



Indoor Air Quality (Why It Is Important in Schools)

Overview

Most people are aware that outdoor air pollution can impact their health, but indoor air pollution can also have significant and harmful health effects. The U.S. Environmental Protection Agency (EPA) studies of human exposure to air pollutants indicate that indoor levels of pollutants may be two to five times — and occasionally more than 100 times — higher than outdoor levels. These levels of indoor air pollutants are of particular concern because most people spend about 90 percent of their time indoors. For the purposes of this guidance, the definition of good indoor air quality (IAQ) management includes:

- Control of airborne pollutants;
- Introduction and distribution of adequate outdoor air; and
- Maintenance of acceptable temperature and relative humidity.

Temperature and humidity cannot be overlooked because thermal comfort concerns underlie many complaints about "poor air quality." Furthermore, temperature and humidity are among the many factors that affect indoor contaminant levels.

Outdoor sources should also be considered since outdoor air enters school buildings through windows, doors and ventilation systems. Thus, transportation, facilities maintenance, construction activities and grounds maintenance activities become factors that may affect indoor pollutant levels as well as outdoor air quality on school grounds.

Why Is IAQ Important?

In recent years, comparative risk studies performed by EPA and its Science Advisory Board (SAB) have consistently ranked indoor air pollution among the top five environmental risks to public health. Good IAQ is an important component of a healthy indoor environment, and can help schools reach their primary goal of educating children.

Failure to prevent or respond promptly to IAQ problems can:

- Increase long- and short-term health problems for students and staff such as:
- Cough



- Eye irritation
- Headache
- Allergic reactions, and
- in rarer cases, life-threatening conditions such as Legionnaire's disease, or carbon monoxide poisoning

Aggravate asthma and other respiratory illnesses. Nearly 1 in 13 children of school-age has asthma, the leading cause of school absenteeism due to chronic illness. There is substantial evidence that indoor environmental exposure to allergens, such as dust mites, pests and molds, plays a role in triggering asthma symptoms. These allergens are common in schools. There is also evidence that exposure to diesel exhaust from school buses and other vehicles exacerbates asthma and allergies. These problems can:

- Impact student attendance, comfort and performance.
- Reduce teacher and staff performance.
- Accelerate the deterioration and reduce the efficiency of the school's physical plant and equipment.
- Increase potential for school closings or relocation of occupants.
- Strain relationships among school administration, parents and staff.
- Create negative publicity.
- Impact community trust.
- Create liability problems.

Indoor air problems can be subtle and do not always produce easily recognized impacts on health, well-being, or the physical plant. Symptoms, such as:

- Headache
- Fatigue
- Shortness of breath
- Sinus congestion
- Coughing
- Sneezing
- Dizziness
- Nausea
- and irritation of the eye, nose, throat and skin

Symptoms are not necessarily due to air quality deficiencies, but may also be caused by other factors—poor lighting, stress, noise and more. Due to varying sensitivities among school occupants, IAQ problems may affect a group of people or just one individual. In addition, IAQ problems may affect people in different ways.

Individuals that may be particularly susceptible to effects of indoor air contaminants include, but are not limited to, people with:

- Asthma, allergies, or chemical sensitivities;
- Respiratory diseases;
- Suppressed immune systems (due to radiation, chemotherapy, or disease); and
- Contact lenses.



Certain groups of people may be particularly vulnerable to exposures of certain pollutants or pollutant mixtures. For example:

- People with heart disease may be more adversely affected by exposure to carbon monoxide than healthy individuals.
- People exposed to significant levels of nitrogen dioxide are at higher risk for respiratory infections.

In addition, the developing bodies of children might be more susceptible to environmental exposures than those of adults. Children breathe more air, eat more food and drink more liquid in proportion to their body weight than adults. Therefore, air quality in schools is of particular concern. Proper maintenance of indoor air is more than a "quality" issue; it encompasses safety and stewardship of your investment in students, staff and facilities.

Source

United States Environmental Protection Agency. *Why Indoor Air Quality is Important in Schools*. Available at: <https://www.epa.gov/iaq-schools/why-indoor-air-quality-important-schools>

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