

# Indoor Air Quality & Mold

---

**University of Houston**

**Environmental Health Life Safety Department (EHLS)**

**713-743-5858**

**<http://www.uh.edu/ehls>**

# Outline

---

---

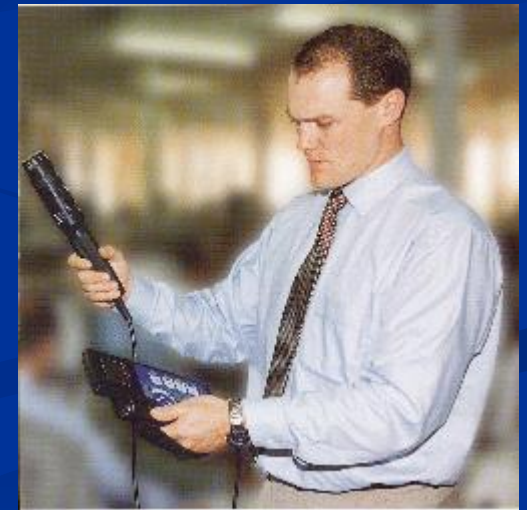
- Indoor Air Quality (IAQ) Basics
- Common IAQ Complaints
- Desired IAQ Conditions
- Mold
- Reporting IAQ Concerns
- Summary

# What is Indoor Air Quality?

---

## Indoor Air Quality:

The temperature, humidity, ventilation rate, and the potential presence of other air contaminants inside a building.



# Why is IAQ Such a Big Deal?

---

---

- Americans spend about 90% of their day indoors in classrooms, in offices, at home.
- Pollution indoors can be two to five times and occasionally more than 100 times higher than outdoor levels.
- When compared to other threats to human health, EPA, its Science Advisory Board and others consistently rank indoor air pollution among the top four environmental risks facing the American people.

# Potential Sources of IAQ Problems

---

---

- Heating, Ventilation, and Air Conditioning (HVAC) Systems
- Building Materials and Furnishings
- Storage of Cleaning Supplies, Pesticides, and other Aromatic Products
- Equipment such as Copiers, Fume Hoods, and Stoves

# Common IAQ Contaminants

| Pollutants   | Indoor sources  | Potential Health Effects  |
|--|---|---|
| Environmental smoke  | Cigarettes, cigars and pipes.   | Respiratory problems, bronchitis and pneumonia in children, emphysema, lung cancer, and heart disease                     |
| Organic Chemicals  | Aerosol sprays, solvents, glues, cleaning agents, pesticides, moth repellents, air fresheners.                                      | Eye, nose, and throat irritation; headaches; damage to liver; various types of cancer.                                    |
| Carbon Monoxide  | Improper vented or malfunctioning gas appliances, wood stoves, and tobacco smoke.   | Headache; nausea; angina; impaired vision and neural functioning.   |
| Respirable Particles   | Cigarettes, wood stoves, fireplaces, aerosol sprays, and house dust   | Eye, nose and throat irritation; increased susceptibility to respiratory infections and bronchitis; lung cancer           |
| Biological Agents (Bacteria, Viruses, Fungi, Animal Dander, Mites) | House dust; pets; bedding; poorly maintained air conditioners, humidifiers and dehumidifiers; wet or moist structures; furnishings. | Allergic reactions; asthma; eye, nose, and throat irritation; humidifier fever, influenza, and other infectious diseases. |
| Asbestos   | Damaged or deteriorating insulation, fireproofing, and acoustical materials.  | Asbestosis, lung cancer, mesothelioma, and other cancers.   |
| Lead   | Sanding or open-flame burning of lead paint; house dust.  | Nerve and brain damage, particularly in children; kidney damage; growth retardation.                                      |
| Radon  | Soil under buildings, some earth-derived construction materials, and groundwater.   | Lung cancer.  |

# How They Can Effect You!

---

## EYES

Dryness, itching/stinging, tearing, redness.

---

## UPPER RESPIRATORY TRACT

(nose and throat)

Dryness, itching/stinging, nasal congestion, nasal drip, sneezing, nose bleed, throat pain.

---

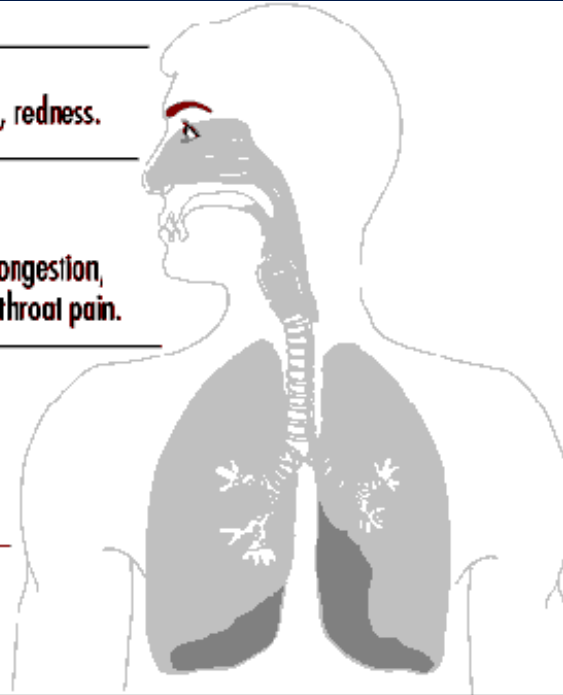
## LUNGS

Chest tightness, drowning sensation, wheezing, dry cough, bronchitis.

---

## SKIN

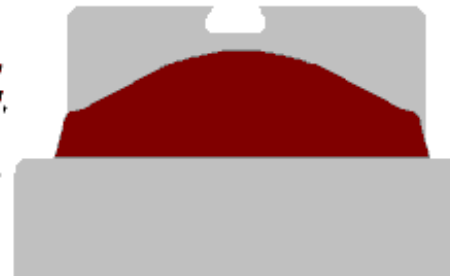
Redness, dryness, general and localized itchiness.



---

## GENERAL

Headache, weakness, drowsiness/lethargy, difficulty concentrating, irritability, anxiety, nausea, dizziness.



---

## MOST COMMON ILLNESSES:

### HYPERSENSITIVITY

Hypersensitivity pneumonitis, humidifier fever, asthma, rhinitis, dermatitis.

### INFECTIONS

Legionellosis (Legionnaire's disease), Pontiac fever, tuberculosis, common cold, flu.  
Of unknown chemical or physical origins, including cancer.

# Desired IAQ Conditions

---

---

- **Temperature**
  - Winter 73 – 79F
  - Summer 68 – 74F
- **Relative Humidity**
  - Optimal 35% - 55% with 60% considered maximum
- **Carbon Dioxide**
  - Outside air value plus 700 parts per million (ppm) considered maximum inside
- **Carbon Monoxide**
  - Less than 9 ppm average over 8 hours
- **No Occupant Complaints**
  - Chemical Odors
  - Biological Odors
  - Dust

# Mold

---

---



Mold (and Mildew) are fungi that produce spores which are continually floating throughout the environment.

Depending upon where the spores land,  
they can develop into colonies and  
consume the host materials

# Mold Health Effects

---

---

- Lead to allergic reactions in susceptible individuals
- Can cause other health problems but it is very controversial whether or not mold causes serious health effects

# Where is mold found?

---

A better question would be  
where is mold not found....

# Mold Is Everywhere in the environment



# So Mold is Everywhere...

What can we do about it ?

# Moisture Control is the Key!

---

## Fix leaks in:

- Roofs
- Windows
- Wall repairs
- Plumbing
- Mechanical room leaks/drip pans

## Air Conditioning

- Eliminate vent condensation
- Change filters regularly
- Control humidity

# Goal

## Eliminate IAQ Concerns

---

---



# Mold Control Strategy

---

---

- Look for visible mold
- Identify and eliminate moisture source that enhances mold growth
- Remove wet materials ASAP
- Clean and disinfect surfaces that can not be removed
- Restore the area back to original state
- Mold sampling generally not done

# Mold Remediation at UH

---

---



When we see it, we fix it!

# Special Notes on Mold

---

---

- Different levels (per new *Texas* Department of State Health Services DSHS formerly TDH)
- Start out with small area less than 25 square feet (our custodial staff handles it)
- Greater than 25 square feet need licensed mold abatement consultant and abatement company per DSHS



Large (> 25 square feet) Abatement Procedure in Progress

# Reporting an IAQ Concerns

---

---

- Contact EHLS
  - (713) 743-5858

# Summary

---

---

- IAQ conditions impact all of us
- Facilities Management's goal is for IAQ conditions to not be occupant's focus
- Mold spores are constantly in the environment
  - Key to control mold inside buildings is to control moisture
- Report IAQ concerns to Facilities Management Customer Service Center

# Additional Information

---

---

- Environmental Health Life Safety website:  
[www.uh.edu/ehls](http://www.uh.edu/ehls)
- Federal EPA and OSHA Websites:  
[www.epa.gov](http://www.epa.gov)  
[www.osha.gov](http://www.osha.gov)