

Northwestern

Indoor Air Quality

Environmental Health and Safety

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## I. Purpose

Northwestern is committed to maintaining a safe and healthy work environment by ensuring that the indoor air quality (IAQ) of University buildings meets established performance standards.

## II. Scope

This program applies to all Northwestern staff, faculty, and students 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 includes but is not limited to temperature, humidity, odor, noise, lighting, ventilation, airborne particulates, mold, and exposure to chemicals. For the purposes of this program, IAQ includes lighting and noise not covered by Northwestern's [Hearing Conservation](#) program.

**Acceptable IAQ:** Some IAQ contaminants, such as dust, chemicals, and mold, are inherently present and cannot be completely removed from the indoor environment. Indoor air quality is considered acceptable when air contaminants are below established regulatory limits or best practice guidelines, or when a substantial majority of occupants express no dissatisfaction with respect to odor and sensory irritation and in which there are not likely to be contaminants at concentrations that are known to pose a health risk.

## IV. Responsibilities

### A. Environmental Health and Safety (EHS)

- i. Adhere to the requirements of this program.
- ii. Review and update this program, as necessary.
- iii. Conduct indoor air quality monitoring and investigations in response to observed or reported health concerns and/or symptoms.
- iv. Maintain IAQ monitoring equipment.
- v. Maintain records of exposure measurements.
- vi. Provide exposure monitoring results to individuals monitored for exposure.
- vii. Collaborate with Facilities, departments, and/or vendors as necessary to remediate IAQ hazards.

### B. Departments, Schools, and Units

- i. Adhere to the requirements of this program.
- ii. Contact EHS regarding IAQ concerns in University-owned or leased spaces.
- iii. Provide funding for laboratory analysis or other services necessary to complete IAQ monitoring and investigations.
- iv. Collaborate with EHS and other departments as necessary to implement corrective actions.

### C. Facilities Operations

- i. Adhere to the requirements of this program.
- ii. Collaborate with EHS and other departments, units, and schools to respond to indoor air quality concerns, taking necessary remedial actions (e.g., evaluating HVAC systems, changing HVAC filters).

- iii. Ensure acceptable indoor air quality is maintained in all University-owned property.

## V. Reporting Procedures for Indoor Air Quality Concerns

### A. **Emergency**

For any emergency IAQ concerns that pose an immediate threat to personal health or safety (e.g., natural gas leak, chemical spill), call 911 to report the incident and activate the nearest fire alarm to evacuate the building.

### B. **Health Concerns and Symptoms**

Individuals with IAQ concerns (e.g., visible mold or dust) and/or health-related symptoms believed to be related to IAQ (e.g., headaches, nausea, dizziness, upper respiratory irritation, chest-tightness, dry/sore throat, fatigue, itching/irritated eyes, runny-nose, congestion, or shortness of breath) should notify their supervisor, medical care provider (if necessary), and complete an [IAQ Assessment Request Form](#).

### C. **Physical Comfort**

Contact Facilities Customer Service (see **Contact Information**) for concerns related to physical discomfort such as temperature, humidity, ventilation, or odors.

### D. **Occupational Health**

Refer to the Northwestern [Respiratory Protection](#) program for occupational exposure to respirable contaminants such as silica, dust, and fumes.

## VI. Investigation Procedures

When observed by EHS or upon notification of IAQ concerns, EHS will:

- A. Monitor and investigate the IAQ (e.g., temperature, humidity, carbon dioxide, volatile organic compounds, particulates) and engage vendors for additional testing, if necessary.
- B. Compare measurements to established indoor air quality standards or guidelines (see **Regulatory Authority and Related Information** and **Appendix 1 – Indoor Air Quality Standards and Guidelines**);
- C. EHS will provide an IAQ report to appropriate stakeholders which will include corrective actions to achieve acceptable IAQ, if necessary.

## VII. Recordkeeping

EHS will retain all indoor air quality assessment requests and reports for 3 years.

## VIII. Regulatory Authority and Related Information

Northwestern and vendors will comply with the Occupational Safety and Health Administration's (OSHA) standards, American Industrial Hygiene Association (AIHA) standards, and any other applicable codes and standards, including but not limited to:

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](#)  
Illinois Department of Public Health (IDPH) [Guidelines for Indoor Air Quality](#)  
OSHA [Indoor Air Quality](#)

## IX. Contact Information

For questions, contact Environmental Health and Safety at [ehs@northwestern.edu](mailto:ehs@northwestern.edu).

**Facilities Customer Service**, Monday-Friday, 7:00 am-5:00 pm

Evanston: (847) 491-5201

Chicago: (312) 503-8000

[facilities@northwestern.edu](mailto:facilities@northwestern.edu)

## Appendix 1 – Indoor Air Quality Standards and Guidelines

Parameter	IDPH <sup>1</sup>	ASHRAE <sup>2</sup>	OSHA PEL <sup>3</sup>	ACGIH TLV <sup>4</sup>
<b>Humidity</b>	20-60%	<65%	N/A	N/A
<b>Temperature</b>	68-75° (winter) 73-79° (summer)	68-75° (winter) 73-79° (summer)	N/A	N/A
<b>Carbon Dioxide</b>	600-1,000 ppm (<800 ppm floor or building average)	<700 ppm more than outdoor concentrations	5,000 ppm	5,000 ppm
<b>Carbon Monoxide</b>	9 ppm	9 ppm (8-hour average) 35 ppm (1-hour average)	50 ppm	25 ppm
<b>Hydrogen Sulfide</b>	<0.01 ppm	N/A	20 ppm	1 ppm
<b>Ozone</b>	0.08 ppm	N/A	0.1 ppm	0.05 ppm
<b>Particulates</b>	0.15 mg/m <sup>3</sup> (PM 10 – coarse particles) and 0.065 mg/m <sup>3</sup> (PM 2.5 – fine particles) (24-hour average)	N/A	15 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (respirable dust)	10 mg/m <sup>3</sup> (total dust) 3 mg/m <sup>3</sup> (respirable dust)
<b>Formaldehyde</b>	0.1 ppm (office) 0.03 ppm (home)	N/A	0.75 ppm	0.3 ppm
<b>Nitrogen Dioxide</b>	0.05 ppm	N/A	5 ppm	3 ppm
<b>Radon</b>	4.0 pCi/L	N/A	100 pCi/L	4 WLM/year (working level months/year)

<sup>1</sup> Illinois Department of Public Health recommendations

<sup>2</sup> American Society of Heating, Refrigerating and Air-Conditioning Engineers recommendations (ASHRAE 55 and 62.1)

<sup>3</sup> 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.

<sup>4</sup> 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.