



Indoor Air Quality

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Table of Contents

Introduction	3
Objectives	3
Background Information	3
Poor Indoor Air Quality	3
Inadequate Ventilation	3
Contamination From Inside a Building	4
Contamination From Outside a Building	4
Microbial Contamination	4
Building Materials Contamination	4
Symptoms Associated with Poor Indoor Air Quality	4
Sick Building Syndrome	4
Building Related Illness	5
Multiple Chemical Sensitivity	5
Indoor Air Quality Concerns	5
Reporting	5
Initial Response	5
Known Causes	5
Unknown Causes	5
Investigation	6
Phase 1	6
Phase 2	6
Phase 3	6
Phase 4	6
Process Flowchart	7
Preventing IAQ Problems	8
Actions Employees Can Implement	8
Actions Supervisors and Managers Can Implement	8
References	8

	Emergency Management	Environmental Health & Safety
	Indoor Air Quality	

Introduction

The University of North Carolina Asheville is dedicated to providing a safe and healthful workplace. Indoor Air Quality program was developed from the applicable components of Occupational Safety and Health Administration (OSHA) standards, American Society of Heating, Refrigeration and Air conditioning Engineers (ASHRAE) standard 62-1989 (Ventilation for Acceptable Indoor Air Quality), and the Environmental Protection Agency, U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and National Institute for Occupational Safety and Health guidance.

Objectives

The objectives of this Program include the following:

- To prevent illness, injury, and adverse health symptoms associated with poor indoor air quality
- To respond to indoor air quality complaints effectively and to make recommendations for improvement
- To maintain indoor air quality within acceptable levels according to consensus guidelines
- To provide information to employees about indoor air quality
- To designate a University indoor air quality (IAQ) Coordinator

Background Information

The University is committed to providing each employee a safe place of employment. The University will take actions to keep the workplace free of recognized hazards that cause, or are likely to cause, death or serious physical harm and, when available, will employ feasible means that will eliminate or materially reduce the recognized workplace hazard.

The University recognizes the impact that indoor air quality has in the workplace. In an effort to provide the University community with the optimum level of indoor air quality, Environmental Health and Safety has developed an indoor air quality program that also designates an indoor air quality (IAQ) coordinator from the Emergency Management Department.

Poor Indoor Air Quality

Factors associated with poor indoor air quality issues can include:

- Inadequate ventilation
- Contamination from inside the building
- Contamination from outside the building
- Microbial contamination
- Building materials contamination

Inadequate Ventilation

- Inadequate ventilation occurs when an insufficient amount of fresh outside air is supplied to the interior environment.
- Inadequate ventilation can occur when ventilation systems have not been designed to account for building remodeling and or additions.

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02/02/2022		Workplace Emergencies
V004	Page 3 of 9	Emergency Management Director

Contamination From Inside a Building

Contaminants commonly found inside a building include:

- Ozone from copiers and fax machines
- Pesticides
- Cleaning agents
- Tobacco smoke
- Sewer gas from dry traps
- Furniture, carpeting, wall coverings

Contamination From Outside a Building

Contaminants commonly found outside a building include:

- Exhaust from motor vehicles
- Fumes from construction or renovation (roofing and street paving projects)
- Forest fires
- Industrial activities

Microbial Contamination

Fungus (or mold), a common bio-aerosol contamination, occurs in buildings that are susceptible to water leaks and other sources of moisture. Contaminants can also be introduced into buildings from stagnant water in HVAC air distribution systems and cooling towers. In general, prevention of microbiological contamination is accomplished by controlling sources of moisture.

Building Materials Contamination

Building components treated with a variety of chemicals and preservatives are common sources of indoor air quality problems. Glues and adhesives from new carpeting and formaldehyde, to new particleboard and upholstery, may off-gas and become sources of contamination.

Symptoms Associated with Poor Indoor Air Quality

Typical symptoms arising from poor indoor air quality often mimic those symptoms commonly associated with a cold, flu, or allergies. These symptoms may include upper respiratory irritation, congestion, headaches, nausea, fatigue and itchy or watery eyes.

According to the EPA, there are common ailments associated with poor indoor air quality:

- Sick Building Syndrome (SBS)
- Building Related Illness (BRI)
- Multiple Chemical Sensitivity (MCS)

Sick Building Syndrome

Sick Building Syndrome (SBS) is a term used to describe situations in which building occupants experience acute health and comfort effects that appear to be linked to time spent in a building, but no specific illness or cause can be identified. The complaints may be localized in a particular room or zone, or may be widespread throughout the building.

Symptoms of SBS include:

- Headaches, eye, nose, or throat irritation, dry cough, dry or itchy skin, dizziness and nausea, difficulty in concentrating, fatigue, and sensitivity to odors.
- Most of those affected report relief after leaving the building.
- The cause of symptoms is unknown.

Building Related Illness

Building Related Illness (BRI), In contrast to SBS, BRI is a diagnosable illness that can be attributed directly to airborne building contaminants.

Indicators of BRI include:

- Building occupants complain of symptoms such as cough, chest tightness, fever, chills, and muscle aches.
- The symptoms can be clinically defined and have clearly identifiable causes.
- Complainants may require prolonged recovery times after leaving the building.

Multiple Chemical Sensitivity

Multiple Chemical Sensitivity is another term often used when a person believes they are sensitive to very low concentrations of a variety of chemicals, and the exact diagnosis is rarely defined in this condition.

Indoor Air Quality Concerns

Preventing IAQ problems is the primary goal, but this program also focuses on identifying and resolving IAQ issues in a manner that prevents them from reoccurring to avoid additional problems in the future.

The following resources provide in-depth, step-by-step actions that are effective in mitigating IAQ problems:

Reporting

The affected employee (or occupant) suspects, identifies, and/or experiences an indoor air quality concern should report it to their immediate supervisor or manager. The affected employee then completes the [IAQ Concern](#) form on the EHS website, <https://ehs.unca.edu> (which will automatically go to the EHS Officer).

Initial Response

Known Causes

- Supervisor investigates reported issue and attempts to determine cause,
- If the IAQ issue is identified and confirmed by visual inspection, (e.g., water leak, wet walls, etc.),
- Supervisor takes corrective action by initiating request for repair or maintenance services.

Unknown Causes

- Supervisor investigates reported issue and attempts to determine cause,
- If IAQ issue is UNKNOWN or cannot be confirmed by visual inspection,
- Supervisor contacts the IAQ Coordinator to conduct an area walk-through,
- The IAQ Coordinator and the supervisor will initiate IAQ Investigation, and
- Supervisor and affected employee(s) or occupants will be kept informed of progress and/or results.

Investigation

Phase 1

- IAQ Coordinator conducts an area walk-through and consults with Campus Operations and/or other outside contractors if applicable, for the purposes of identifying the cause of the IAQ issue,
- After the area walk-through, IAQ Coordinator completes initial investigation report for the building or area,
- If confirmed, IAQ Coordinator initiates corrective actions to address the cause and prepares the report results and any corrective actions that have been completed,
- The report findings are shared with the supervisor/manager and any affected employees.

Phase 2

- If the IAQ issue is not identified, the IAQ Coordinator implements the IAQ Employee Questionnaire process for the purposes of identifying and confirming the cause of the IAQ,
- After completing the employee interviews, IAQ Coordinator compiles the findings into a report for the building or area,
- If confirmed, IAQ Coordinator initiates corrective actions to address the cause of the IAQ issue and prepares the report results and any corrective actions that have been completed,
- The report findings are shared with the supervisor/manager and any affected employees.

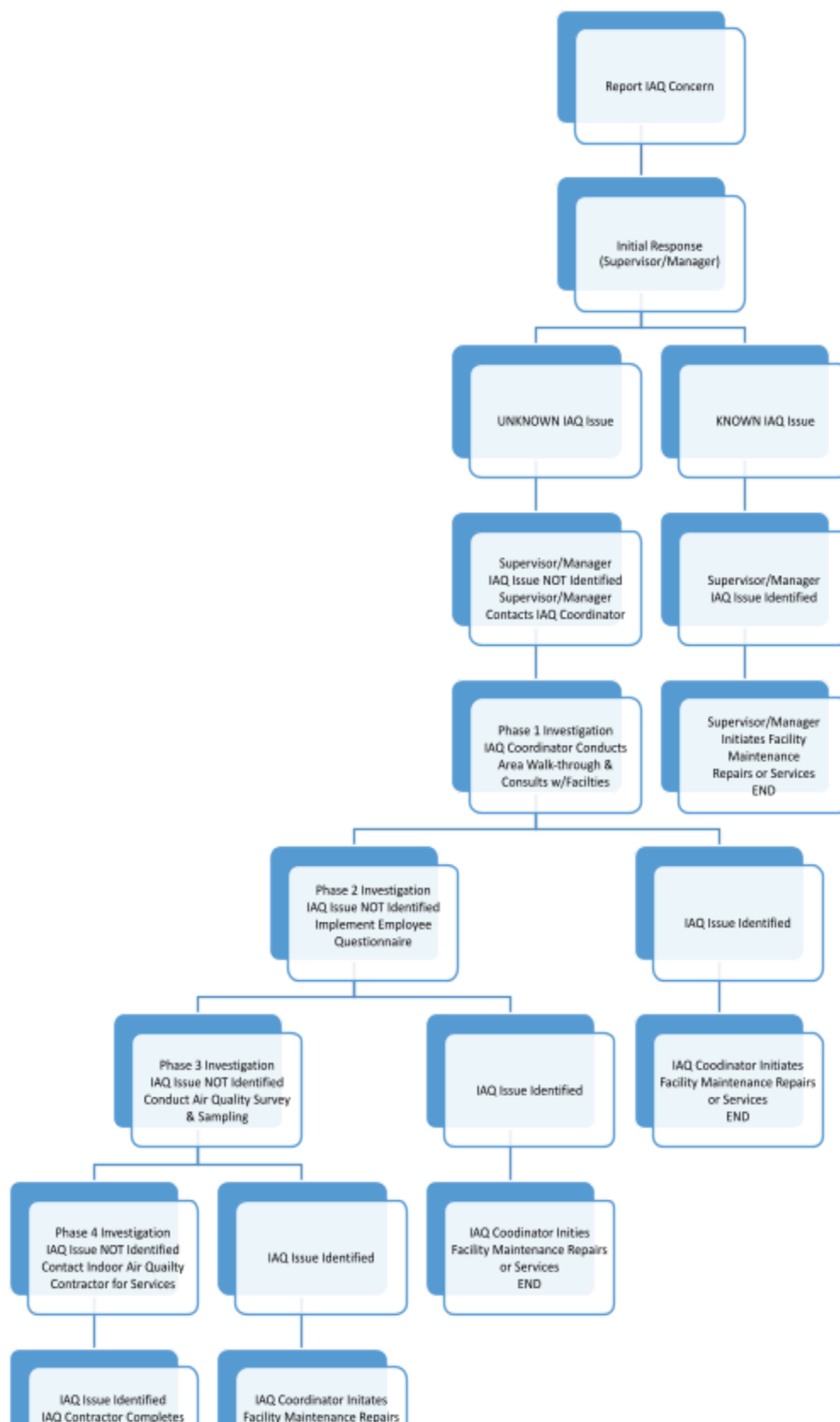
Phase 3

- If the IAQ issue is not identified, the IAQ Coordinator conducts an IAQ Survey and Sampling for the purposes of identifying and confirming the cause of the IAQ,
- If confirmed, IAQ Coordinator initiates corrective actions to address the cause of the IAQ issue and prepares the report results and any corrective actions that have been completed,
- The report findings are shared with the supervisor/manager and any affected employees.

Phase 4

- If the IAQ issue is not identified, the IAQ Coordinator solicits the assistance of an outside contractor with specific expertise and certifications in Indoor Air Quality studies for the purposes of identifying and confirming the cause of the IAQ,
- The IAQ Contractor initiates corrective actions to address the cause of the IAQ issue and prepares the report results and any corrective actions that have been completed.
- The report findings are shared with the supervisor/manager and any affected employees.

Process Flowchart



Preventing IAQ Problems

Preventing indoor air quality problems is always the best practice. Below are a few actions that anyone can take to improve their work environment.

Actions Employees Can Implement

These are some of the things you can do to improve the indoor air quality in your work area:

- Do not block air vents or grilles.
- Comply with the office and building smoking policy.
- Water and maintain office plants properly.
- Dispose of garbage promptly and properly.
- Store food properly.
- Avoid bringing products into the building that could release harmful or bothersome odors or contaminants.
- Notify your building or facility manager immediately if you suspect an indoor air quality problem.

Actions Supervisors and Managers Can Implement

These are some of the things you do to Improve the indoor air quality in your department if you a supervisor or manager:

- Maintain a good working relationship with building management on indoor environmental issues.
- Place office furniture and equipment with air circulation, temperature control, and pollutant removal functions of the heating, ventilating and air conditioning (HVAC) system in mind.
- Coordinate with building management in instances when responsibility for design, operation and maintenance of the ventilation system is shared.
- Establish an effective smoking policy that protects nonsmokers from involuntary exposure to secondhand smoke.
- Avoid procedures and products that can cause indoor air quality problems.
- Integrate indoor air quality concerns into your purchasing decisions.
- Work with the building manager to ensure use of only necessary and appropriate pest control practices, and non-chemical methods where possible.
- Work with building management and the contractor before you remodel or renovate to identify ways of keeping building occupant exposure to pollutants to a minimum and to ensure that the air distribution system is not disrupted.
- Encourage building management to develop a preventive indoor air quality management program following guidance issued by EPA and the National Institute for Occupational Safety and Health (NIOSH).

References

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