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# Environmental Concerns during Mitigations

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# Overview of Concerns

- Asbestos Containing Material
- Lead-Based Paint
- Biological Concerns
- Indoor Air Quality

# Asbestos Containing Materials Background

- Known as the “Miracle Mineral” and used in over 3,000 products
- 1970’s Phase-Out leading to a decrease in use post mid-1970’s.
- Homes built prior to the 1980’s are at the highest risk to contain asbestos.
- Intact asbestos is safe; the danger occurs when it is disturbed and fibers are released



# Common Asbestos Containing Materials in Homes



## Floor Tile and Mastic

- Very common to see as 9x9 tile
- Popular from the 1950s to 1970 but can be found in homes built from 1920s to 1980s
- May be hidden under other flooring such as carpet or other tiles.

## Siding

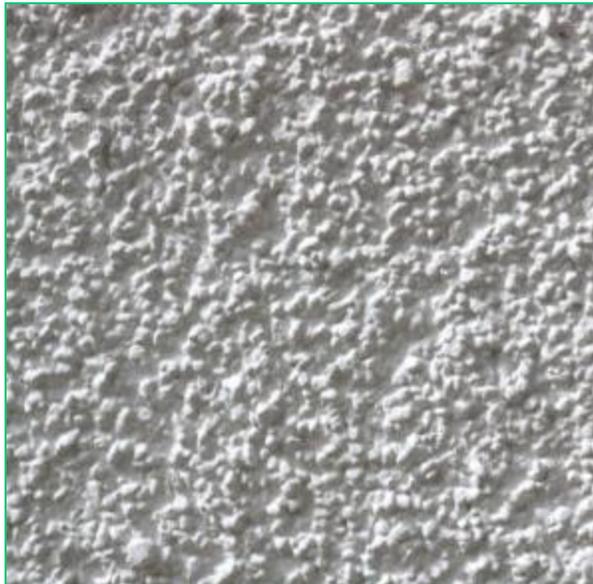
Popular from the 1940s to 1960s but can be found in homes built from 1900s to 1970s.



# Not as Common Asbestos Containing Materials in Homes

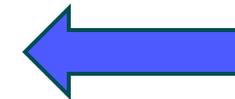
## Contaminated insulation

Well known brand Zonolite used vermiculite that was contaminated with tremolite asbestos.



## Textured Ceiling

Popular from the 1950s to 1970s but can be found in homes built from 1920s to 1980s.



## Pipe Wrap

Popular in homes built between 1940s and 1970.

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# How to Handle Asbestos Containing Materials

- Use your resource – the homeowner
- If unsure, have it tested by a professional
- Have the area that would be impacted abated by a professional

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# Lead-Based Paint Background



- Lead-Based Paint was used for its durability and vibrancy.
- Lead-Based Paint was banned in 1978.
- Homes built prior to the 1960's are at the highest risk of having lead-based paint.
- Intact lead-based paint is safe; the danger occurs when it is disturbed and dust is created.

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# Common Places for Lead-Based Paint in Homes (in mitigation work)



Trim and Molding

Exterior Paint



# Signs of Deteriorating Lead-Based Paint

“Alligatoring”



“Checking”



Peeling

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# How to Handle Lead-Based Paint

- Use your resource – the homeowner
- If unsure, have it tested by a professional
- Have the area that would be impacted abated by a professional

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# Biological Concerns in Workplace

## Hantavirus



### How to avoid:

- Air out close spaces (like crawlspaces) for 30 minutes prior to entering
- Wear PPE (rubber gloves, N95 mask)
- Avoid dry sweeping or vacuuming droppings (best to clean using wet methods)
- After the project, wash your hands well.
- If it is severely infested, request a professional to clean before installing a system.

# Biological Concerns in Workplace

## How to avoid:

- Wear PPE (rubber gloves, N95 mask)
- Wet down surfaces, soil, or droppings with water before disturbing to avoid making the fungus become airborne. Avoid dry sweeping or vacuuming droppings (best to clean using wet methods)
- Do not eat, drink, or smoke in areas of concern. After the project, wash your hands well.
- If it is severely infested, request a professional to clean before installing a system.

## histoplasmosis



**Bat Guano in Attic**

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# Biological Concerns in Workplace

## Unofficial Tenants



### Helpful Hints on how to Proceed:

- Do not try to trap, corner, or handle the animal yourself. Let professionals handle the removal of the animal.
- Exit the space safely by backing out slowly.
- Communicate with the homeowner about the found wildlife (and any hazards).
- Return to the worksite when the animal has been removed to complete the work.

# Biological Concerns in Workplace

## Helpful Hints on how to Proceed with a Deceased Animal:

- Be sure the animal is deceased and not actually stunned.
- Determine if you will be removing the carcass or if the homeowner will. Be mindful of regulations surrounding the disposal.
- Do not touch a carcass without proper PPE such as gloves, a mask, and use appropriate tools. BE MINDFUL OF BLOAT.
- After removal, be sure to thoroughly clean and disinfect the area to remove bacteria, parasites, or odors, if you are removing the carcass.



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“You could go days without food and hours without water, but you would last only a few minutes without air”

[The Plain English Guide to the Clean Air Act](#)

<b>Pollutant</b>	<b>Health/Well-Being Effects</b>	<b>Sources</b>
<b>Volatile Organic Compounds (VOCs) and Semi-Volatiles</b>	Respiratory or eye irritants; Nausea, headaches & fatigue, nervous system complaints	Building materials, Personal care products; Maintenance or Hobby materials; pesticides.
<b>Particles (PM)</b>	Affects heart and lungs (respiratory system irritant)	Indoor combustion, outdoor sources, clutter, office equipment.
<b>Smoking/Vaping</b>	Respiratory irritants	Occupants
<b>Carbon Monoxide (CO)</b>	Flu-like symptoms & high exposures can lead to death	Unvented or backdrafted combustion sources; Outdoor sources w/poor building design or practices (e.g., idling vehicles)
<b>Radon</b>	Long term exposure – Lung Cancer	Soil; Well Water
<b>Microbiologicals (Fungi/Mold, Bacteria, Viruses)</b>	Respiratory irritants & allergens, complaints with headaches & nervous system symptoms, illness	For mold: Water infiltration; maintenance/plumbing problems; spills; lack of humidity control.
<b>Carbon Dioxide (CO<sub>2</sub>)</b>	Lethargy (tiredness)	Insufficient ventilation; Too many occupants.
<b>Pests &amp; Pets</b>	Allergic Responses	Housekeeping; Outdoors; Classroom management
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>	Irritate eyes, nose & throat; cause shortness of breath.	Gas-, kerosene-, wood-fuel burning appliances (e.g., stoves & fireplaces); Emissions from fossil fuel combustion vehicles, facilities & equipment

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# Dust

- Safety glasses and N-95 respirators as needed
- If possible, avoid dusty areas

# Mold – Indoor Practices

- Habitat
- Prevention, control and treatment
- Guidelines
- Avoid direct contact, wear N-95 respirator



# Mold – More Info & Health Concerns

## ➤ Mold Identification

- Eyes & Nose (testing is not necessary)
  - May need moisture meter

## ➤ Areas with Water

- bathrooms
- sinks
- basements

## ➤ Areas without insulation

- Windows
- outside walls & attics



Fix leaks

Reduce Humidity

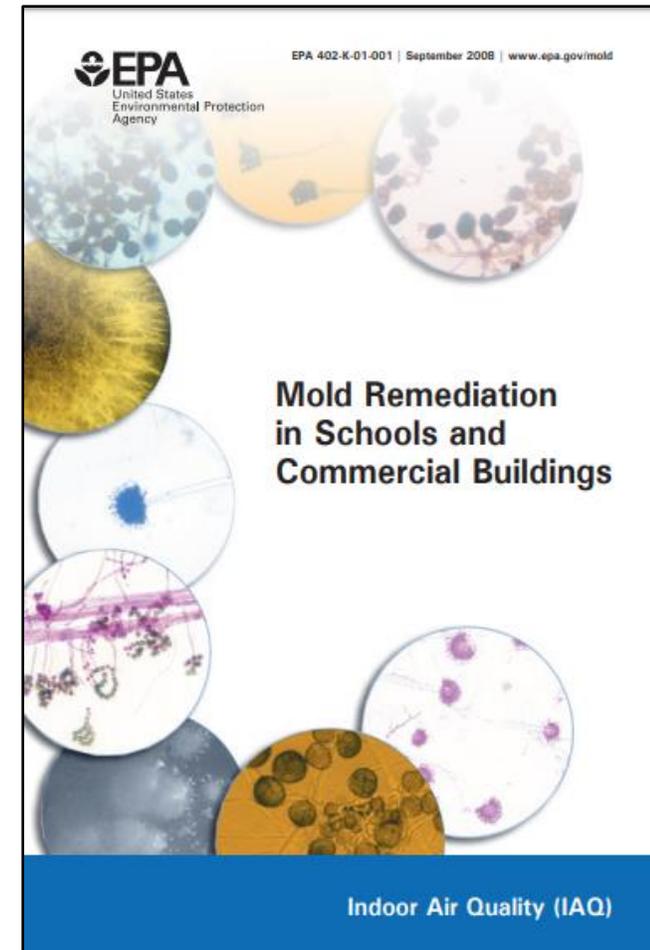
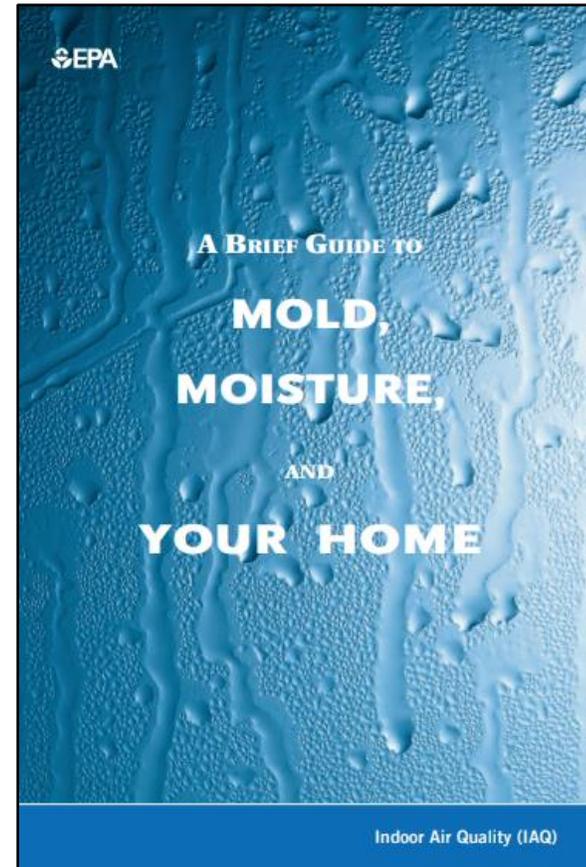
Dry Water damaged items within  
24-48 hours

- ▶ If you clean and don't fix the problem, mold will come back

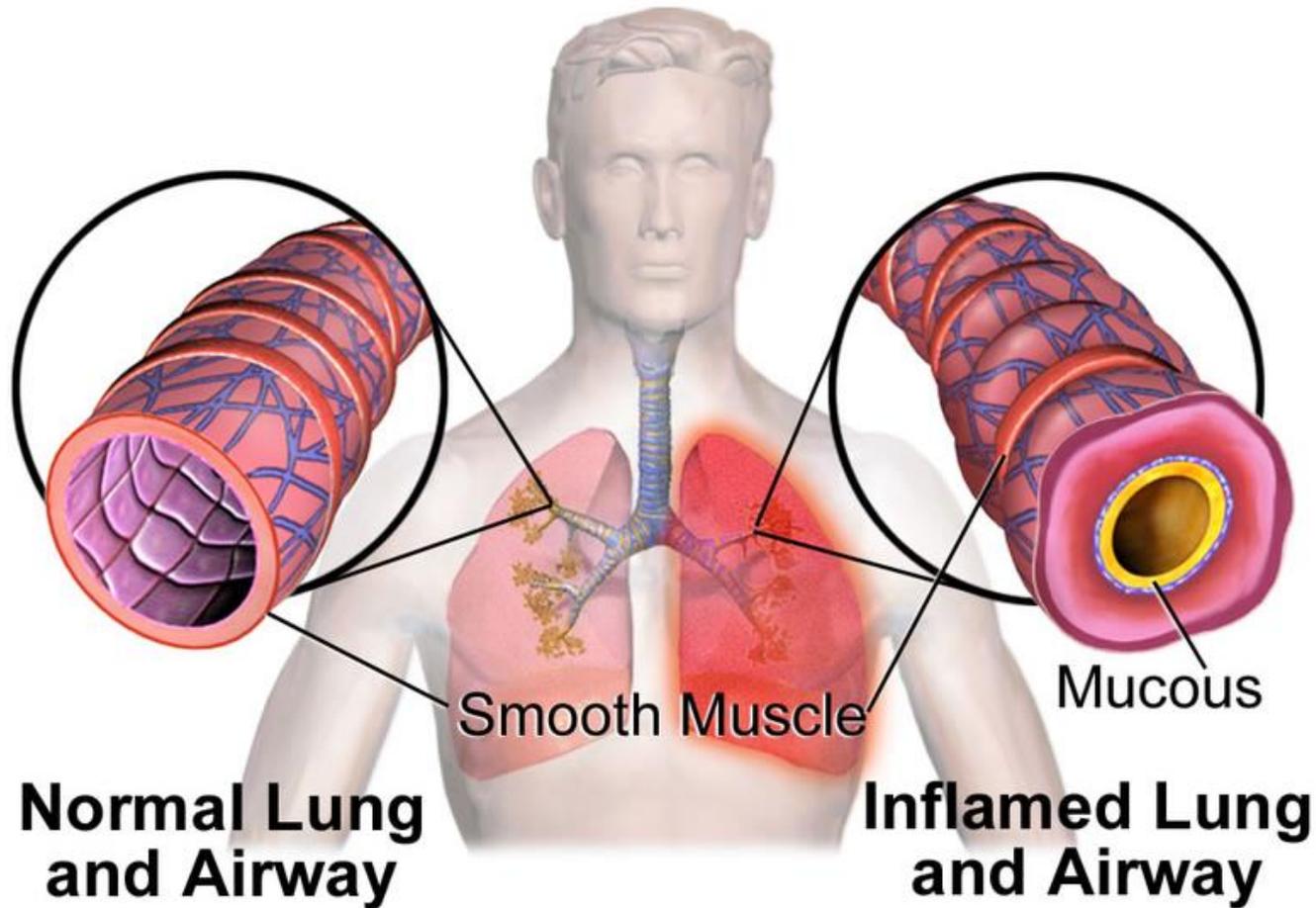
- [https://www.epa.gov/mold/interactive-mold house-tour](https://www.epa.gov/mold/interactive-mold-house-tour)

# Additional Mold Information

- [www.epa.gov/mold](http://www.epa.gov/mold)



# What is Asthma?



Asthma (AZ-ma) is a chronic (long-term) lung disease that **inflames and narrows the airways.**

Asthma causes recurring periods of **wheezing (a whistling sound when you breathe), chest tightness, shortness of breath, and coughing.** The coughing often occurs at night or early in the morning.



# Asthma Triggers

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- **Common Triggers:**

- Animal dander
- Pest allergens
- Dust mites
- Mold & spores
- Nitrogen Dioxide (NO<sub>2</sub>)
- Secondhand Smoke (SHS)

- **Bronchial Irritants from:**

- Cleaning chemicals (VOCs)
- Odors from student & staff school supplies (VOCs)
- Fragrances - Personal care or air fresheners/diffusers (VOCs)
- Food odors
- Dust/fumes from specialty classes (shop, art, etc.)

Information on Asthma Management in Schools: <https://www.epa.gov/iaq-schools/managing-asthma-school-environment>

- Exposure to air pollutants in wildfire smoke can irritate the lungs, cause inflammation, alter immune function, and increase susceptibility to respiratory infections, likely including COVID-19.
- Recent scientific publications ([Conticini et al., 2020](#) & [Travaglio et al., 2020](#)) suggest that air pollutant exposure worsens COVID-19 symptoms and outcomes.

<https://www.cdc.gov/coronavirus/2019-ncov/php/smoke-faq.html>



# How can we improve IAQ?



# Radon Mitigation Employee Health and Safety: Student Manual

<https://nepis.epa.gov/Exe/ZyPDF.cgi/20006B8T.PDF?Dockey=20006B8T.PDF>

- Bill Angell co-authored this manual with two graduate assistants

EPA

United States  
Environmental Protection  
Agency

Office Of  
The Administrator  
(A101F)

171 R-02-011  
April 1992

Radon Mitigation Employee  
Health And Safety:  
A Student Manual



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