

Indoor Air Quality

PURPOSE: The purpose of this policy/regulation is to ensure that reported indoor air quality concerns receive prompt and adequate response and to provide guidelines for a comprehensive, systematic diagnostic evaluation of conditions.

DEFINITIONS (for the purpose of this policy):

- ◆ **Indoor Air Quality (IAQ)** means chemical, physical, or biological characteristics of indoor air which can adversely affect the health, comfort, or overall wellbeing of building occupants.
- ◆ **Intermittent sources of indoor pollution** means contaminants that are not constantly present in the facility or workplace.
- ◆ **IAQ health effects** means non-specific symptoms, which may be related to, caused by, or exacerbated by IAQ conditions. These symptoms can include headaches, fatigue, nausea, and dermal, eye, or respiratory irritation.
- ◆ **NIOSH** means the National Institute for Occupational Safety and Health.

GENERAL INFORMATION: Indoor air quality is typically influenced by one or more of the following four factors:

- ◆ Occupants and their activities and behaviors.
- ◆ HVAC systems and pressure relationships-ventilation conditions that can potentially move contaminants from one area to another.
- ◆ Contaminant (pollution) sources.
- ◆ Pollution pathways; potential avenues of dispersion or migration of airborne contaminants.

POLICY

1. Reports, complaints, or concerns involving odors, discerned or perceived airborne contaminants, symptoms typically associated with IAQ health effects, discomfort, and the overall quality of air in any area within the facility will immediately be directed to the school nurse and the School Inspector.
2. The School Inspector will work with the school nurse and building principal to coordinate a pragmatic, systematic, and documented approach to a diagnostic IAQ evaluation, and ensure that any IAQ related reports or complaints are addressed in a timely and adequate fashion. The results of IAQ evaluations can include the identification of possible causes, recommendations for corrective action, or suggested direction for further investigation.
3. The School Inspector will evaluate the need for emergency response and area evacuation when strong odors, fumes, vapors, visible particulates, etc. are believed to be emanating from a source of air borne toxins or hazardous substances and there is a potential for exposure.

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4. Responding personnel will follow established protocols when conducting a diagnostic evaluation of IAQ conditions. The evaluation process should incorporate applicable principles of industrial hygiene. It should focus on the collection and analysis of evidence to enable the evaluator to rule out exceptions and eventually establish root causes of and contributing factors to environmental stressors.
5. Individuals who expressed IAQ concerns and other occupants in impacted areas will be apprised of the progress of the investigation and any significant findings, conclusions, and action taken.

PROCEDURE

1. The first step in addressing an occupant complaint regarding IAQ begins with the complaint itself. The person receiving the initial phone call, or who is verbally informed of a complaint, should attempt to gather as much information as possible, directly from the person expressing the concern.
2. Prior to beginning an investigation, a clear definition and understanding of the nature of the complaint should be developed. The objective of an IAQ investigation is to gain enough knowledge of the issue to successfully resolve it

Occupant/Employee Interview:

3. The employee who communicated the complaint as well as others working in the same vicinity should be interviewed. This will serve two purposes:
 - a) To assist the responding person in obtaining specific information about the nature of the concern, any actual or perceived health effects, and potential contributing factors; and
 - b) To establish a vehicle of dialogue with the person, encourage open communication about the problem, and help to foster a high level of confidence that the issue will receive attention and diligent effort will be made to resolve it.
4. The IAQ evaluator, the facilities manager, should select a location for the interview where the person feels comfortable to speak freely.
5. Questions to be asked during and employee/occupant interview should include:
 - ◆ What is the nature of the symptoms or discomfort experienced? Describe odor if noticed.
 - ◆ At what specific location(s) do the symptoms discomfort, or odors become apparent?
 - ◆ When do the symptoms, discomfort, or odors typically begin? Do they go away? If so, when?
 - ◆ Do any other events, operations, processes, or activities appear to coincide with your symptoms or odors?
 - ◆ Have operational or chemical processes recently changed?

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- ◆ Are there any observations about the building conditions or work environment that may appear to need attention or help explain the issue (temperature, humidity, inadequate ventilation, stagnant air, open windows or doors, odors)?
 - ◆ Do you have knowledge of anyone else experiencing similar discomfort?
 - ◆ Do you have any health condition that may cause you to be particularly sensitive or susceptible to environmental conditions?
6. The IAQ evaluator may expand the interview by adding questions to help improve understanding about the environmental conditions and perceptions as well as help discover the cause or develop a hypothesis.
7. Pertinent information must be documented along with the names, departments, positions, work shifts, and extensions of the individuals interviewed for future reference.

Area Walk-Through

8. The IAQ evaluator will conduct a thorough tour of the areas in question for the purposes of collecting information through direct observation about conditions and possible contributing factors. The following key items should be examined:
- ◆ Walk through specific area and adjacent areas to look for an easily identifiable source of contamination.
 - ◆ Hazardous materials or chemical use.
 - ◆ A chemical spill or release.
 - ◆ Cooking.
 - ◆ Construction or remodel work involving materials with potentially volatile organic compounds (VOC's) such as paint, adhesives, mastic, caulking, and activities that can cause suspension of dust, fibers, and other particulates.
 - ◆ New carpeting or furnishings.
 - ◆ Poor general ventilation or stagnant air.
 - ◆ Inspect nearby sinks and floor drains for dry "P" traps.
 - ◆ Check for evidence of molds or other microbial growth.
 - ◆ Investigate surrounding people for animal hair, perfumes etc. that may cause allergic reactions on other people.
9. The walk-through should include a visual examination of the HVAC systems that serve both the area of concern and other areas sharing common ventilation duct work. Check for obvious conditions such as moist filters, cleanliness of fans, dusts, louvers etc.
- 9.1 Observe nearby air intakes for:
- ◆ Construction, roofing, and other projects, which may release vapors, fumes, or particulate matter.
 - ◆ Idling vehicles emitting exhaust fumes.
 - ◆ Nearby work with chemicals.
 - ◆ Fires.
 - ◆ Significant amounts of pollen or dust.
 - ◆ Pesticides or sewage smells.

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- 9.2 Inspect intake filters and visible duct interiors for excessive dust, mold, or other microbial growth, debris, or nearby standing water or ponding. Check drip pans, humidifiers etc. for visible microbial growth.

Collecting Additional Information:

10. Additional information should be gathered by means of direct observation and from existing documentation in order to support findings or if the cause of the problem is not identified through the processes of employee interviews or an initial walk-through.
11. The information to be collected should pertain to those areas identified through the evaluation processes that require further attention or clarification. The evaluator should examine the following areas to collect additional supporting information:
- ◆ Mechanical drawings to better trace pollution pathways.
 - ◆ Pertinent logs, incident reports, and preventive maintenance/corrective maintenance schedules and reports.
 - ◆ HVAC operating cycles, seasonal cycles, and weather related patterns.
12. Outside industrial hygiene, HVAC, or environmental services may be sought to assist in the application of technical and scientific disciplines, such as monitoring and testing for specific contaminants. The decision to seek outside services can depend on the urgency of the situation, properties and hazards of the materials potentially involved, and acuity of symptoms exhibited by affected employees. Preferred contractors include:

ENVIROMED SERVICES – 203-238-4846

Reporting Results:

13. Once adequate information has been collected, the evaluator should thoroughly review findings to support and validate hypotheses previously developed, or clarify questionable aspects of observations or data. The evaluator should begin a “by exception” approach to formulating results. The results of the IAQ diagnostic assessment can include:
- ◆ The identification of the apparent causes of the original concern or complaint, based upon the assessment of pertinent data and information from the evaluation process.
 - ◆ The identification of other potential IAQ issues not related to the original concern.
 - ◆ Information to form the basis for a corrective action plan.
 - ◆ The justification for further evaluation.
14. The results of an IAQ diagnostic evaluation must be documented and properly communicated to the individual(s) who reported the concern, as well as the building principal, school nurse, and personnel responsible for evaluating or carrying out recommendations. The report should include:
- ◆ Briefly describe the nature of the concern or complaint and list each step of the evaluation process.
 - ◆ Discuss any preliminary hypothesis of cause and describe findings.
 - ◆ Identify the need for further investigation.

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- ◆ Clearly communicate why the cause of the original complaint could not be identified.
- ◆ Describe corrective action taken or propose strategies for problem resolution
- ◆ Provide a schedule for monitoring and evaluating the effectiveness of any changes resulting from the diagnosis of IAQ conditions.

Recordkeeping:

15. Copies of the IAQ report and any supporting documentation (i.e. interview notes, working papers, incident reports, test logs etc.) will be maintained in the School Inspector's office with copies in the building principal's office and school nurses office. IAQ investigations will be discussed and tracked through the existing Safety Committee information management process.

