



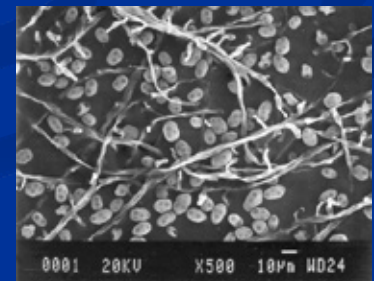
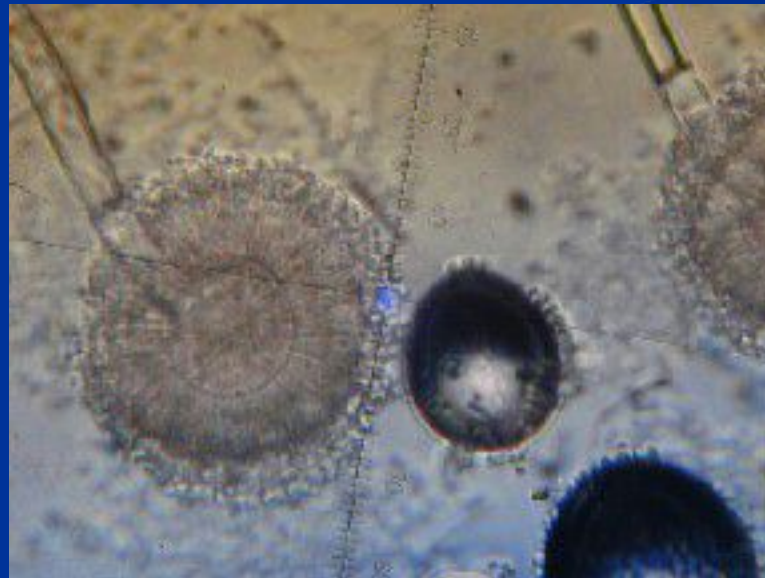
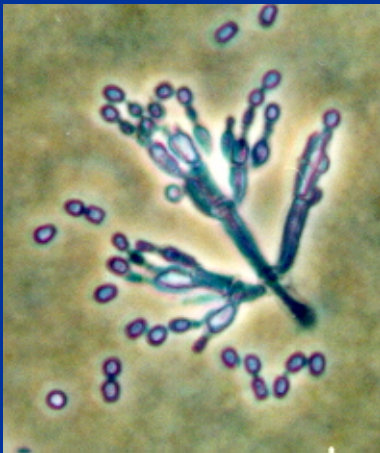
NADCA'S MOLD AWARENESS



The HVAC Inspection, Maintenance
and Restoration Association

WHAT IS MOLD?

According to Webster, mold is a surface growth of fungus (molds, mildews, and mushrooms) especially on damp or decaying matter.



BASIC DEFINITIONS

Mold – a one or many celled organism that relies on an external food source.

Mildew – disease that typically affects plants.

Spores – reproductive “seeds” of mold.

Mycotoxins – toxic chemicals found on the inside and outside of spores.

IS IT DANGEROUS ?

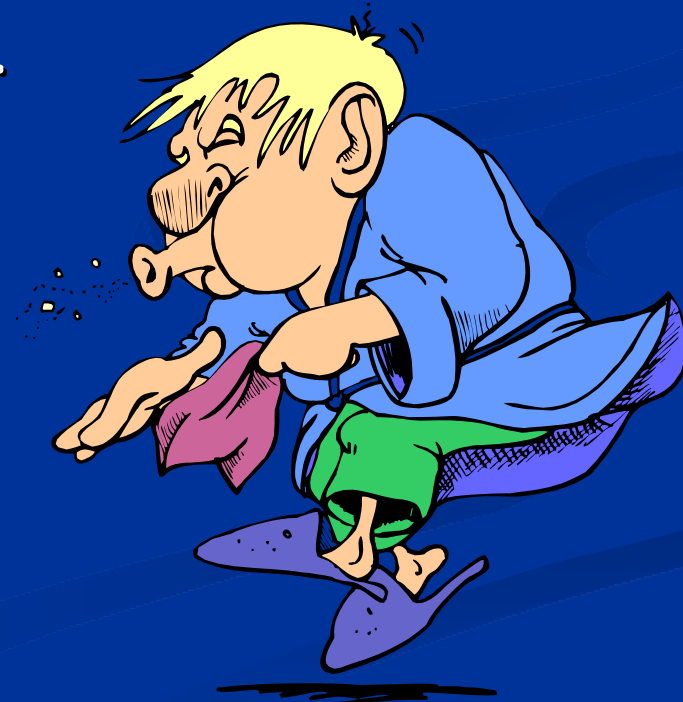
The most common types of fungi are generally not hazardous to healthy individuals.

However, people with asthma, hay fever, or other allergies or weakened immune systems are more likely to react to mold.



IS IT DANGEROUS?

The most common symptoms are runny nose, eye irritation, coughing, congestion and aggravation of asthma.





IS IT DANGEROUS?

A small percentage of the population can develop more serious effects, such as fevers and breathing difficulties.





IS IT DANGEROUS?

Even though mold affects people differently and may not affect certain individuals at all, it is important to take it seriously.



WHY DO WE HAVE MOLD?

Most molds are good and necessary.

Their ability to breakdown and decompose waste material keeps the earth from being overtaken by dead plants, garbage and waste.



WHY DO WE HAVE MOLD?

If there were no molds, life on earth would have ended long ago.





MOLD AND THE EPA

Ten Things You Should Know About Mold

1. Potential health effects and symptoms associated with mold exposures include allergic reactions, asthma, and other respiratory complaints.
2. There is no practical way to eliminate all mold and mold spores in the indoor environment; the way to control indoor mold growth is to control moisture.



MOLD AND THE EPA

Ten Things You Should Know About Mold

3. If mold is a problem in your home or school, you must clean up the mold and eliminate sources of moisture.
4. Fix the source of the water problem or leak to prevent mold growth.

MOLD AND THE EPA

Ten Things You Should Know About Mold

5. Reduce indoor humidity (to 30-60%) to decrease mold growth by: venting bathrooms, dryers, and other moisture-generating sources to the outside; using air conditioners and de-humidifiers; increasing ventilation; and using exhaust fans whenever cooking, dishwashing, and cleaning.
6. Clean and dry any damp or wet building materials and furnishings within 24-48 hours to prevent mold growth.



MOLD AND THE EPA

Ten Things You Should Know About Mold

7. Clean mold off hard surfaces with water and detergent, and dry completely. Absorbent materials such as ceiling tiles, that are moldy, may need to be replaced.
8. Prevent condensation: Reduce the potential for condensation on cold surfaces (i.e., windows, piping, exterior walls, roof, or floors) by adding insulation.

MOLD AND THE EPA

Ten Things You Should Know About Mold

9. In areas where there is a perpetual moisture problem, do not install carpeting (i.e., by drinking fountains, by classroom sinks, or on concrete floors with leaks or frequent condensation).
10. Molds can be found almost anywhere; they can grow on virtually any substance, providing moisture is present. There are molds that can grow on wood, paper, carpet, and floods.



WHERE DID IT COME FROM?

When excessive moisture or water accumulates indoors, mold growth occurs in most cases, especially when the moisture problem remains undiscovered or un-addressed.

WHERE DID IT COME FROM?

Moisture

Temperature

+ Food Source

Mold

WHERE DID IT COME FROM?

Moisture

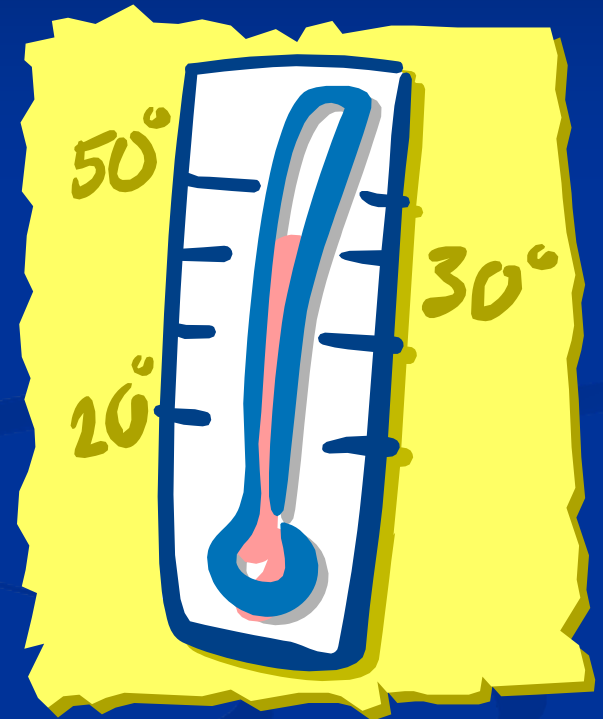
- Water Damage
- HVAC System
- Humidifiers
- Building Defects
- Landscaping



WHERE DID IT COME FROM?

+ Temperature

- Blocked/covered vents
- Faulty Mechanical Equipment
- Inadequate or lack of cooling system
- Heavily Contaminated Cooling Coils



WHERE DID IT COME FROM?

+ Food Source

- Dry Wall
- Ceiling Tiles
- Building Materials
- Dust, Dirt & Debris
- Contaminated HVAC System



WHERE DID IT COME FROM?

= Mold

- Walls
- Ceilings
- Flooring
- HVAC System





WHERE DID IT COME FROM?

It is not practical to think we can eliminate all mold and mold spores in our environment.

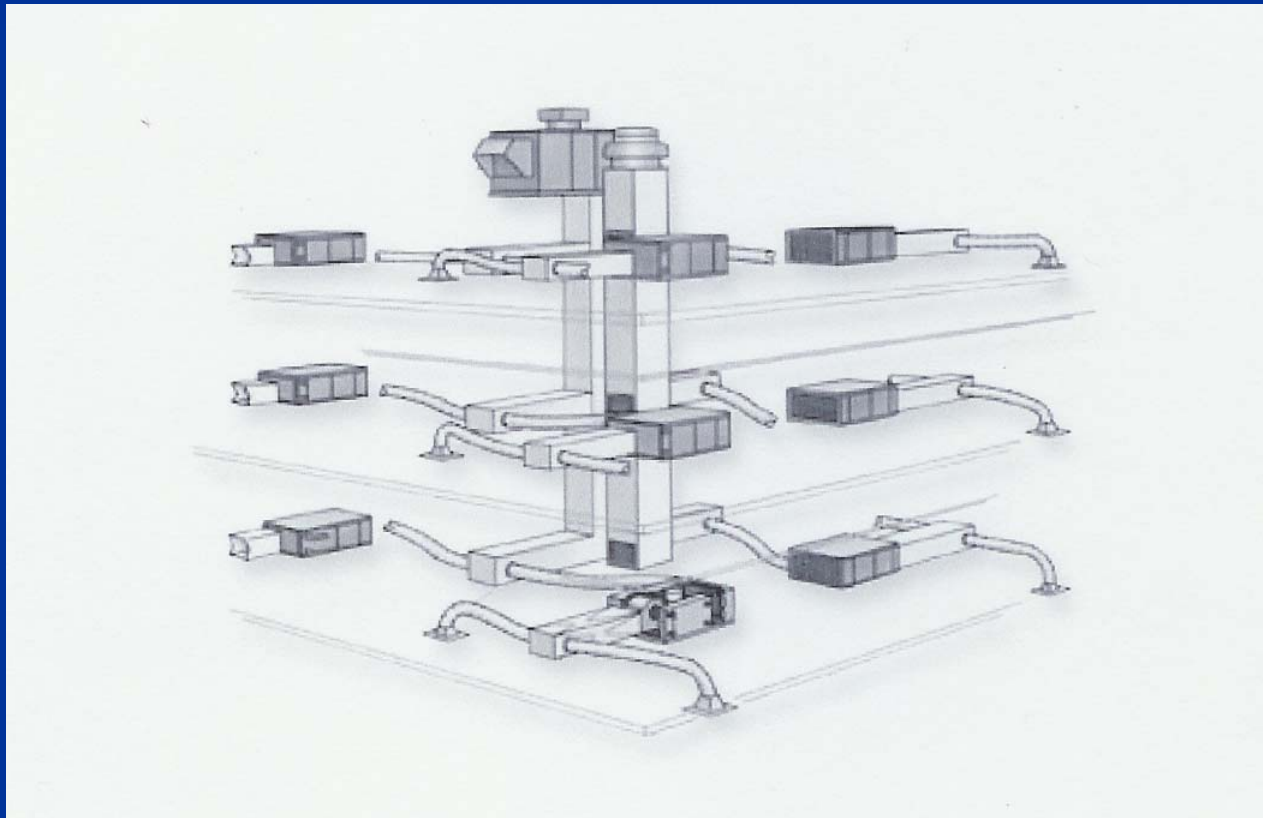
However, the way we can control indoor mold growth is to control moisture.

The key to mold control is moisture control.

Ref: EPA

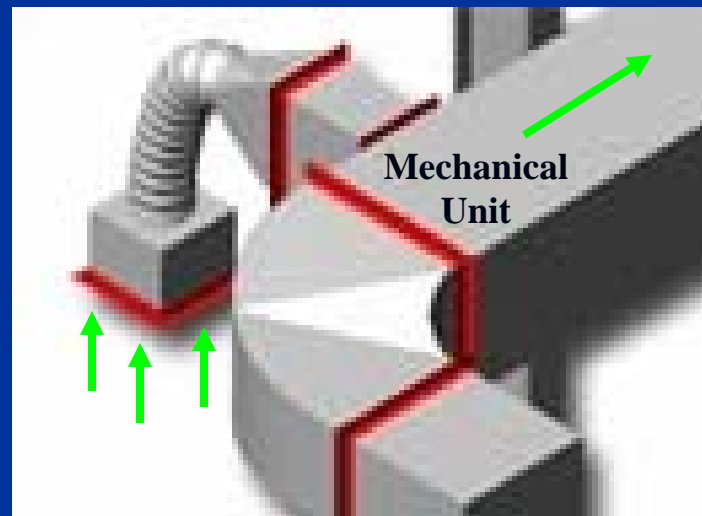
MOLD AND MY HVAC SYSTEM

The HVAC system is the lungs of the building.



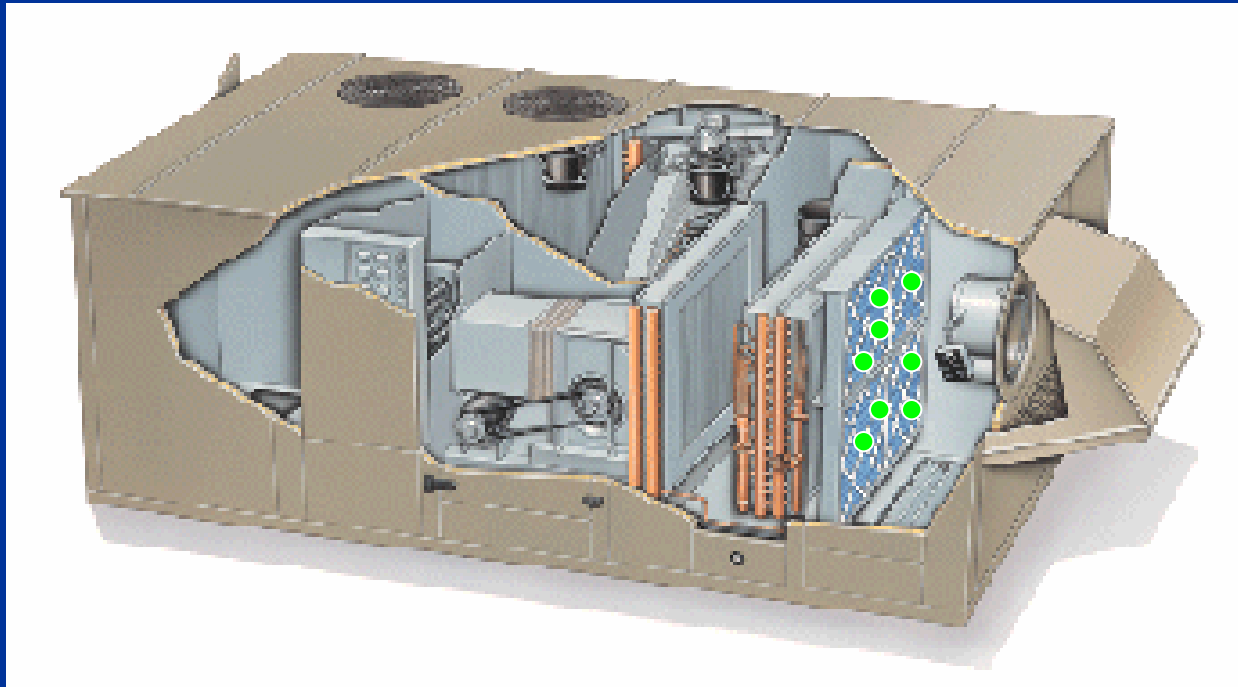
MOLD AND MY HVAC SYSTEM

Mold spores that are in the air are pulled in through the return air vents.



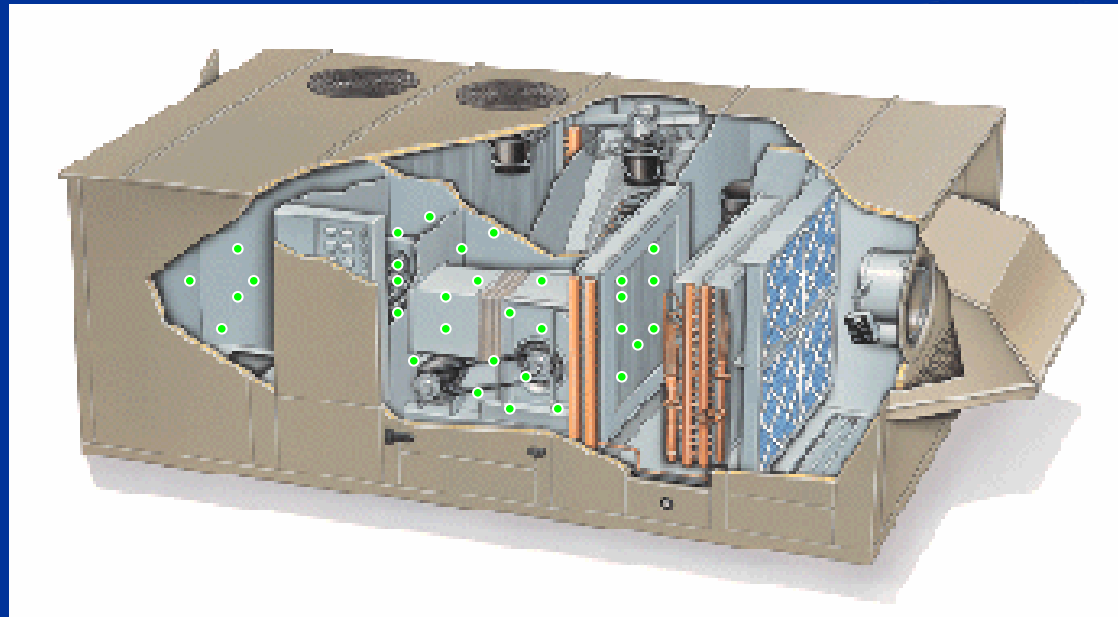
MOLD AND MY HVAC SYSTEM

Some of these spores are captured by certain filter media. However, many pass through the filter and contaminate the mechanical unit.



MOLD AND MY HVAC SYSTEM

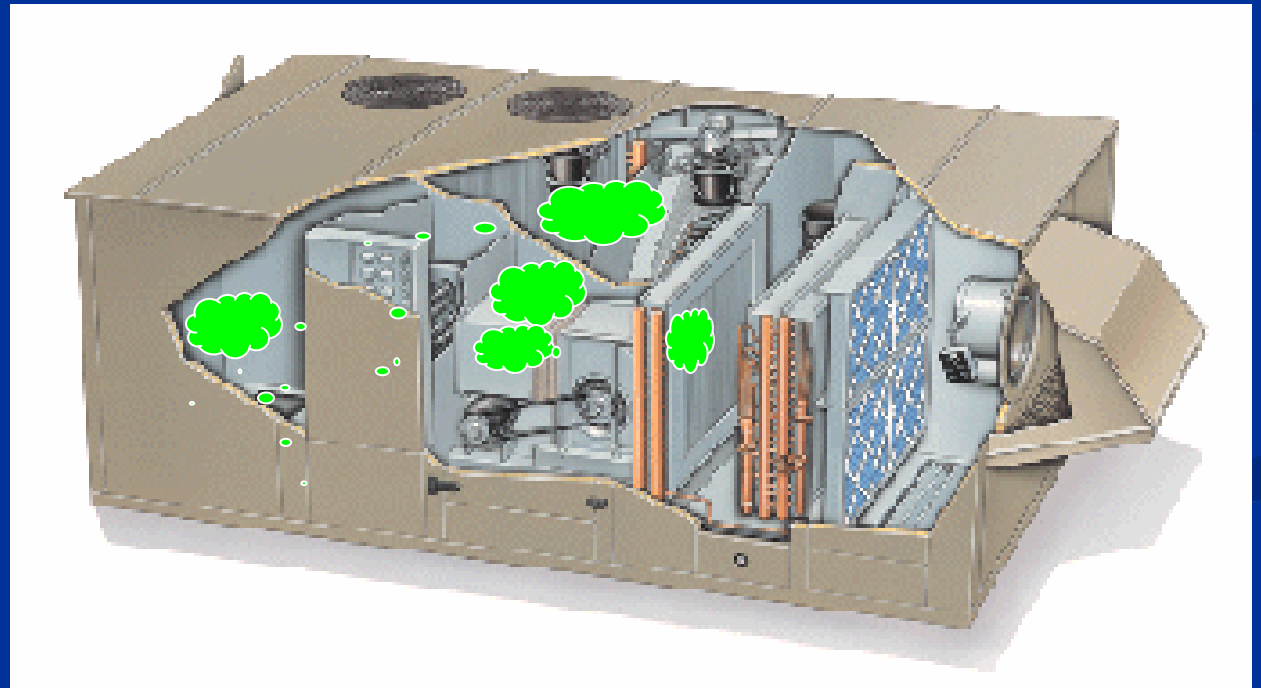
Once spores have entered the mechanical unit, they are provided with moisture and a food source, especially in dirty and un-maintained units.



MOLD AND MY HVAC SYSTEM

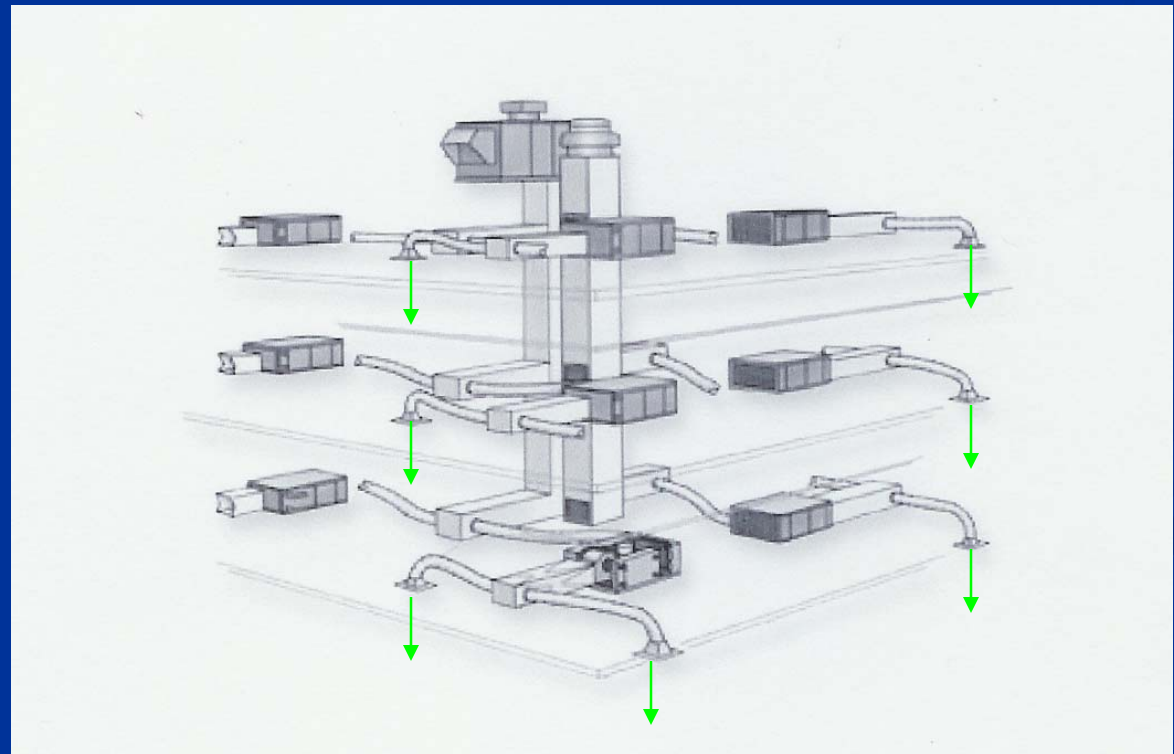
The mechanical unit can be a breeding ground for microbial contamination.

Cooling coils provide a great source of moisture.



MOLD AND MY HVAC SYSTEM

From the unit, many spores are sent downstream to be deposited throughout the building.





MOLD AND MY HVAC SYSTEM

Warning Signs

- Visible growth on or around air vents
- Condensation on air vents
- Odors when HVAC system is running
- Complaints from occupants
- Evidence of poor maintenance



MOLD AND MY HVAC SYSTEM

When You Have Warning Signs

- Don't panic
- Address safety and health issues
- Call a qualified professional
- Locate the source
- Communicate your actions
- Document your actions



MOLD AND MY HVAC SYSTEM

Don't Panic

Your problem can be solved. Act quickly and call for help.



MOLD AND MY HVAC SYSTEM

Address Safety And Health Issues

The safety and health of your employees and tenants should be your top priority. Relocate people if requested and always take health complaints seriously.



MOLD AND MY HVAC SYSTEM

Call A Qualified Professional

Your problem may become a disaster by trying to utilize building maintenance or janitorial staff to solve your situation.

MOLD AND MY HVAC SYSTEM

Locate The Source

Did the HVAC system
contaminate the building?

Did the building contaminate
the HVAC system?





MOLD AND MY HVAC SYSTEM

This is an important question to answer.

The only way to verify if the HVAC system is contaminated is through a thorough visual inspection.

MOLD AND MY HVAC SYSTEM

This inspection should be performed by a NADCA Certified Ventilation Inspector who is trained in inspection techniques.





MOLD AND MY HVAC SYSTEM

Regardless of the source, the HVAC system will need to be properly cleaned and de-contaminated.



MOLD AND MY HVAC SYSTEM

However, if the building is the source, you want to make sure it has been addressed in order to prevent recontamination of the HVAC system.



MOLD AND MY HVAC SYSTEM

Communicate With Your
Employees and Tenants

Don't keep dangerous secrets. Limit your liability by notifying employees and tenants what has been discovered and what is being done about it.



MOLD AND MY HVAC SYSTEM

Document Your Actions

If you didn't write it down, it didn't happen. Maintain a file of all correspondence with tenants, employees, contractors, insurance representatives and anyone else associated with the project.

HVAC REMEDIATION

It is important to understand that no state or federal regulations are in place at this time that directly address mold remediation.

Certain states have passed bills regulating remediation services but has not implemented them for enforcement.



HVAC REMEDIATION

In the absence of these regulations, it is important that companies performing microbial remediation in HVAC systems follow procedures outlined in current industry standards.



HVAC REMEDIATION

Industry Standard

ASSESSMENT, CLEANING, &
RESTORATION OF HVAC SYSTEMS

ACR 2006

HVAC REMEDIATION

HVAC remediation should only be performed by qualified individuals with a thorough understanding of:

- Building containments
- Maintaining negative pressure
- Equipment usage and maintenance
- OSHA requirements



HVAC REMEDIATION

By maintaining the property, HVAC system and addressing issues as they arise, building owners and managers will recognize the benefits of good indoor air quality (IAQ).



BENEFITS OF GOOD IAQ

- Increased Employee Morale
- Increased Productivity
- Improved Comfort
- Fewer Insurance Claims
- Reduced Legal Claims



THANK YOU