

Airborne Dust Levels in Office Buildings

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Airborne dust particles have the potential to cause allergic reactions, skin irritation, coughing, sneezing and respiratory difficulties. Particles of sizes less than 10 microns can be inhaled into the lungs and may cause a reaction in the respiratory system: (1) if the nature of the dust is toxic by nature, or (2) if the particle acts as a carrier of gases, vapours or microbiological contamination which are toxic. It therefore follows that the greatest health risk from airborne particulate lies in the respirable fraction, less than 10 microns in diameter. Particles of size less than 5 micron are capable of bypassing the nose and entering into the lungs. These particles, particularly those that are less than 3 micron in size, have a tendency to remain airborne for long periods of time and are therefore considered to represent a health concern. It has been determined that approximately 90% of the particles of 5 micron or less are deposited in the lungs.

There are no regulations that pertain to numbers of airborne dust particles. There is, however, a standard for dust mass per unit volume of air in the industrial environment. It states a nuisance level of respirable particulate of 5 mg/m³ and is unlikely to be reached in an office environment.

In order to assess the health risk due to airborne dust levels, it is recommended that the property manager determine the concentration distribution according to particle size and that he relate that information to outdoor concentrations and distributions. This information will also allow him to judge whether or not the building's HVAC system is filtering the outside air according to the design specifications. At the very least this information should allow him to demonstrate to his tenants that the indoor air is cleaner than the outdoor air.