

	Reporting and Investigating Employee Odor Complaints and Other Types of Indoor Air Quality Concerns in UMass Office Areas / Buildings	Document Number:
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1.0 Indoor Air Quality Policy

- 1.1 Section 7.3, of the University of Massachusetts, Amherst (UMA) Environmental Health and Safety Policy Manual, titled *Indoor Air Quality*, requires that all University employees and students be provided with acceptable indoor air quality (see following Section 3.2 for a definition of ‘acceptable indoor air quality’).
- 1.2 The present *Reporting and Investigating Employee Odor Complaints and Other Indoor Air Quality Concerns in UMass Office Areas / Buildings* document was developed to render guidance on the reporting, investigation, and remediation of objectionable odors and other indicators of substandard indoor air quality in office areas / buildings.
- 1.3 All new construction and remodeling shall meet the requirements of the UMA Facilities Standards. Construction personnel shall make every effort to reduce the odors and dust nuisances due to construction in an occupied building.
- 1.4 All employee complaints involving unusual or objectionable odors and/or allegations of substandard chronic indoor air quality shall be investigated by UMass Amherst Environmental Health and Safety (EH&S) personnel.

2.0 Background Information

- 2.1 Indoor air quality problems can come from a variety of sources located inside or outside of a building. Agents responsible for building occupants’ discomfort can be transient, intermittent, or chronic and can be physical, chemical, or biological in nature.
- 2.2 An individual’s responses to airborne contaminants can vary as much as an individual’s perceptions of comfort. Allergies can be affected by trace airborne pollutants, and individuals who are immune compromised can react severely to airborne particulates or biological organisms.
- 2.3 The National Institute for Occupational Safety and Health (NIOSH) has determined that some 52% of indoor air quality complaints are related to inadequate ventilation. Building Heating, Ventilation and Air Conditioning systems (HVAC) systems need to function properly in order to control temperature, humidity, odor, and general air quality.

3.0 Definitions

- 3.1 **Indoor Air Quality (IAQ):** Refers to the air quality within and around buildings and structures, especially as it relates to the health and comfort of building occupants. IAQ can be affected by microbial contaminants (mold, bacteria), gases (including carbon monoxide, radon, volatile organic compounds), particulates, or any mass or energy stressor that can induce adverse health conditions. Problems are typically localized but substandard indoor air quality can cause ‘sick building syndrome’ or ‘building-related illnesses’ (see following Sections 3.4 and 3.5 for definitions of these two terms).

- 3.2 Acceptable Indoor Air Quality:** “Acceptable Indoor Air Quality” (IAQ) is defined as air in which there are no known contaminants at harmful concentrations as determined by cognizant authorities and with which a substantial majority (80% or more) of the people exposed do not express dissatisfaction.
- 3.3 Odor:** A strong and objectionable smell in the work area which comes from specific or unknown sources. Depending on their sources, odors may be transient or chronic in nature. Sources of odors in office environments could include vehicle exhaust brought in via the building ventilation system, smoke from a fire, leaking heating radiators, indoor or nearby outdoor construction activities, smoking near building air intakes, mold growth from water leaks inside walls or pooling water under plants, spoiled food, wet or soiled clothing, painting with high VOC paint, and many others.
- 3.3.1** Odors in chemical and biological research laboratories and laboratory buildings can have additional possible causes such as spills of chemicals, improper disposal of chemicals in drains or trash cans, chemical hoods not functioning properly, or contaminated gloves improperly discarded. Odor Investigations and other related issues for research laboratories and laboratory buildings are discussed in the UMass Laboratory Safety Manual / Chemical Hygiene Plan
- 3.3.2** Transient or intermittent odors in buildings are generally not direct causal factors in either ‘Sick Building Syndrome’ or ‘Building-Related Illnesses’. However, persistent odors from potentially harmful chemical or biological agents may cause or exacerbate either of these OSHA-recognized medical conditions.
- 3.4 Sick Building Syndrome:** a condition associated with complaints of discomfort including headache; nausea; dizziness; dermatitis; eye, nose, throat, and respiratory irritation; coughing; difficulty concentrating; sensitivity to odors; muscle pain; and fatigue. The specific causes of the symptoms are often not known but sometimes are attributed to the effects of a combination of substances or individual susceptibility to low concentrations of contaminants. The symptoms are experienced by multiple individuals and associated with periods of occupancy of a particular building and often disappear after the worker leaves the worksite.
- 3.5 Building-Related Illnesses:** are those for which there is a clinically defined illness of known etiology and include infections such as legionellosis and hypersensitivity diseases such as allergic reactions and are often documented by physical signs and laboratory findings. A more thorough description of these illnesses can be found in the American Conference of Governmental Industrial Hygienists (ACGIH) *Bioaerosols: Assessment and Control*.

4.0 Roles and Responsibilities

4.1 Department Heads

- Ensure that employee complaints are well documented and requests for investigations are made to EH&S in a timely manner.
- Recommend that employees with recurring chronic health complaints potentially attributable to indoor air quality be evaluated by a physician, either at University Health Services (UHS) or a private occupational safety physician.

4.2 Supervisors

- Work with the department head to ensure that all employee complaints of offending odors or improper air quality in their work space are well documented.
- Ensure that employees are provided with additional evaluations by an occupational health physician in the event that health issues caused by improper air quality were not alleviated with changes such as opening windows, improving air supply or exhaust to the space.
- Report problems with odors and other indicators of substandard air quality to EH&S and Physical Plant (PP).
- Ensure that EH&S or PP investigators are allowed access to all rooms in the department to investigate the odor or air quality complaints.
- Ensure that employees (both affected and not affected) fill-in an Indoor Air Quality Building Occupant Report Form (Appendix 3)
- Ensure follow up of the recommendations by EH&S to improve the ventilation or the cessation of an activity which could be the source of nuisance odors.
- Ensure the maintenance of good housekeeping in the office space such as frequent vacuuming of carpets and sparing use of high VOC cleaning materials.

4.3 Employees

- Employees who are experiencing symptoms potentially related to the quality of the indoor air should fill out an Indoor Air Quality Building Occupant Report Form (Appendix 3). Forward the completed form to EH&S.

4.4 Facilities and Campus Services (FCS)

- Responsible for the oversight of proper installation of supply and exhaust air to an office area.
- Ensure proper balancing of all air supply and exhaust of new or renovated offices on campus.
- Assist EH&S or PP in the investigation of odors or nuisance dust caused by a new construction or renovation.
- Ensure proper use of materials such as low VOC paint and low dust production in construction projects. A thorough cleaning of construction sites and adjoining areas can alleviate the dust and uncomfortable conditions for all office workers.
- Let building coordinators know when a painting or roofing project is going to start in their building. The building coordinators list is available at Physical Plant Work Controls.

4.5 Physical Plant (PP)

- Responsible for the proper maintenance of all exhaust and supply fans to provide adequate air for an office.
- Assist EH&S with investigations of odor and indoor air quality.
- Follow up on the recommendations for improving air circulation by EH&S or PP energy engineer.
- Limit the use of high VOC compounds in cleaning materials and high-VOC paints.

4.6 Environmental Health and Safety (EH&S)

- Assist in the development and maintenance of the campus program for indoor air quality and odor investigations.

- Investigate all odors and indoor air quality issues. Follow up with a report to occupants and supervisors, and with work orders for PP HVAC to improve the air circulation.
- Investigate all odors or dust problems caused by construction projects. If the odor from a construction project persists for more than a day, EH&S will require the monitoring of the persistent odor – either by in-house personnel, or by an outside contractor and bill the project manager.
- Conduct appropriate personal and/or area industrial hygiene sampling for volatile organic compounds, mold spores, bacteria, or other types of particulates as warranted.
- Keep current a database for odor complaints and indoor air quality investigations.

4.7 Contractors

- Inform building coordinators of new projects which might generate odors such as painting, roofing, welding, use of diesel equipment (i.e., forklift) inside buildings. The building coordinators list is available at Physical Plant Work Controls.
- When working in an occupied building, ensure a thorough cleaning of construction site and adjoining areas to alleviate the dust and uncomfortable conditions for all office workers.
- Ensure proper use of materials in construction such as low VOC paint and low dust production in construction projects.
- If a project generates odor for more than a day, consider hiring a consultant to monitor the air daily to ensure conformance with ANSI/ASHRAE standard 62.1-2010: *Ventilation for an acceptable indoor air quality* recommendations.

5.0 Reporting Objectionable Odors

- 5.0.1 Extremely *strong and acutely-irritating odors* immediately dangerous to life or health (IDLH), burning smell or visible smoke, odor of gas leak:
- √ Evacuate the area, and call the EH&S main office number at: (413) 545-2682. For medical evaluation if suspected chemical inhalation, call UHS Urgent Care at: (413) 577-5000.
 - √ Should an “imminent danger” situation exist, such as a significant chemical spill or evidence of smoke, an IAQ investigation may be conducted with the assistance of the Amherst Fire Department. If necessary, the involved parties will be directed to seek medical attention at University Health Services.
- 5.1.2 Chemical use or spills, natural gas, electrical burning smells and any other non-life-threatening odors:
- √ Call EH&S at: (413) 545-2682, and PP at: (413) 545-0600.
- 5.1.3 Temperature, humidity, dust and musty odor issues:
- √ Call EH&S at (413) 545-2682 and PP at: (413) 545-0600
- 5.1.4 Upon receipt of an odor complaint, EH&S will log the call into the EH&S Emergency Response Database as well as into the Odor Complaint Log in Draper 117 (see Appendix 1).
- 5.1.5 The F1 responder will immediately arrange to meet with the reporting party for direction to the location of the odor, and will conduct an initial investigation of the odor. The EH&S F1 responder may request immediate or subsequent follow-up assistance with

odor investigations from the EH&S Industrial Hygiene (IH) team. IH will follow-up and log all findings into the Emergency Response Database.

5.2.2 Burning smell

Cigarette or other tobacco products: see the campus smoke free policy. Find the smoker or the smoking post, relocate it from the proximity of building air intakes or open outside doors.

Burning plastic smell: If it is confined to a limited area, check light ballasts; check to make sure that nothing else is burning such as computer monitors, or other equipment. Check to make sure that failing equipment is unplugged.

5.2.3 Natural gas or sewage odor

Find origin of the sewage odor or gas leak. Contact Physical Plant at: (413) 545-6401, for emergency gas shut off, if it is a gas leak, or water shut off, if sewage or water leaks are found. Also check floor drains for dried out traps. If floor drain is dried out, add lots of water and instruct personnel to do the same if the odor returns. For sewage odor, use the 5-gas detector and monitor hydrogen sulfide values.

5.2.4 Odors from construction work and/or renovations

Contact the construction safety manager at EH&S so that she/he can contact the outside contractors responsible for the odor. If the work is done by the UMass Alterations Office, then contact Physical Plant safety officer and also Facilities Planning Office. All work using oil-based painting must be done after hours to cause the least amount of discomfort to building occupants.

Use the PID for VOC's if there is a smell of oil-based paint. Measure VOC levels at different locations (i.e., entrances, corridors, break rooms, etc.).

5.2.5 Dead animal odors

Call Pest Control at Physical Plant: 545-6401, if you suspect a rodent in crawl spaces or attics.

5.2.6 Flood and sewage backups

Whenever there is flooding or sewage backups, contact the environmental health officer for information on flood clean ups or sewage clean ups. Check for water leaks under radiators, behind walls, and under plants. Remove and dispose of all wet carpets. Use large fans to dry out the wet spaces. If warranted, EH&S will test for mold and other airborne particulates.

6.0 Major Indoor Air Contaminants

Although radon is listed below, acute health effects are not associated with this contaminant. It has been included due to concerns about its long-term health effects. EH&S is aware that there may be other health effects in addition to those listed for each contaminant.

- 6.1 **Acetic Acid from** X-ray development equipment, silicone caulking compounds. Usually, it is an irritant to the eyes, respiratory and mucous membranes.

- 6.2 **Formaldehyde** from off gassing of urea formaldehyde foam, insulation, plywood, particle board, carpeting and fabric. Acute health effects may include allergic reactions; skin rashes, eye, respiratory and mucous membrane irritation; odor annoyance. It is also a known carcinogen.
- 6.4 **Nitrogen Oxides (NO or NO₂)** from combustion products from gas furnaces and appliances, tobacco smoke, welding, and gas or diesel engine exhaust. Acute health effects may include eye, respiratory tract, and mucous membrane irritation.
- 6.5 **Ozone** from copy machines, electrostatic air cleaners, smog and electrical arcing. Acute health effects may include eye, respiratory tract and mucus membrane irritation; aggravation of chronic respiratory diseases.
- 6.6 **Radon** gas percolating inside from the ground beneath the buildings or groundwater. No acute effects, but chronic exposures can lead to risk of lung cancer from exposure to alpha-particle radiation.
- 6.7 **Synthetic Fibers.** Sources: insulation and other building materials containing fibrous glass and mineral wool. Acute health effects may include irritation to the eyes, skin, and lungs; dermatitis.
- 6.8 **Volatile Organic Compounds (VOC's)** including trichloroethylene, benzene, toluene, methyl ethyl ketones, alcohols, methacrylates, acrolein, and polycyclic aromatic hydrocarbons. Sources could be paints, cleaning compounds, mothballs, glues, photocopiers, silicone caulking materials, gasoline vapors, and cosmetics. Acute health effects range from nausea, dizziness, eye, respiratory tract and mucous membrane irritation, headache and fatigue.
- 6.9 **Other inorganic gases** such as ammonia, hydrogen sulfide, and sulfur dioxide. Sources could be window cleaners, acid drain cleaners, combustion products, tobacco smoke, blue print equipment. Acute health effects may include eye, respiratory tract, and mucous membrane irritation.
- 6.10 **Microorganisms and other biological contaminants** including viruses, mold, bacteria, pollen, animal dander, and mites. Sources include: air handling systems, cooling towers, water-damaged materials, high humidity in indoor areas, humidifiers, hot water systems, outdoor excavations, plants, animals, insects, food and food products. Acute health effects include allergic reactions, hypersensitivity diseases (hypersensitivity pneumonitis, humidifier fever, allergic rhinitis, etc.), and infections such as Legionellosis with symptoms like chills, fever, muscle aches, cough, sore throat, diarrhea and nausea.

Note: Guidelines for 1) screening (sampling) office spaces for these above-mentioned indoor air contaminants and 2) evaluating the screening results are provided in the OSHA Technical Manual, Section III; Chapter 2, Sections IV.C. and IV.D, and in Appendix 2 (this Procedure).

7.0 Reporting Other Types of Indoor Air Quality Problems

- 7.1 Any campus office worker who believes that he/she is being adversely affected by the quality of their indoor air should contact EH&S at: (413) 545-2682. Notification can also be done by email or letter. The reporting party can remain anonymous, if desired, but somehow needs to communicate the concern to EH&S.

7.2 EH&S may send an IAQ Survey / Building Occupant Report Form to the reporting person(s) to complete (Appendix 3).

8.0 Investigating Other Types of Indoor Air Quality Problems (EH&S)

8.1 After receipt of the completed IAQ Survey / Building Occupant Report Form, an investigator from EH&S will contact the reporting party and anyone else affected by perceived air quality problems. All investigations for indoor air quality will be done in a timely fashion based on the perceived degree of health hazard.

8.2 The EH&S investigator will make an office visit at a time and date convenient for the affected office workers.

8.3 EH&S will do a walk around inspection of all of the affected spaces looking for potential sources of major indoor air contaminants as listed in Section 6.0 of this document). During the walk around inspection, professional judgment will be exercised to determine if environmental samples should be collected to evaluate potential sources and potential contaminants, including gases, vapors, and particulates.

8.4 If deemed necessary, the EH&S investigator will measure CO₂ concentrations (an indicator of proper indoor air circulation and fresh air supply), temperature, and humidity using the TSI Q-trak IAQ monitor to evaluate the overall effectiveness of the building ventilation system at providing fresh, adequately tempered air to occupants (see Appendix 2 for details about the TSI Q-track IAQ monitor). EH&S may likely also measure the air flow at supply or exhaust grilles to evaluate air flow into and out the space. Other follow-up tests may also be performed based on the findings from the preliminary investigation including tests for volatile organic compounds (VOC's), mold, and/or other potentially-harmful vapors and particulates using appropriate sampling instrumentation. If deemed necessary, air samples will be taken and analyzed for mold spore concentrations.

8.5 If necessary, the EH&S investigator will submit a work order through Physical Plant to improve air flow at supply or exhaust grilles. The EH&S investigator may also offer suggestions on how to reduce odor or improve the air circulation in the office by opening windows or removing plant materials which can be a source of mold and other fungal spores, pollen, insects, or other unwanted agents. Carpets should be regularly vacuumed to reduce dust in the offices. Air conditioners and other sources of room supply air (i.e., ceiling supply air diffusers) should also be cleaned or vacuumed on a regular basis to reduce dust and other airborne particulates.

8.6 If an IAQ problem persists for several days, the office occupants will be given an Occupants' Daily Log in which to record their daily observations (see Appendix 4).

8.7 Results of all IAQ investigations will be shared with the reporting party and other affected persons. If necessary, a copy will also be sent to Physical Plant to request changes or repairs designed to improve the air quality in the affected work area(s).

9.0 Key References

OSHA Technical Manual, Section III, Chapter 2: "Indoor Air Quality Investigation."

University of Massachusetts / Amherst Environmental Health & Safety website:
<http://www.ehs.umass.edu/>

ANSI/ASHRAE standard 62.1-2010: *Ventilation for an acceptable indoor air quality*

ACGIH 1999. Bioaerosols: Assessment and Control

Appendix 1

Odor Complaint Log

EH&S responder _____

EH&S follow up _____

1. Name of reporting party _____
2. Contact Information for reporting party _____
3. Building and Room Number _____
4. Date and time of complaint _____
5. Frequency of odor _____
6. Description of odor _____

Burning smell:

- a. cigarette _____
- b. light ballast _____
- c. motor burning _____
- d. welding _____
- e. other _____

Natural gas or sewage smell:

Use multigas detector with hydrogen sulfide setting

- a. dried out trap on floor drain _____
- b. gas Jet leaking _____
- c. leaking toilet _____
- d. other _____

Fishy smell

- a. steam leak _____
- b. dead animal _____
- c. condensate under Air Conditioner _____
- d. plant watering _____
- e. other _____

Volatile Organic Compounds

Use Photoionization Detector (PID)

- a. chemical spill _____
- b. painting _____
- c. roof flashing or other construction _____
- d. other _____

Appendix 2

Equipment for Evaluating Indoor Air Quality

a. Multigas detector (ammonia odor, sewage odor, LEL level)

The five gas detector MX6 iBrid™ instrument possesses the following electrodes for detection of: CO (carbon monoxide), H₂S (hydrogen sulfide), O₂ (oxygen), and NH₃ (ammonia). It also measures LEL (lower explosive limit) for flammable vapors.

This meter needs to be calibrated for all of the detectable gases at least once a month and more often if it is being used heavily and the calibration data recorded.

Use of the MX6 Multigas detector: Read the manual before using the detector.

1. Turn the detector on by pressing the center button and holding it down.
2. The detector will go through a self-test then the screen will display “normal operation mode”: O₂ 20.9, NH₃ 0, H₂S 0, CO 0, LEL 0.
3. Take measurement of either H₂S (sewage smell), CO (engine smell) or NH₃ (ammonia smell) and record them.
4. The multi gas detector can also be used for an ammonia spill or odor. Keep the meter outside of the spill area.
5. Return the meter to its portal every time after use for charging.

b. Photo ionizing detector (solvent or organic odor, painting odor)

The Phocheck+ 1000 by IonScience can be used for the detection of a large range of volatile organic compounds (VOC's).

The Phocheck+1000 can be used in survey mode or health and safety mode. For odor investigations, the survey mode should be used.

The instrument uses a krypton lamp at 10.6eV and is calibrated using Isobutylene. All readings should be calibrated back to isobutylene gas using a chart from the manufacturer.

Use of the Phocheck+ 1000: Read the manual before using this instrument.

1. Turn the instrument on by pressing the “on/off” key.
2. At the display function selection, press down key until the gas selection reads: VOC or whichever gas to be detected. Press enter to select this function.
3. Start by zeroing the equipment with outside air away from the suspected contamination area.
4. Check the level starting at breathing area, then down on the floor or wherever the odor may be.
5. Do multiple checks of different areas and record all data for future follow ups.

c. TSI Qtrak IAQ meter

The Qtrak IAQ meter used in survey mode can measure temperature, humidity, CO and CO₂ which are useful in indoor air quality investigations to determine proper air circulation in offices. This meter needs to be sent out yearly to the manufacturer for calibration.

Use of the Qtrak IAQ meter:

1. Turn machine on using on/off button. Let it perform a series of battery tests.
2. Measure: CO₂ temperature and humidity of a room or office space.
3. Record all data and repeat the measurements on adjoining areas such as: corridor, outdoor air, etc.
4. Measure the CO₂, temperature and humidity of the outdoor, then at different locations adjacent to the room with IAQ problems, i.e., corridor, break room, other's offices. Outdoor level of CO₂ should be about 300-500 PPM.
5. When finished, plug the instrument into its charger. Batteries are also provided, but remove them after each use.

d. Air sampling cassettes used in conjunction with a Zefon Biopump Plus calibrated to draw 15 liters per minute of air into the sampling cassettes.

Used for evaluating indoor office air for airborne particulates and fungal spores.

The *Air-O-Cell*® system collects sample specimens irrespective of viability, which provides a broad overview of potential allergens and other air-borne contaminants present in the sampled spaces.

Air-O-Cell® sampling cassettes are typically analyzed using optical microscopy (1000x) in a direct microscopic examination.

Use of the Biopump Plus:

1. Turn the machine on with the power button.
2. Press the up or down arrow until 'verify calibration' appears
3. Install the calibrator over the inlet port
4. Press 'Start'
5. If the flow meter ball is centered at the mark on the line indicated then the appropriate 15 L/min of flow rate has been achieved. Press Stop and remove calibrator. Jump to Item If the flow meter bead is above or below the mark then the pump needs to be recalibrated. Press Stop. Complete Items xx to xx
6. Press the up or down arrow until 'Calibrate Bio-pump' appears
7. Press Start. Use the up arrow to increase the flow rate until the ball is centered at the mark. Down arrow decreases flow if you overshoot the mark. Press 'Set'. Remove calibrator.
8. To take an air sample, set Bio-pump at breathing height or desk height. Remove end covers from an Allergenco-D or Air-O-Cell cassette and place end with round hole onto inlet port.

9. Press 'Quick Sample' three times until 5 minutes shows in window.
10. Press 'Start'. The unit will automatically stop after the indicated time.
11. Remove the cassette, recover the ends, and write sample number and location on the cassette
12. Take a control sample outdoors (in area protected from rain if raining).

Appendix 3

IAQ survey form

ENVIRONMENTAL HEALTH AND SAFETY

INDOOR AIR QUALITY

Building Occupant Report Form

Name:

Date:

Department:

Job Title:

Campus Building and Room #:

Phone number:

Email:

Gender: Male Female

Overall are you satisfied or dissatisfied with the indoor air quality within your work area. If dissatisfied, please continue with the rest of this form.

1. When did you begin working in this **building**? _____

2. When did you begin working at your present **office location**? _____

3. Are any of these a problem in the **building**? (circle all that apply)

- | | |
|----------------------|-------------------|
| Temperature too hot | Smoky air |
| Temperature too cold | Stale air |
| Peculiar odors | Soot by air vents |
| Stuffy air | Drafts |

When are these issues a problem? Please describe where and when they are found (e.g., does it occur only in the mornings; is the problem seasonal, or only on Mondays, etc.).

4. _____ Number of persons working in the same room (estimate)

5. _____ Number of windows in the same room

6. Do the windows open? Yes No

7. Do you have any of the following health complaints? (This is a list of symptoms that result in buildings with air quality problems. Not all of these may be present in your building.)

- | | |
|---|---|
| <input type="checkbox"/> Aching joints | <input type="checkbox"/> Nausea |
| <input type="checkbox"/> Back pain | <input type="checkbox"/> Skin irritation/itching |
| <input type="checkbox"/> Muscle twitching | <input type="checkbox"/> Sneezing or coughing |
| <input type="checkbox"/> Dizziness | <input type="checkbox"/> Chest tightness |
| <input type="checkbox"/> Hearing disturbances | <input type="checkbox"/> Eye or nose irritation |
| <input type="checkbox"/> Dry cough | <input type="checkbox"/> Headache |
| <input type="checkbox"/> Heartburn | <input type="checkbox"/> Fatigue/drowsiness |
| <input type="checkbox"/> Dry skin | <input type="checkbox"/> Sore or dry throat |
| <input type="checkbox"/> Shortness of breath | <input type="checkbox"/> Nasal irritation or nosebleeds |
| <input type="checkbox"/> Chills or fever | <input type="checkbox"/> Sinus congestion or runny nose |
| <input type="checkbox"/> Skin rash | <input type="checkbox"/> Menstrual irregularities |

Other (fill in):

8. When do these symptoms occur?

- Mornings Afternoons
 All day long No noticeable pattern

9. Are these symptoms worse on some days than others? (e.g., Tuesdays are bad; Thursdays are not)

Specify which days of the week:

10. Where in the building do these symptoms occur? (check all that apply)

- At my desk In the lavatory
 In the lounge No particular place

Other: _____

11. When did you first notice these symptoms?

12. Do you suffer from allergies like hay fever? Yes No

13. If yes, what time of year are you most affected?

14. Do you have any medical conditions? Yes No

If yes, please explain: _____

15. When do you experience these symptoms?

- Only at work At work and at home

16. Have you had to leave work early or miss work because of these symptoms?

Yes No _____ How many times in the past month?

How long were you out of work? (# of days): _____

17. When do you experience relief from these symptoms?

18. Have you seen a physician about these ailments? Yes No

If yes, what did the doctor say and when?

19. Has a doctor told you that you have any of the following health problems? (check all that apply)

___ Hay fever, pollen allergies ___ Asthma

___ Chronic bronchitis ___ Chronic sinus problems

___ Skin allergies, dermatitis

20. Have any of these gotten worse lately? Yes No

If yes, which ones? _____

21. Do you smoke tobacco? Yes No Amount per day _____

22. Do you seem to be getting more colds or flu than you normally might? Yes No

23. Has anything happened recently at your workplace that could affect the air quality? (e.g., new carpeting, new furniture, new equipment, etc.)

24. What do you think is the cause of your symptoms or illness?

Other people smoking

Cleaning and maintenance

Temperature/ventilation

Renovations/construction

Presence of toxic chemicals

Other comments about the situation: _____
