

Northwestern

Indoor Air Quality

Environmental Health and Safety

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I. Purpose

Northwestern University is committed to maintaining a safe and healthy work environment. It is the goal of Northwestern University to eliminate potential hazards in the workplace and to operate buildings in a manner that meets established performance standards regarding ventilation, temperature, relative humidity, air quality, odor, noise, and lighting. This program establishes standard procedures for the management of indoor air quality (IAQ) concerns.

II. Scope

This program applies to all Northwestern University personnel and all owned and leased indoor environments.

III. Definitions

Indoor Air Quality (IAQ): Describes how indoor air can affect a person's health, comfort, and ability to work. IAQ can include temperature, humidity, lack of outside air (poor ventilation), airborne particulates, mold from water damage, or exposure to other chemicals.

Acceptable Indoor Air Quality: Some IAQ contaminants such as dust, chemicals, and mold are inherently present and cannot be completely removed from the work environment. As such, indoor air quality is considered acceptable when air contaminants are below established regulatory limits or best practice guidelines.

IV. Responsibilities

A. Environmental Health and Safety (EHS)

- i. Administrative oversight of the Indoor Air Quality Program, including developing the written Indoor Air Quality Program and revising as necessary;
- ii. Conduct indoor air quality investigations in response to reported personnel health concerns and/or symptoms related to work environment;
- iii. Conduct monitoring for indoor air quality components and mold as necessary, and maintain monitoring equipment;
- iv. Maintain records of exposure measurements;
- v. Provide exposure monitoring results to all employees monitored for exposure;
- vi. Collaborate with Facilities Operations and/or outside contractors as needed to remediate IAQ concerns.

B. Supervisors/Departments

- i. Contact EHS regarding health concerns or symptoms related to the work environment;
- ii. Provide funding for laboratory analysis or other outside services necessary to complete IAQ investigations;
- iii. Implement remedial recommendations;
- iv. Provide accommodations as necessary;
- v. Provide appropriate PPE for employees as needed.

C. Employees

- i. Follow the procedures and requirements outlined in this program;
- ii. Report indoor air quality concerns to your supervisor, Facilities Operations, and/or to EHS, as necessary;
- iii. Cooperate with IAQ investigations and remediation, as necessary.

D. Facilities Operations

- i. Respond to indoor air quality concerns, taking necessary remedial actions;
- ii. Report health-related indoor air quality concerns to EHS;
- iii. Ensure acceptable indoor air quality levels are maintained.

V. Reporting Procedures

Indoor air quality concerns should be reported according to the following procedures:

A. Immediate Issues

Any IAQ concern that poses an immediate threat to personal health or safety should be reported to Northwestern Police Dispatch (see **Contact Information**). In an emergency, dial 911.

B. Physical Comfort

Contact Facilities Customer Service (see **Contact Information**) for concerns related to physical discomfort. Such concerns include the following:

- i. Temperature or humidity issues;
- ii. Air movement/drafts from diffusers;
- iii. Stale air;
- iv. Particulates or dirt coming from the air handling system diffusers;
- v. Mold odor or visible mold;
- vi. Other unusual or unidentified odors.

C. Health Concerns and Symptoms

Personnel with health related symptoms believed to be related to the work environment should complete the IAQ Survey (Appendix I) and return it to EHS (see **Contact Information**). Health related concerns can include any of the following: headaches, nausea, dizziness, upper respiratory irritation, chest-tightness, dry/sore throat, fatigue, itching/irritated eyes, runny-nose, congestion, or shortness of breath. Upon receipt of the IAQ survey, EHS will contact the Northwestern personnel who submitted the complaint to schedule an investigation of the work area (see **Investigation Procedures**).

D. Mold

Any concern about mold or potential mold should be reported to Facilities Customer Service. Facilities Customer Service will follow procedures as outlined in Northwestern's [Water Intrusion Guide](#). EHS and outside contractors will be involved as necessary per the Water Intrusion Guide.

VI. Investigation Procedures

EHS will perform IAQ investigations according to the following:

- A. Review the IAQ survey, if available;
- B. Interview personnel with concerns and other building occupants in the immediate area of concern;
- C. Conduct a walk-through inspection of the building area of concern;
- D. Conduct air monitoring for indoor air quality parameters as necessary. IAQ parameters may include the following: temperature, relative humidity, carbon dioxide, volatile organic compounds (VOCs), and particulates;
- E. Contact outside contractor to perform additional environmental testing, if necessary;

- F. Compare measurements to established indoor air quality standards or guidelines (see **Regulatory Authority and Related Information** and **Appendix 2 – Indoor Air Quality Standards and Guidelines**);
- G. Report results to appropriate personnel and provide recommendations if necessary.

VII. Medical Evaluations

Northwestern University employees experiencing health concerns and symptoms related to indoor air quality in their work environment should report concerns to their supervisor and contact EHS (Section IX: Contact Information). EHS can help obtain medical evaluations at our occupational health partners:

Chicago: **Northwestern Medicine Corporate Health**, (312) 926-8282
676 N St Clair St, Suite 900, Chicago, IL 60611

Evanston: **NorthShore OMEGA**, (847) 657-1700
2650 Ridge Ave, Suite 4225, Evanston, IL 60201

VIII. Recordkeeping

EHS will retain all indoor air quality and exposure monitoring reports. These reports will be retained for 30 years and made available to personnel upon request.

IX. Regulatory Authority and Related Information

Northwestern and contractors will comply with the Occupational Safety and Health Administration's (OSHA) standards and any other applicable codes and standards, including:

American Industrial Hygiene Association (AIHA) [Improving Indoor Air Quality at Work](#)
United States Environmental Protection Agency (EPA) [An Office Building Occupants Guide to Indoor Air Quality](#)
OSHA [Indoor Air Quality](#)

X. Contact Information

For questions and health-related concerns or symptoms, contact Environmental Health and Safety at ehs@northwestern.edu.

Facilities Customer Service, Monday-Friday, 7:00 am-7:00 pm
Evanston: (847) 491-5201
Chicago: (312) 503-8000

Northwestern University Police
(847) 491-3254 or universitypolice@northwestern.edu

Appendix 1 – Indoor Air Quality Survey

Name: _____ Date: _____

Location of Concern: Office Residence Gender: Male Female

Department: _____ Job Title: _____

Campus Building and Room/Dorm Number: _____

Email: _____ Phone number: _____

1. How long have you been working/living in this **building**? _____

2. How long have you been working/living in your current office/room/residence? _____

3. Are you concerned about any of the following in the **building**? (*check all that apply*)

- Temperature too hot Smoky air Peculiar odors
- Temperature too cold Stale air Chemicals fumes/mists
- Stuffy air Soot by air vents Drafts

4. Is there a particular time of day you notice the air quality issue? (*check all that apply*)

- Mornings Afternoons Nights
- All day long No noticeable pattern

5. Common indoor air quality issues are listed below. Please check any that apply to your situation:

- Lack of ventilation Odor(s) If so, please describe: _____
- Dust in the air Visible mold
- Other, specify: _____

6. Has there been a flood or any water damage recently? Yes No

If yes, please describe: _____

7. Number of persons (estimate) working/living in the same room: _____

8. Number of windows in the same room: _____ Do the windows open? Yes No

9. Do you have any of the following health conditions? *(This is a list of symptoms that result in buildings with air quality problems.*

Not all of these may be present in your building. Check all that apply.)

- | | |
|---|---|
| <input type="checkbox"/> Skin rash | <input type="checkbox"/> Nausea |
| <input type="checkbox"/> Chills or fever | <input type="checkbox"/> Skin irritation/itching |
| <input type="checkbox"/> Headache | <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"/> Sinus congestion or runny nose |
| <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"/> Other: _____ | |

10. When do these symptoms occur? *(check all that apply)*

- | | | |
|---------------------------------------|--|---------------------------------|
| <input type="checkbox"/> Mornings | <input type="checkbox"/> Afternoons | <input type="checkbox"/> Nights |
| <input type="checkbox"/> All day long | <input type="checkbox"/> No noticeable pattern | |

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

Specify which days of the week: _____

12. Where in the building/residence hall do these symptoms occur? *(check all that apply)*

- | | | |
|--|--|--|
| <input type="checkbox"/> At my desk | <input type="checkbox"/> In the lavatory | <input type="checkbox"/> In my residence |
| <input type="checkbox"/> In the lounge | <input type="checkbox"/> No particular place | |
| <input type="checkbox"/> Other: _____ | | |

13. When did you first notice these symptoms? _____

14. Do you suffer from allergies? Yes No

If yes, please specify: _____

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

15. When do you experience these symptoms?

- | | | |
|---------------------------------------|---|--|
| <input type="checkbox"/> Only at work | <input type="checkbox"/> Only at my residence | <input type="checkbox"/> At work and at home |
|---------------------------------------|---|--|

16. Have you had to leave work early or miss work because of these symptoms? Yes No
If yes, how many times in the past month? _____
If yes, how long were you out of work? (number of days) _____

17. Are the symptoms better when you are away from the area? Yes No

18. Have you seen a physician about these symptoms? Yes No
If yes, what did the doctor say and when? _____

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

<input type="checkbox"/> Hay fever, pollen allergies	<input type="checkbox"/> Asthma
<input type="checkbox"/> Chronic bronchitis	<input type="checkbox"/> Chronic sinus problems
<input type="checkbox"/> Skin allergies, dermatitis	<input type="checkbox"/> Other: _____

20. Have any of these worsened lately? Yes No
If yes, which ones? _____

21. Do you smoke? Yes No

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

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

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

<input type="checkbox"/> Other people smoking	<input type="checkbox"/> Cleaning and maintenance
<input type="checkbox"/> Temperature/ventilation	<input type="checkbox"/> Renovations/construction
<input type="checkbox"/> Presence of toxic chemicals or gas	<input type="checkbox"/> None of the above

25. Have you or someone brought furniture from elsewhere into your office or residence? Yes No

26. Have any alarms, such as smoke or carbon monoxide, activated recently? Yes No

Other comments about the indoor air quality situation: _____

Appendix 2 – Indoor Air Quality Standards and Guidelines

Parameter	IDPH ¹	ASHRAE ²	OSHA PEL ³	ACGIH TLV ⁴
Humidity	20-60%	30-60%	N/A	N/A
Temperature	68-75° (winter) 73-79° (summer)	68-75° (winter) 73-79° (summer)	N/A	N/A
Carbon Dioxide	1,000 ppm (<800 ppm preferred)	1,000 ppm	5,000 ppm	5,000 ppm
Carbon Monoxide	9 ppm	9 ppm	50 ppm	25 ppm
Hydrogen Sulfide	0.01 ppm	N/A	20 ppm	10 ppm
Ozone	0.08 ppm	N/A	0.1 ppm	0.05 ppm
Particulates	0.15 mg/m ³ (PM 10) (150 µg/m ³) 24-hour 0.065 mg/m ³ (PM 2.5) (65 µg/m ³) 24-hour	N/A	15 mg/m ³ (total) 5 mg/m ³ (resp.)	10 mg/m ³ (total) 3 mg/m ³ (resp.)
Formaldehyde	0.1 ppm (office) 0.03 ppm (home)	N/A	0.75 ppm	0.3 ppm
Nitrogen Dioxide	0.05 ppm	N/A	5 ppm	3 ppm
Radon	4.0 pCi/L	N/A	100 pCi/L	4 WLM/year (working level months/year)

¹ Illinois Department of Public Health recommendations

² American Society of Heating, Refrigerating and Air-Conditioning Engineers recommendations

³ Occupational Safety and Health Administration Permissible Exposure Limit. This level is a time-weighted average and is an enforceable standard that must not be exceeded during any eight-hour work shift of a 40-hour work week.

⁴ American Conference of Governmental Industrial Hygienists Threshold Limit Value. This level is a recommended time-weighted average upper limit exposure concentration for a normal eight to 10-hour workday and a 40-hour work week.