MOLD PREVENTION
An Overview

Central Arizona Project

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BIOAEROSOLS

Definition:

- Any airborne material which originates from living organisms
  - Viable & non viable molds & bacteria
  - Viable and non viable viruses
  - Fragments of any of the above
  - Toxins (Mycotoxins & Endotoxins)
  - Waste products (MVOCs)
  - Pollens, animal dander, insect parts, etc.
IS MOLD A PROBLEM?

Is there more mold in AZ now than there was 30 years ago?
- People move to AZ for health reasons
- TV, newspaper, Internet
- Construction issues
RECENT PUBLICATION

- Published in May, 2000
  - No exposure limit:
    - No single entity...
    - Responses too varied...
    - No sampling methods...
    - No dose-response data...
10 SECRETS OF MOLD

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- Health effects include allergies, asthma, and other respiratory issues
  - Known health effects
  - Not enough evidence to support other claims of adverse health effects
  - Risk Groups:
    - cystic fibrosis
    - steroid therapy
    - chemotherapy
    - ...hospital patients
    - HIV and AIDS
    - infants & elderly
    - asthmatics
HEALTH EFFECTS

- National Institute of Medicine
  - National Academy of Science
- Issued (5/25/04) a report on mold “Damp Indoor Spaces and Health”
  - [http://www.iom.edu/](http://www.iom.edu/)
  - “recent reports” - “2004” - “Damp…”
  - stated:
    - “sufficient evidence for upper respiratory tract symptoms, cough, wheeze, & asthma symptoms in sensitized person”
HEALTH EFFECTS

— “Damp Indoor Spaces and Health”:

- limited or suggestive evidence for “dypsnea, respiratory illness in healthy children, & development of asthma”
- inadequate or insufficient information to suggest more severe symptoms such as skin symptoms, fatigue, neurological, cancers, reproductive effects, immune diseases, AIPHI, and obstructive airways.
There is no way to eliminate all mold and mold spores from the environment

- We actually need the mold in the outdoors
- We don’t need mold indoors - but it’s very difficult to eliminate it

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TYPICAL LEVELS

* Phoenix metropolitan area
  - Typical calm outdoors (summer or winter)
    * 1,000 to 3,000 spores per cubic meter of air
  - Typical outdoors (Seattle/Birmingham)
    * 10,000 to 20,000 S/m³
  - Typical clean office building with well maintained HVAC & housekeeping
    * 300 to 500 S/m³

* Outside metropolitan areas
  - Typical outdoors: 300 to 500 S/m³
10 SECRETS OF MOLD

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* Fix the source of the water problem
  - Immediately or during cleanup
  - Don’t replace water damaged materials till fixed

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* You must clean up the mold and eliminate the moisture
  - Moldy materials must be **removed** from the building
FIX THE PROBLEM!

∗ Removal of mold growth is only cure!!
  – Bioaerosols will continue to be released
  – Mycotoxins reside on the spores
  – Spores are tiny (3 - 20 µm) and can pass out of wall cavities
  – People with sensitivities will still react
  – Risk Groups could still be at risk
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- Maintain indoor humidity to between 30% to 60% relative humidity.
  - Not much of a problem in Arizona!
  - In HVAC systems using chilled water…
    - ducts lined on “inside” trap organics & water
  - Outside the arid Southwest humidity is a problem:
    - dust mites/house mites
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★ Clean and dry within 24 - 48 hours
  – Mold does not grow fast enough to become a problem within 48 hours
  – Pre-select a qualified contractor and consultant
    ★ have their phone number close by
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* Clean hard surfaces with water and detergent; absorbent/porous materials may need to be replaced
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- Prevent Condensation
  - Water pipes are insulated to prevent condensation
    - Uninsulated piping leads to moisture dripping on walls and flooring
10 SECRETS OF MOLD

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★ Prevent Condensation
  – Cold exteriors - Warm moist interiors

★ Leads to condensation on windows and wet window sills and walls
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△ Do not install carpeting by drinking fountains, sinks, or on concrete with leaks or condensation

- Many molds consider carpet backing an excellent food source
- Carpeting acts as a “sink” for all kinds of organic debris (food source)
- It is difficult, if not impossible, to “clean” carpeting once it gets “dirty”
10 SECRETS OF MOLD

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* Molds can be found anywhere; they grow on virtually any substance if moisture is present
10 SECRETS OF MOLD

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- Molds can be found anywhere; they grow on virtually any substance if moisture is present
  - Keep the substance dry and mold will not grow
    * If it gets wet, dry it out quickly to prevent mold growth
  - Be Pro-Active
    * Names/numbers of qualified contractor
Thanks!

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