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Owner: Sheila Lockwood: Chemical Hygiene & Biosafety Officer

Policy Area: DKB Facilities - Environmental Health & Safety

References:

## 202.01.01 Indoor Air Quality Complaints and Testing

### PROCEDURE SCOPE

<b>To what policy the procedure applies</b>	202.01.00 Regulated Building Materials
<b>To whom the procedure applies</b>	Applies to all normally occupied physical spaces owned and operated by Seattle University (leased spaces on case by case basis, dependent on the lease agreement)
<b>When the procedure should be used</b>	When a complaint is initiated or when building monitoring systems indicate an alarm condition.
<b>Purpose, goals and intended outcomes</b>	Acceptable IAQ is an environment where there are no known contaminants at harmful concentrations as determined by written standards and with which a substantial majority (80% or more) of the people exposed do not express dissatisfaction.
<b>Non-compliance</b>	Employees are expected to be active participants in creating a safe and healthy workplace and comply with all applicable safety and health rules.

### AREAS OF RESPONSIBILITY

The Facilities Services Department is dedicated to providing a safe learning and workplace environment. Our staff will take actions to keep the indoor environment from recognized hazards that cause, or are likely to cause, death or serious physical harm and when available will use feasible means that will eliminate or materially reduce the recognized hazard.

Our staff recognizes the impact that indoor air quality has on building occupants. Indoor Air Quality problems can come from a variety of sources. The cause may be transient, intermittent or chronic and it may be chemical, biological or physical in nature.

Symptoms arising from poor indoor air quality often mimic symptoms associated with cold, flu or allergies.

They may include upper respiratory irritation, congestion, headache, nausea, fatigue and itchy or watery eyes.

1. **Office of Environmental Health and Safety is responsible for :**

1. Providing technical assistance to investigate health concerns
2. Communicating between departments, Facilities Management and outside entities involved in IAQ response
3. Using accepted sampling protocols
4. Maintaining IAQ records including reporting forms, concerns and resolutions
5. Maintaining all equipment and instrumentation that is used in indoor air quality reviews
6. Classifying IAQ events by one of three types (Level 1 Event, Level 2 Event, Level 3 Event)

2. **Controls Shop** is responsible for:

1. Collaborating with EHS on recommendations regarding IAQ assessments
2. Maintaining building systems to manufacturer's recommendations

3. **Employee** is responsible for:

1. Bring the concern to their supervisor
2. Completing the IAQ Questionnaire with their supervisor and sending it to EHS
3. Working with EHS, Facilities Services and other SU parties affected by the IAQ issue

4. **Supervisor** is responsible for:

1. Assisting in the identification of IAQ issues and concerns
2. If the cause of an IAQ issue is identified and confirmed by visual inspections, taking corrective action by initiating request for repair or maintenance services
3. Assisting in communication between affected employees

## PROCEDURE DETAILS

1. **Faculty, Staff and Students** Reporting Procedures:

1. Emergency IAQ concerns that pose an immediate threat to personal health or safety such as natural gas leaks shall be reported to Public Safety 206-296-5911.
2. Non-emergency IAQ complaints or concerns
  1. Try to determine the source
  2. If possible to do so safely, address the source of the air quality issue
  3. If unable to address the source, submit a Work Order
  4. Communicate any issues or concerns to your supervisor.
3. When requested by EH&S, Fill out an IAQ questionnaire (see Appendix A) and submit it to EHS for review.

2. **Office of Environmental Health and Safety :**

1. Receive any IAQ questionnaires and complete follow-up.
2. Investigate using the Initial Investigation Form in Appendix B:

1. Chemical, exhaust or unusual odor
2. Sickness associated with building occupancy which may include headaches, nausea, dizziness, upper respiratory irritation, fever, chills and fatigue
3. Visible mold growth greater than 10 square feet
3. Data Collection and Inspection
  1. Interviewing occupants using a questionnaire and occupant data
  2. Performing a walk-through inspection of the area as necessary
4. Testing and Evaluation
  1. Temperature (69 to 79 F)
  2. Relative Humidity (20% to 60%)
  3. Oxygen
  4. Carbon Dioxide (below 1000 ppm), Carbon Monoxide (below 50 ppm)
  5. Volatile Organic Content
  6. Lower Explosive Limit
  7. Mold Spore Count
  8. Hydrogen Sulfide-Sewer gas from dry traps
5. Recommendations and Reports
  1. All sampling results and data are reviewed and analyzed
  2. All recommendations are brought forward and any additional reviews and improvements are discussed.
  3. Issue an IAQ report to affected parties and ensure that recommended corrective actions have been implemented

### 3. Controls Shop :

1. Control Shop will be contacted to investigate concerns relating to:
  1. temperature,
  2. air movement/drafts from diffusers,
  3. stale air,
  4. particulates or dirt coming from the air handling systems
2. Makes appropriate adjustments to the building control systems to address temperature, humidity and air circulation issues

## REFERENCE DOCUMENTS

202.01.00 Regulated Building Materials

Refer to appropriate regulatory and industry standard for air quality

Refer to SU standards for thermal air quality

[Indoor Air Quality Procedure & Backup](#)

## CONTACT / HELP

Office of Environmental Health & Safety  
(206) 296-6187

## DEFINITIONS

**Level 1 Event** – No Facilities Services action required - the source of the IAQ event is under the control of the occupant and should be addressed by them.

**Level 2 Event** - Facilities O&M action required – an adjustment to the building systems is required to address IAQ issues related to temperature, air movement/drafts from diffusers, stale air or particulates when an immediate cause wasn't identified by the Level 1 investigation.

**Level 3 Event** - Facilities EH&S on-site investigation required based on the IAQ questionnaire and site observations by EH&S when a definitive cause for the symptoms cannot be determined. EH&S will determine the extent of the on-site investigation and in consultation with the affected party, Facilities Administration, and HR, as appropriate. These investigations may consist of extensive and more specific monitoring and sampling for chemical and /or microbial contaminants and may include, at the discretion of EH&S, using expertise outside of Seattle University. Methodologies, standards and customary industrial hygiene practices and NIOSH and OSHA sampling and analytical procedures will be in accordance with US EPA Indoor Air Quality guidance

Please see attached Appendix A: Occupant Questionnaire-Indoor Air Quality.

Please see attached Appendix B: EH&S IAQ Questionnaire.

## Appendix C Sources of IAQ Problems

### Temperature

A comfortable temperature is usually between 68-79 degrees Fahrenheit. This comfort zone varies by season and relative humidity. An individual's comfort level usually depends on:

- Amount of physical work performed
- Clothing required
- Evaporation losses
- Convention-location near air vents, air conditioning

### Relative Humidity

Relative humidity and air temperature are related to each other. Optimum humidity is usually between 30-60%. Levels greater than 60% relative humidity will promote mold spore growth and increases in dust mites. Levels of relative humidity below 20% cause skin and mucous membrane dryness and may result in increased susceptibility to viral illness transmission.

Higher humidity levels are more prevalent in the summer months and lower humidity levels are more prevalent in the winter months.

# Acceptable Ranges of Temperature and Relative Humidity

ASHRAE Standard 55-1981, Thermal Environmental Conditions for Human Occupancy

Relative Humidity	Winter Temperature	Summer Temperature
30%	68.5 F-76.0 F	74.0 F-80.0 F
40%	68.5 F-75.5 F	73.5 F-79.5 F
50%	68.5 F-74.5 F	73.0 F-79.0 F
60%	68.5 F-74.0 F	72.5 F – 78.0 F

Note: Certain weather conditions may temporarily affect the relative humidity and temperature in buildings by making the relative humidity and temperature range lower or higher than the ideal occupancy comfort ranges. Most of these will resolve on their own as weather passes.

## Ventilation

Ventilation refers to the process of supplying and removing air by natural or mechanical means to and from any space. Natural ventilation is the movement of outdoor air into a space through provided openings, such as windows and doors, through non-powered ventilators or by natural infiltration into a building.

Note: In order to not disrupt the HVAC in your building, it is suggested that windows and doors to the outside not be opened. This can disrupt the appropriate flow of air coming in and out of building ventilation systems.

## Air Contaminants

Odorants-can be toxic, cause anxiety or the perception of poor indoor air quality. Some examples:

- Volatile Organic Compounds (VOCs) - Sources of VOCs, emissions from waxed floors, consumer products including potpourri, perfumes and air fresheners.
- Dust-from outdoor activities or machine shop activities.
- Biological-Mold, bacteria and pollen which are found at varying levels in the outdoor air year round. These levels are typically lower inside buildings and rarely at levels high enough to be a health concern even to sensitive individuals.

## Attachments:

[Appendix A: Occupant Questionnaire-Indoor Air Quality](#)

[Appendix B: EH&S IAQ Questionnaire](#)  
[BACKUP PLAN v 6 REV.doc](#)