

Green Building and Indoor Air Quality (IAQ)

Indoor air quality (IAQ) is a term referring to the air quality within buildings, especially as it relates to the health and comfort of building occupants.

Benefits of Good IAQ

- Decreased occurrence of immediate health effects (irritation of the eyes, nose, and throat, headaches, dizziness, and fatigue) due to poor IAQ
- Decreased occurrence of long-term health effects (asthma, respiratory diseases, heart disease, and cancer) due to poor IAQ
- Fresher smelling home
- Less accumulation of dust
- Increased comfort level with decreased humidity levels

Factors Affecting IAQ

With high-performance homes being built increasingly tighter, if there is not [proper ventilation](#) there is the potential that the indoor air will accumulate contaminants to levels harmful to health. The three primary factors affecting indoor IAQ are:

1. Indoor
 - Combustion sources (smoking, combustion appliances)
 - Construction materials (pressed wood products containing formaldehyde)
 - Housekeeping (deodorizers, cleaning materials, or dust)
 - Maintenance Activities (remodeling, new furniture/carpet, or pest control)
 - Miscellaneous (cooking odors, humidity from people and pets)
2. Outdoor
 - Contaminated outdoor air (vehicle exhaust, pollen, or industrial pollutants) draw into the living area
 - Soil gas (radon or pesticides)
 - Microbial (molds or mildew)
3. HVAC System
 - Inadequate distribution of fresh air in ventilation system
 - Inadequate removal of indoor humidity
 - Dust in ductwork or air filters
 - Microbiological growth in ductworks and/or humidifiers

Additional Internet Resources

[In Introduction to IAQ](#)
(U.S. Environmental Protection Agency)

[Indoor AirPLUS Certification Program](#)
(U.S. Environmental Protection Agency)

High-performance Homes and IAQ

To address IAQ concerns, builders can employ a variety of construction practices and technologies to decrease the risk of poor IAQ in their new homes. These practices and technologies – and links for more detailed information - include the following:

1. [Moisture Control](#)
 - Water-Managed Site and Foundation
 - Water-Managed Wall Assemblies
 - Water-Managed Roof Assemblies
 - Interior Water Management
2. [Radon Control](#)
3. [Pest Barriers](#)
4. [HVAC Systems](#)
 - Heating and Cooling Equipment
 - Ventilation
 - Air Cleaning and Filtration
 - Dehumidification
5. [Combustion Pollutant Control](#)
 - Combustion Source Controls
 - Attached Garage Location
6. [Low Emission Materials](#)



Each of the above categories is included in the EPA [Indoor airPLUS Program](#) which is designed to help builders meet the growing consumer preference for homes with improved indoor air quality and energy efficiency.