Indoor Air Pollutants

Common Indoor Air Pollutants
- Biological contaminants: Bacteria, fungi, mites, insects, pet dander, pollen
- Combustion gases: Carbon monoxide & others from cooking & heating
- Particulates: Asbestos, lead, carpet fibers, & others
- Formaldehyde & other VOCs: Paints, finishes, adhesives, caulking, cleaners
- Soil gases: Radon, methane, fertilizers, & others
- Moisture: Ground soil, cooking, bathing, laundry
- Outdoor allergens: Smoke, smog, traffic fumes, pollen
- Occupant generated pollutants: Tobacco by-products, carbon dioxide & others

Physical Health
Cold temperatures, which can lead to heart disease & even heart attack, are not the only health issues related to poor ventilation systems. Indoor air pollutants can cause health problems ranging from stuffy noses & respiratory illness to lung cancer, short stature, & even death. Listed below are examples of how specific pollutants can affect your physical health when not properly ventilated.

- Carbon Monoxide (combustion gas): Headaches, nausea, dizziness, convulsions, death
- Radon (soil gas): Related to lung cancer prevalence
- Moisture & Mold (moisture problems): Associated with wheezing, aches & pains, diarrhea, headaches, & fever, especially in children
- Outdoor Allergens & Biological Contaminants: Asthma, allergies, respiratory illness, lung function
- Tobacco by-products (occupant generated): Asthma & lung cancer

Mental Health
Indoor air pollutants can also affect mental health. Lead poisoning, for example, affects neurological development in children. High energy bills, chronic health issues, & discomfort caused by lingering odors, uncomfortable temperatures & humidity, cold drafts, mechanical noise, & frequent maintenance also contribute to stress.

When stress is chronic, it significantly affects mental health & well-being. The improved indoor air quality & control afforded by proper ventilation systems allows temperature & humidity to be maintained while filtering & removing harmful indoor air pollutants.

Ventilation Systems

Did You Know?
Proper ventilation can improve your health & comfort, as well as the durability of your home.

Ventilation and Health
Harmful indoor air pollutants can affect mental & physical health if not properly ventilated.

Exhaust Only
Cold Climates
Health & Comfort: +
- Indoor air is continuously drawn outdoors by a central fan.
- This draws fresh outdoor air indoors through building cracks.
- Advantages
  Affordable & easy to install mechanical ventilation.
  Properly installed systems minimize moisture problems.
- Disadvantages
  Fresh outdoor air is not filtered, heated, cooled, or humidified.
  Provides adequate ventilation, but air could contain pollutants.

Supply Only
Hot/Mixed Climates
Health & Comfort: ++
- Most affordable in homes with a duct system (furnace or A/C).
- Fresh air is delivered to living spaces by a fan & duct system.
- Advantages
  Fresh air is drawn from an unpolluted source.
  Possible to pretreat (filter, heat, &/or air condition) fresh air.
- Disadvantages
  Pressurized interior could lead to moisture problems in walls.
  Unfiltered fresh air must be mixed with recirculated indoor air.

Balanced
All Climates
Health & Comfort: +++
- Equal amounts of fresh & indoor air are supplied & exhausted.
- Uses 2 fans: 1 draws fresh air in, 1 forces indoor air out.
- Advantages
  Effective in any climate; fresh air can be filtered.
  Indoor pressure approximately equals outdoor pressure.
- Disadvantages
  High initial equipment & installation costs.
  Requires careful, climate-specific installation.
- Type 1: With Heat Recovery Ventilation (HRV)
  A heat exchanger transfers some heat between exhausted indoor air & supplied fresh air. Some heat is added to cold winter air, but removed from warm summer air.
- Type 2: With Energy Recovery Ventilation (ERV)
  A heat exchanger transfers some heat & moisture between exhausted indoor air & supplied fresh air. Some moisture is removed from humid summer air, but added to dry winter air.
Books:


Web sites:


Available Tax Credits & Rebates:

N.Y. State Energy & Research Development Authority Lists tax credits & rebates for energy efficient improvements http://www.getenergysmart.org/

Federal tax credits for energy efficient home improvements http://www.energystar.gov/index.cfm?c=tax_credits.tx_index

N.Y. State tax credits for energy efficiency improvements http://www.dsireusa.org/incentives/index.cfm?State=NY

Low-income assistance for energy efficient home improvements http://apps1.eere.energy.gov/weatherization/

For more information, call: 1-877-NY-SMART

Or visit this web site: www.GetEnergySmart.org

References


