



Building Air Quality

P.O. Box 9326 The Woodlands, Texas 77387-9326
tel: 281-448-1100 fx: 281-296-2889
iaqsolutions@baq1.com
www.baq1.com

Respirable Particles

Particles are very small solid or liquid substances that are light enough to float suspended in air (e.g., mists, dust, or pollen). They are composed of diverse materials including inorganic and organic compounds and dormant and living organisms. Of primary concern from a health standpoint are:

- small, invisible respirable-size particles, with a higher probability of penetrating deep into the lungs, where they may stay a long time and may cause acute or chronic effects, and
- larger particles, such as some molds, pollen, animal dander, and house dust allergens, which do not penetrate as deeply, but may cause an allergic response.

Respirable-size particles include those from cigarette smoke; unvented combustion appliances such as gas burners and kerosene heaters; viruses, bacteria, and some molds.

Health effects from exposure to respirable-size particles in the air depend on the types and concentrations of particles present, the frequency and duration of exposure, and individual sensitivity. Health effects can range from irritation of the eyes and/or respiratory tissues to more serious effects, such as cancer and decreased lung function.

Biological particles, such as animal and insect allergens, viruses, bacteria, and molds, can cause allergic reactions, infectious diseases, and/or can produce toxins, which may be released into the air.

Sources

Molds, pollen, animal dander, house dust, gas fired appliances, vehicle exhaust, environmental tobacco smoke (ETS).

Health Effects

Eye, nose, and throat irritation; respiratory infections and bronchitis; lung cancer.

Particle Removal

The performance of air cleaners in removing particles from indoor air depends on the air flow rate through the cleaner and the efficiency of its particle capture mechanism, as well as factors such as:

- The mass of the particles entering the device.
- The characteristics of the particles (e.g., their size).
The degradation rate of the efficiency of the capture mechanism caused by loading.
- Whether some of the air entering the unit bypasses the internal capture mechanism.
- How well the air leaving the device is mixed with air in the room before reentering the device.

Steps to Reduce Exposure

- Vent all boilers or furnaces to outdoors
- Choose properly sized building appliances, certified to meet EPA emission standards
- Have a trained professional inspect, clean, and tune-up central heating system (furnace, flues, and chimneys) annually. Repair any leaks promptly.
- Change filters on central heating and cooling systems and air cleaners according to manufacturer's directions.