Air Filtration and Ventilation

All homes have natural ventilation, or leakiness. When air leaves the home, it is replaced at the same rate by air from the outside. This keeps indoor air fresh, but the outside air source is important to consider, as it often comes from crawlspaces, garages and other areas that can bring high concentrations of pollutants into the home, such as:

- Carbon monoxide
- Carbon dioxide
- Pollen
- Pet dander
- Dust mites
- Moisture

The air inside your home can contain pollutants 2-5 times higher than outside air and can also contain harmful chemicals from common household items including:[1]

- Paints
- Particle board
- Glues
- Carpeting
- Countertops
- Furniture

Reducing pollutants and maintaining healthy indoor air through mechanically controlled ventilation systems allow your home to "breathe" and more effectively control the sources of outside air. These systems supply fresh air and dilute, filter or remove contaminates from your home. Ventilation systems come in a few different forms:

1. Exhaust-only ventilation directly removes moisture and other pollutants. Examples include:
    - Bathroom fans
    - Kitchen range hoods
2. Intake-only ventilation is a fresh air supply that is typically connected to the central heating and cooling system.
3. Balanced systems include both exhaust and intake components and can filter the incoming fresh air. Examples include:
    - Heat recovery ventilators (HRVs)
    - Energy recovery ventilators (ERVs)

Proper ventilation introduces outdoor air into your home at the same rate that stale indoor air is removed. During this process, the air is filtered and tempered by reclaiming heat from inside the home, which can also reduce humidity. When paired with air sealing and weatherization, controlled ventilation can create indoor air that is healthier than outside air.

1. Source: U.S. Environmental Protection Agency (EPA), *Volatile Organic Compounds' Impact on Indoor Air Quality*

Cost Factors

It's important to not only consider the initial cost of a system, but also the ongoing operation and maintenance costs and its effect on the home's heating and cooling equipment. So while exhaust- or intake-only ventilation systems are often less expensive to install, they can require your heating and cooling systems to work harder and increase the overall energy costs. Balanced ventilation options typically cost more initially, but they have a much lower impact on the energy consumed by the home.

Additional factors to consider include ease of access, the complexity of installation, ducting and electrical wiring. Many HRV or ERV systems consume 100 watts or less, which is roughly equal to a single bright incandescent light bulb — a small price for a healthy home.

There are currently no utility incentives for ventilation systems. However, pairing ventilation with weatherization upgrades may increase your home's potential savings.

Customer Benefits

- Reduces particles and allergy triggers in the air.
- Helps maintain proper humidity levels.
- Is a significant factor in creating a healthier home.
- Improves cognitive function and sleep quality by keeping oxygen at normal levels.
- Helps prevent **Sick Building Syndrome**.
- Reduces risk of spreading germs throughout the home.
- Prevents the need to open windows during extreme temperatures or wildfires.

Recommended For

- Persons with allergies and respiratory issues.
- Homes with pets.
- Homes near sources of pollution, including businesses and roadways.
- Homes with efficient building envelopes.
- Homes without existing mechanically controlled ventilation.

Consult with a **qualified professional contractor** to see if your home is a good candidate for additional ventilation. The ideal time to consult a contractor is when you're installing a new heating and cooling system.