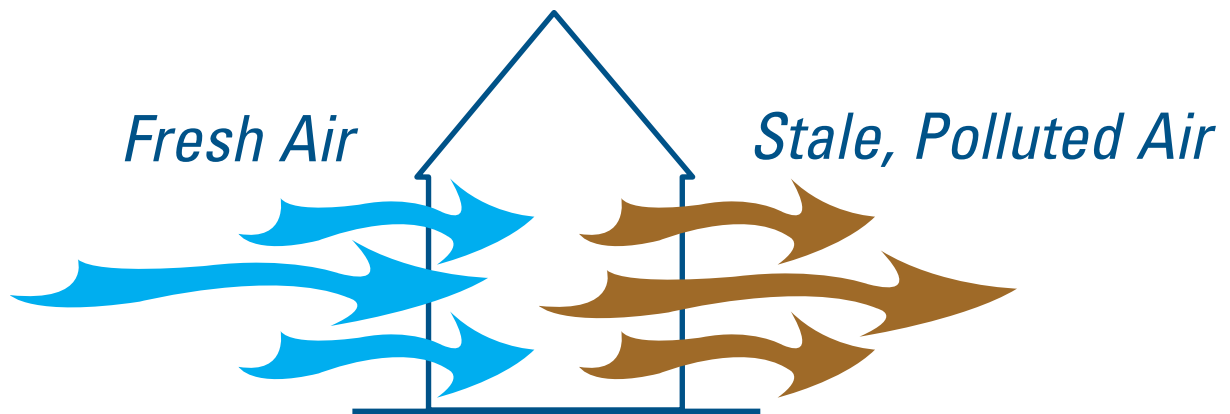


# Whole-Home Ventilation



"...The air inside our homes is up to 100 times more polluted than outdoor air..."

## Every home needs to breathe...



## We're making our homes tighter to save energy.



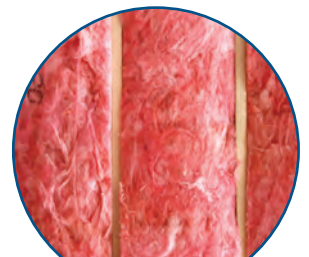
**New Doors & Windows**



**Extra Caulk & Weatherstripping**



**House Wraps & Sealants**



**Additional Insulation**

## Every home needs controlled ventilation to maintain proper indoor air quality.

# Whole-Home Ventilation



**Volatile Organic Compounds**



**Harsh Cleaners & Chemicals**



**Carbon Dioxide**

## Volatile Organic Compounds

- Off-gasses from furniture, carpet, construction materials fabrics & finishes
- Harmful health effects can include eye, nose & throat irritation as well as headaches & nausea

## Chemicals & Cleaners

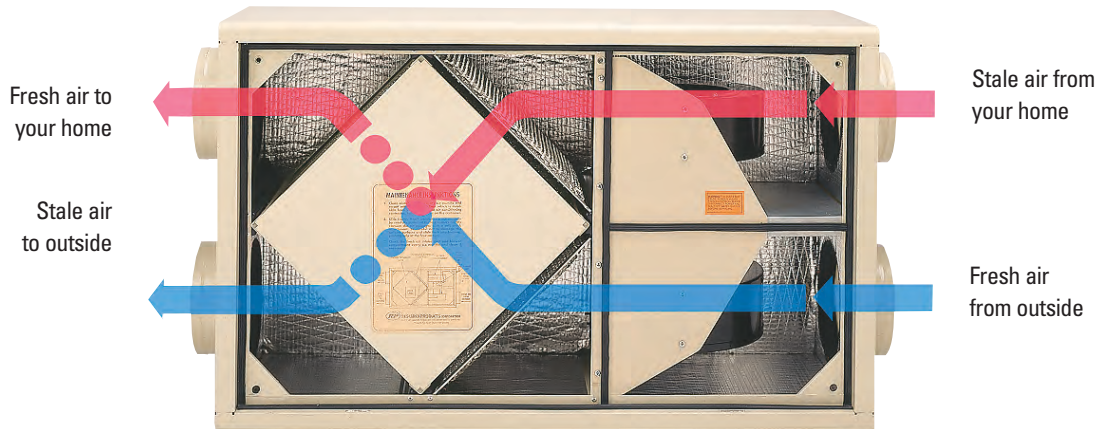
- Many household cleaners emit fumes & vapors
- Some fumes & vapors can be harmful, especially when concentrated

## Carbon Dioxide

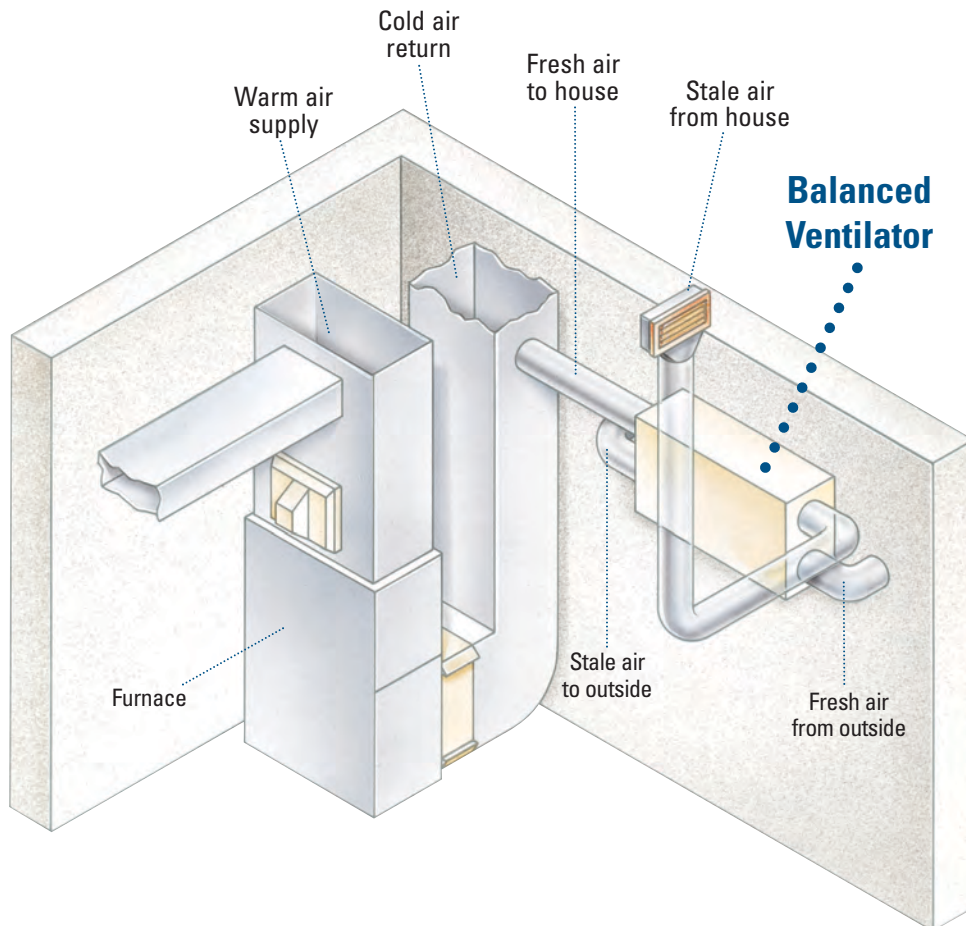
- Results from people & pets breathing
- Builds up to create stale, stuffy air

# Whole-Home Ventilation

## Balanced Ventilation



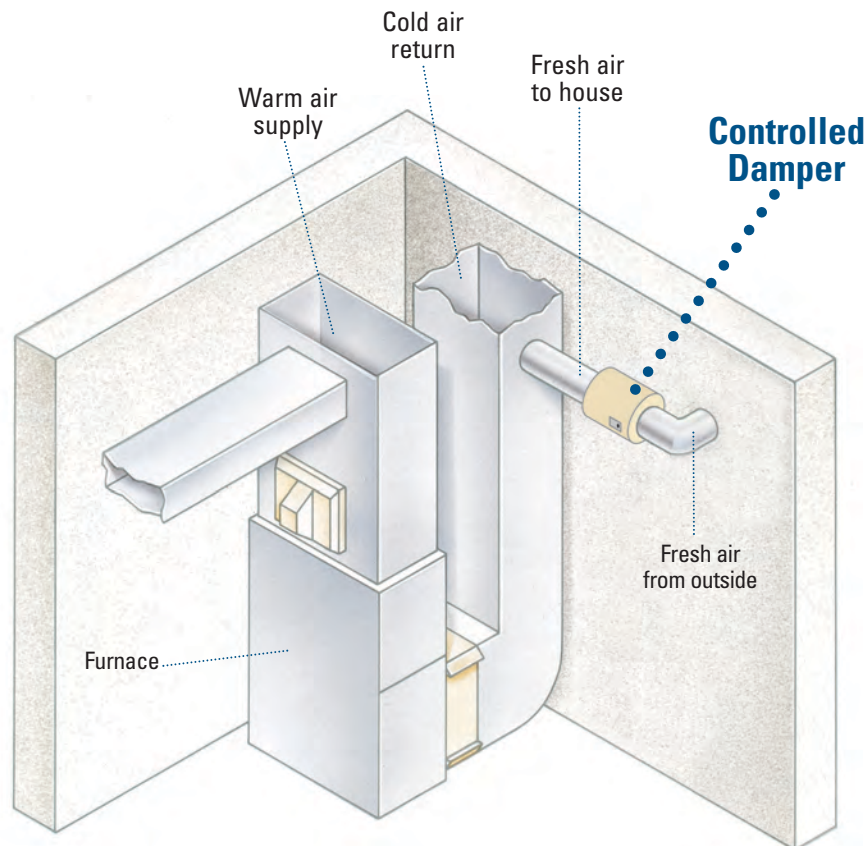
*Pre-treats incoming air to save energy and improve comfort.*



# Whole-Home Ventilation

## Positive Ventilation

*Uses smart control connected to your heating/cooling system to draw in a controlled amount of fresh air.*

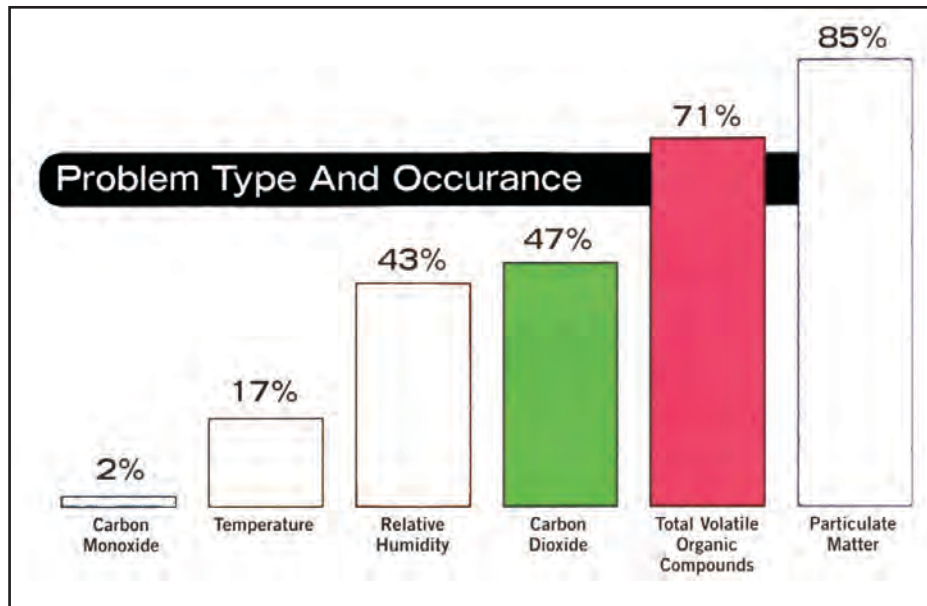


### Control is the key to proper ventilation:

- Quantity of fresh air: *Too much = Wasted energy*  
*Too little = Trapped, stuffy, stale air*
- Quality of fresh air: *Don't bring in outdoor air that is too hot, too cold or too humid.*

# Whole-Home Ventilation

**Volatile Organic Compounds (VOC's)  
found in 71% of homes tested.**



*Air Advice, 2005*

## What are they?

VOC's in your home's air include off-gasses from synthetic materials, paints, carpets, cleaners, cosmetics, fragrances and odors.

## Why should I be concerned?

Many VOC's are known to be harmful to your health: formaldehyde, solvents, sealants, resins and cleaning agents.

## Where do they come from?

Sources of chemical pollutants in your home: household cleaners, carpeting, furniture, fuel fumes, pets, scented products, air fresheners, personal care products, "bad smell" sources (garbage and bathrooms), and common household products (paint, glue and plastics).

## How can VOC's be controlled?

The installation of mechanical ventilation equipment to increase the amount of fresh air in the home is the best way. This approach effectively dilutes the concentration of chemical pollutants and reduces your exposure.

# Whole-Home Ventilation

## Building Science Corporation

*Architecture and Building Science*

“What is the purpose of installing a mechanical ventilation system in a home?”

It is to provide, a controlled amount of unpolluted outside air for indoor pollutant dilution and removal, and for the sensory satisfaction of occupants to control interior moisture.

An important secondary purpose to maximize building durability, combustion safety, and indoor air quality”

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



“Another approach to lowering the concentrations of indoor air pollutants in your home is to increase the amount of outdoor air coming indoors. Most home heating and cooling systems, including forced air heating systems, do not mechanically bring fresh air into the house.

Advanced designs of new homes are starting to feature mechanical systems that bring outdoor air into the home. Some of these designs include energy-efficient heat recovery ventilators (also known as air-to-air heat exchangers).”

[www.epa.gov](http://www.epa.gov)



U.S. Department of Energy

**Energy Efficiency and Renewable Energy**

“When creating an energy-efficient, airtight home through air sealing techniques, it’s very important to consider ventilation. Unless properly ventilated, an airtight home can seal in indoor air pollutants. Ventilation also helps control moisture—another important consideration for a healthy, energy-efficient homes.

Your home needs ventilation—the exchange of indoor air with outdoor air—to reduce indoor pollutants, moisture, and odors. Contaminants such as formaldehyde, volatile organic compounds, and radon can accumulate in poorly ventilated homes, causing health problems. Excess moisture in a home can generate high humidity levels. High humidity levels can lead to mold growth and structural damage to your home.”

[www.eere.energy.gov](http://www.eere.energy.gov)