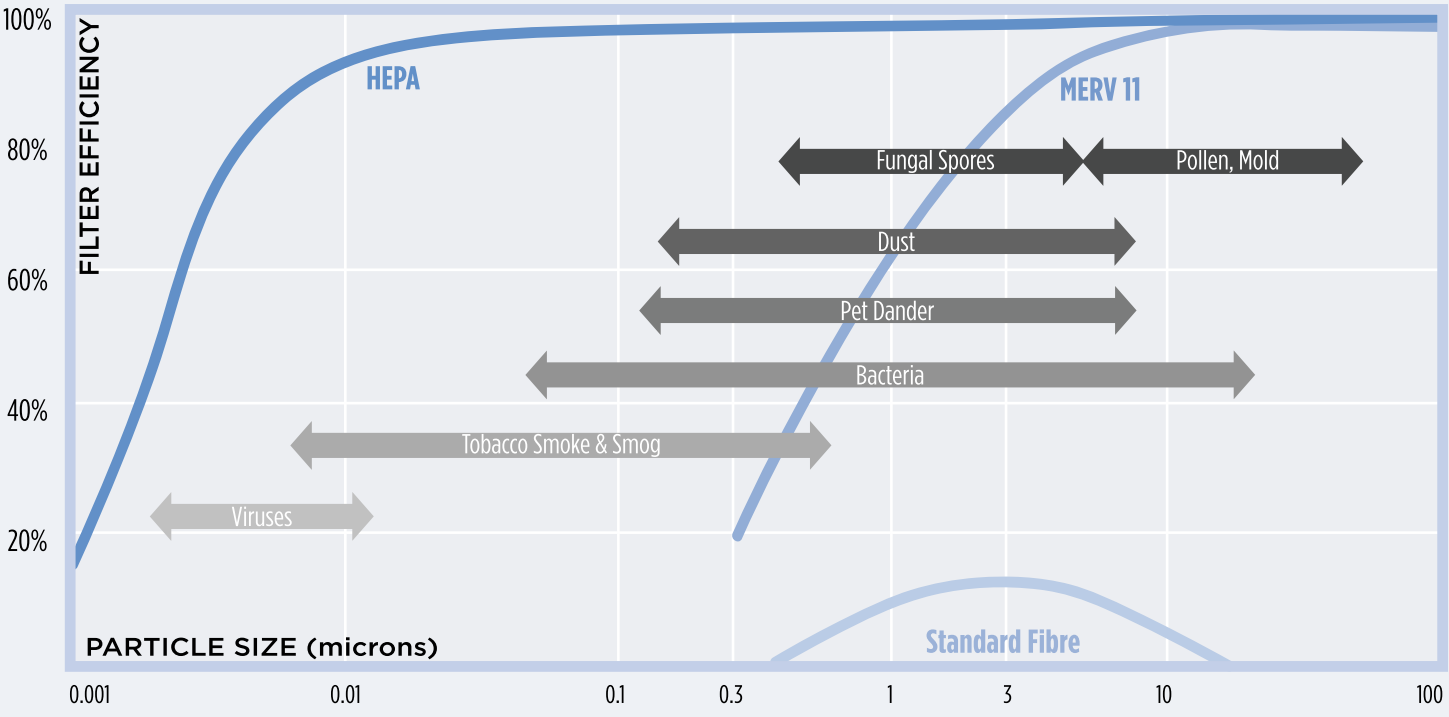
The AlpinePure ET operates using a non-ionizing polarized media, creating an active electric field to capture airborne particles with efficiencies of 97% at 0.30 microns. Electronic media air cleaners do an excellent job of removing submicron particles by the process of agglomeration—polarized particles bond with other polarized particles in the air, forming larger particles which are easily removed through the filter. Carbon center screens are included to trap odors and volatile organic compounds. The AlpinePure ET is easily cleaned and the media is easy to replace. Unlike other electronic air cleaners, the AlpinePure ET creates no harmful ozone or nuisance zapping noises.

ELECTROSTATIC AIR FILTERS

The AlpinePure ES provides up to 90% arrestance of dusts, pollens and molds. As the air moves through the patented configuration of polypropylene filtration media, static electric charges are naturally created to attract and hold particles. This 1" thick filter fits easily into the existing filter rack of your WaterFurnace unit. The AlpinePure ES is designed for permanent use—there is no media to replace. Because the AlpinePure ES creates its own static electrical charge, there are no wires to connect or reconnect for cleaning, and no additional cost of operation. Periodic cleaning is simply accomplished using a mild household cleaner and a garden hose.

MERV 11 FILTERS

AlpinePure 211 and 411 MERV 11 filters are available in both 2-inch and 4-inch sizes. "MERV" stands for Minimum Efficiency Reporting Value, an industry standard which sets a rated value on the ability of a filter to trap particles ranging in size from 0.3 to 10.0 microns from the air we breathe. Most ordinary, inexpensive filters found at hardware stores are MERV 4 or lower—they are simply ineffective in capturing smaller particles. MERV 11 filters are much more efficient for both small and large particles including pollens, mold spores, dust, fungal spores, and pet dander. In addition, these filters are pleated to increase the surface area, allowing for more holding capacity and less frequent replacement.



WaterFurnace
Smarter from the Ground Up™

WF1586
04/06

waterfurnace.com | (800) GEO-SAVE