Introduction
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• There are about 94.7 million dwelling units in the U.S.
• Of these homes, 47 million were built between 1959 and 1975.
• Median age of a home is 30 - 40 years old
Water Infiltration

- Major cause of mold growth
- Present in app. 75% of all properties
- 70% of all homes show potential for mold growth
- Moisture is the leading cause of building problems costing more than $9 billion dollars annually in the US.
When Is It A Problem?

- When:
  - Growing in large concentrations
  - Actively producing spores and gases that become airborne and are inhaled in large numbers
How Mold Grows

• Finds suitable conditions
  – Water
  – Food
  – Temp (hot or cold)

• Grows

• Spreads
How Long Has Mold Been A Problem?

From Leviticus Chapter 14, verses 33-57

On the seventh day the priest shall return to inspect the house. If the mold has spread on the walls. He is to order that the contaminated stones be torn out and thrown into an unclean place outside the town. He must have all the inside walls of the house scraped and the material that is scraped off dumped into an unclean place outside the town. Then they are to take other stones to replace these and take new clay and plaster the house.

If the mold reappears in the house after the stones have been torn out and the house scraped and plastered the priest is to go and examine it and if the mold has spread in the house, it is a destructive mold: the house is unclean. It must be torn down - its stones, timbers and all the plaster - and taken out of the town to an unclean place.

Anyone who goes into the house while it is closed up will be unclean till evening.

Anyone who sleeps or eats in the house must wash his clothes...
Economic Factors

- $1.2 billion by insurers on mold repairs & litigation in 2001
- 10,000 mold lawsuits pending
  - 50% bad faith against insurers
  - 20% construction defects
  - 20% improper maintenance
Microscopic View of Mold Body
Mold Infestation in Vacant Dwelling
Localized Mold Contamination
Public Awareness

- Receiving Attention
  - Media
  - Medical
  - Legal
Lurking, Choking, Toxic

By Lisa Belkin

Congo’s High-Tech Frontier • Who Says Tans Have Faded? • Betting on Big-City Minor Leaguers
THE MOLD IN YOUR HOME MAY BE DEADLY

Is your home in danger?
Ron Allison suffered memory loss.
His son, Reese, has asthma and scarred lungs.
The cause: simple exposure to household mold.
How you can protect your family.
DANGER!
MOLD

IS YOUR SCHOOL INFECTED?

Your child’s classroom may be toxic. Across America kids are suffering nosebleeds, headaches, asthma—and worse. Find out where to look and what you can do.

also in this issue

Why chewing gum is good for your brain
Plus 6 more intriguing, amazing food findings

Author Matthew Klam on making a difference
A 380-square-foot office seemed like a Hollywood parody of Ghostbusters. In late December, when employees had to be evacuated, the tenant crew could remove potentially lethal mold spores. Now, the owner is asking who’s responsible.

Toxic Shock
MOLD BUSTERS

They come and give your house an environmental physical, often revealing all manner of bugs and fumes and gunk that can make your home—and everyone in it—sick.
Mold cleanup starts at apartments

Akron housing authority spending $800,000 to scrub Joy Park complex

By Bob Downing
Beacon Journal staff writer

The Akron Metropolitan Housing Authority will spend an estimated $800,000 to check for and deal with a potentially dangerous greenish-black mold in Joy Park apartment buildings in southeast Akron.

The agency also is in the process of removing the same slimy mold - called stachybotrys - from two of its empty apartments on Copley Road in southwest Akron.

Cleanup of the Copley Road apartments by Cardinal Environmental Services began yesterday, said AMHA Executive Director Tony O'Leary.

The mold was discovered in one Copley Road apartment by AMHA staffers after its tenants had moved out. It also was found in an area damaged by a leaky pipe in a second empty apartment in the same building.

No complaints were filed by the tenants, although the mold was "pretty obvious . . . and suspicious," O'Leary said.

The work at Joy Park, expected to begin Nov. 13, will include checking 23 empty buildings for the mold behind the walls and removing it, O'Leary said. In addition, new waterproof wallboard will be installed in the buildings to reduce the likelihood that the mold will come back.

"It's not yet resolved," he said of the mold problem. "It's something we're still working on very actively."

AMHA officials met yesterday with contractors, and bids for the Joy Park mold abatement work will be opened Oct. 31, O'Leary said.

The housing authority owns 41 buildings with 200 apartments at Joy Park: the 23 where the mold work will be done, two empty buildings to be razed and 16 occupied buildings, said construction manager Tom Gilbert.

He said the agency is unaware of any mold problems or complaints from tenants in the occupied and recently renovated buildings.

AMHA intends to check the mold in the occupied buildings after the agency gets a better idea of the scope of the problem in the empty buildings, O'Leary said.

He said the AMHA has knowledge that any Joy Park tenants have been exposed to the mold.
Why Is It A Problem Today?

• Recent discoveries linking the presence of mold with health problems
Help Yourself to a Healthy Home
Protect Your Children’s Health

U.S. Department of Housing and Urban Development, Mel Martinez, Secretary

- Indoor Air Quality
- Asthma & Allergies
- Mold & Moisture
- Carbon Monoxide
- Lead
- Drinking Water
- Hazardous Household Products
- Lead
- Pesticides
- Home Safety

EEA
ENVIRONMENTAL EDUCATION ASSOCIATES
Working to make our communities healthy
CASE STUDY

IMPROVED ASTHMA CONTROL AFTER REMEDIATION OF ENVIRONMENTAL STACHYBOTrys CONTAMINATION

Christopher D. Miller, MD; Susan M. Haplan, MS, CHL; Jay M. Perreny, MD

INTRODUCTION
Fungal exposures have been implicated in human and animal disease. In this case report, we propose that a non-IgE-mediated mechanism, and probably fungal mycotoxins, were responsible for worsening of asthma symptoms in a toddler. We also demonstrate the importance of environmental assessment and the effects of remedial remediation.

CASE REPORT
A 2-year-old white male with a previous history of asthma was brought to our allergy clinic with asthma symptoms that were not well controlled by his current medical therapy of 5 mg. prednisone daily. The patient’s symptoms included cough, rhinitis, morning, and evening sneezing, and wheezing. He was 16 months old. His symptoms were persistent and more severe in the mornings and evenings. His family history was negative for asthma disease.

On physical examination, the patient appeared to be an active, 2-year-old who weighed 20 kg. He was in the 25th percentile for height and weight and, according to his parents, his growth and development were normal. Physical examination was unremarkable, except for mild nasal congestion. The patient’s symptoms persisted. Because of the initial history, a home environmental assessment was performed.

The patient’s home was a 12-year-old, detached, bi-level house in an upscale neighborhood. It had a wood-burning fireplace, a central gas forced-air heating system, central air conditioning, and a finished walkout basement with carpeting. Several water leaks were noted in the basement during recent heavy rainfall.

RESULTS OF AIR SAMPLE TESTS (SPERMAL®)

<table>
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<th>Sample Date</th>
<th>Kitchen</th>
<th>Patient’s room</th>
<th>Basements</th>
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<td>11/12/97</td>
<td>10,000</td>
<td>11,200</td>
<td>12,200</td>
</tr>
<tr>
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<td>800</td>
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</tr>
<tr>
<td>2/12/98</td>
<td>0</td>
<td>100</td>
<td>100</td>
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</tbody>
</table>

Figure 1. Walls contoured with a black, slimy fungus later identified as Stachybotrys.

Figure 2. Picture of Stachybotrys isolated from contaminated surface.

Walls and ceiling in the patient’s room and kitchen were sampled for Stachybotrys. The results of the air sample tests are presented in the table above. There was a significant increase in the number of spores identified in the basement.

Figure 3. Photomicrograph of Stachybotrys isolated from contaminated surface.

The patient’s symptoms improved significantly after remediation of the basement. The patient’s parents were advised to use a high-efficiency particulate air (HEPA) filter and to install a new furnace filter. The patient’s quality of life improved, as assessed with a tool described by Jenkinson et al. The patient’s IgE response to the organism was less than 3,600 ng/mL, with normal being 0-99 ng/mL. Daily anti-inflammatory treatment improved. The patient’s symptoms improved after remediation of the basement. The patient’s symptoms improved significantly after remediation of the basement.
A Hidden Health Hazard

Sneezing and sniffing? Maybe the problem isn't a cold but mold. It's more dangerous than you think.

David Sherries at the Mayo Clinic performed a study of 210 patients with chronic sinus infections and found that most had allergic fungal sinusitis. "The prevailing medical opinion is that mold accounted for 66.7 percent of all chronic sinusitis," says Sherries. "We found that it was 63 percent—the exact reverse." More rarely, mold appears to cause problems like Karabell's. These aren't just allergies but reactions to toxins. Certain molds produce poisons in order to kill off competing fungi and bacteria. Risks of toxicity increase with the amount of mold—and flooding and leaks can supply the moisture that molds need to thrive.

If you believe you have a mold-related illness, consult an allergist or an environmental-health specialist. (If you can see or smell mold, that's a good clue.) They will at least be able to confirm the diagnosis and proceed accordingly. The best remedy of all is simply to get rid of the mold. Small blooms on the surface of walls can be removed with a weak solution of chlorine bleach. Wear rubber gloves, open the windows for ventilation and throw out the sponge afterward. A face mask may also be a good idea. "Dead or alive, mold still contains the proteins that provoke allergies," says J. David Miller, a mold specialist at Carleton University in Canada.

If your home has more extensive water damage, remediation may be the only answer. Seek professional help. You need to fix leaks, replace moldy drywall and improve ventilation. Review of built-in humidifiers in forced-air heating systems. "Molds and slime build up there and never get cleaned out," says Jack Spengler of Harvard. New York City has guidelines on remediation at www.ci.nyc.ny.us/html/doh/html/spm/moldrpt1.html. California state also has fact sheets at cal-iaq.org/taq/test.html to help you to a healthier home environment.
Why Is It A Problem Today?

- Changes in building design
- Energy issues
Building Owners Say Office Design and Construction To Change Significantly in Next Five Years

Key Driver Is Indoor Air Quality Concerns

Has the barrage of headlines about indoor air quality: “Is Your Office Killing You?” “Are Toxic Molds Giving You Headaches, Asthma - or Worse?” affected the sentiments of the nation’s owners and managers of commercial office space towards the future of building design and construction? Perhaps.

According to the fall issue of Risk Watch, a new survey just released by the Rockville, Maryland-based International Center for Toxicology and Medicine, 54% of the executives surveyed said they wouldn’t quarrel with the statement: “Growing public and regulatory concern about indoor air quality (IAQ) will likely lead to significant changes in building design and construction within the next five years.”

Specifically, 34% said they agreed with that statement while another 20% said they agreed strongly. Some 37% said they’d neither agree nor disagree, while only 9% disagreed.

More generally, 62% agreed that “indoor air quality is likely to become a more significant issue in the years ahead.” Of the remaining respondents, 20% neither agreed nor disagreed with the statement while 18% disagreed.

In concert with the majority view, two-thirds (67%) of the commercial space owners and managers said they also wouldn’t quarrel with the statement: “Indoor air quality is likely to become an even more challenging issue because concerns are often based on tenants’ perceptions of problems rather than the problem that has been diagnosed.”

Either currently developing or updating a plan and 15% said they expected to have a plan in place in the near future.

Additionally, the survey found only mixed concern among the respondents about the possibility of regulators modifying code requirements to address potential IAQ issues.

Moreover, only 17% of the building owners reported that they had had an indoor air quality problem and, of this group 36% said the problem was costly or very costly versus 30% who said it was not costly at all.

Likewise, 71% of those who reported an IAQ problem said the problem was “readily identifiable.” Over half (53%) from this same group said the problem was either comfort-related or health-related (24%).

Over half (53%) said the IAQ problems they experienced were related to air conditioning, air exchange, allergies, asbestos, chemicals used in business operations, or various odors. Another 35% said the problem stemmed from molds; 24%, new office equipment odors; and 12%, cleaning chemicals.

About this Survey

This edition of Risk Watch is based on interviews conducted in August with 102 building owners from across the country.

The interviewees – all of whom were polled by telephone by an independent, Nashville-based opinion research firm - were drawn from the ranks of building owners, municipal, state and Federal officials, corporate counsel, defense attorneys, risk managers, and environmental health professionals.

The preceding article was reprinted from the first edition of “Risk Watch”, a new publication from International Center for Toxicology and Medicine (ICTM) covering timely, survey-based information on environmental health and risk issues. Four times a year “Risk Watch” will report the findings of independently conducted surveys of interviewees drawn from the ranks of building owners, municipal, state and Federal officials, corporate counsel, defense attorneys, risk managers, and environmental health professionals.

Growing public and regulatory concern about indoor air quality will likely lead to significant changes in building design and construction in the next 5 years.

From the earliest days of environmental regulations we have provided solutions to environmental risk matters – real, perceived and scrutinized by governmental agencies. We have been called upon by International Agencies to devise new risk-based standards. In communities frightened by chemical releases, explosions, degraded water quality and contaminated scars of toxic tort, mass tort and class action lawsuits.
Why Is It A Problem Today?

- Insurance, Lawsuits & Litigation
TOXIC MOLD: ... the Next Asbestos?

By Sylvia Hsieh

Claims for personal injury and property damage caused by mold growing inside buildings are on the rise, plaintiffs’ lawyers and insurance defense attorneys tell Lawyers Weekly USA, and some experts predict they will be the next big tort wave.

"It is a trend. It’s one of the hottest areas in construction defect as well as toxic tort law. I view these mold claims as similar to asbestos 30 years ago," says Alexander Robertson, a Los Angeles plaintiffs’ lawyers who is currently representing over a thousand plaintiffs against hundreds of building owners for mold contamination.

Injuries from mold range from respiratory problems, skin rashes and headaches to lung disease, cognitive memory loss and brain damage, experts say.

"Mold is everywhere. There are no specific government guidelines and not a whole lot of medical information on it. It’s ripe for lawyers to get into and expand it," says Sara Thorpe, a San Francisco defense lawyer.

"Anytime you have some water penetration (in a building), you have potential for mold — and a lot of potential for litigation," says David Governo, a Boston toxic tort defense lawyer.

Claims include:

- property damage and personal injury claims against building;
- construction defect claims against builders, contractors and architects;
Mold chasing 270 from apartments: Complex owners give residents until Nov. 30, offer some help

By Andrew LePage
Bee Staff Writer
(Published Oct. 28, 2000)

The owners of a 190-unit apartment complex in Antelope have ordered their 270 tenants to vacate by Nov. 30 so the units can be tested for and cleared of mold.

Those tenants of Deer Park Apartments, 8303 Walegra Road, have been offered between $2,000 and $4,000 to help clean or replace any contaminated belongings.

However, that is far below the $12,000 to $17,000 the owners agreed to pay some former Deer Park residents to settle a property damage claim of mold contamination, an attorney for the tenants said.
Mold verdict: $18 million

KELLY JOHNSON / STAFF WRITER

A federal court jury in Sacramento on Tuesday awarded a 96-year-old Placerville man $18 million in punitive damages in his bad-faith insurance claims-handling lawsuit against Allstate Insurance Co.

“Allstate could have repaired my house for a little over $30,000 to start with,” Tom Anderson said after the decision.

Allstate, the nation’s second-largest home and car insurer, plans to appeal.

Anderson’s house was damaged more than 3½ years ago when a water pipe burst and mold took hold throughout the modest structure. He rejected Allstate’s offer of $17,300 to repair the house and sued Allstate in July 1999.

“Thank God it’s over,” he said Tuesday. Anderson won’t collect any money while the case is on appeal. Usually it’s a two- to three-year process,” said Ron Haven of the plaintiff’s law firm, Shepard & Haven, in Sacramento. Anderson’s lead attorney was Stan Parrish.

son said, he had killed down the mold, but didn’t eliminate it. Now the house must be torn back down to the frame.

At trial, an Allstate expert disagreed.

Tom Anderson, who has been living with his son, misses his own home, yard and neighbors.

A year ago Alan Anderson figured that Allstate was waiting for his father to die because the bad-faith lawsuit would have died with him. Now, if Tom Anderson were to die before the appeal is decided, the economic and punitive damages would remain, while the non-economic damages would be lost, Haven said.

“It is a big victory,” Alan Anderson said, “for the little guy.”
Mold Exposure

- Inhalation – most common
  - Respiratory disease
  - Allergic reaction
  - CNS dysfunction
- Dermal – irritation/infection
- Ingestion -infection
  - Direct via contact
  - Indirect via foods/objects
Health Effects

- Flu symptoms/headaches
- Allergic Reactions
- Respiratory failure/asthma
- Nose bleeds/bleeding lungs
- Neurological disorders
Agency Regulations & Recommendations

- New York State Department of Labor
  - Training & Certification
  - Remediation & Assessment Practices
- New York City Department of Health
  - Cleanup Standards
- USEPA
  - Info for Homeowners & Renters
  - Schools & Commercial Buildings
- OSHA
  - Worker Protection Standards
- NIOSH
  - IAQ Guidelines
- IICRC
  - Principles of Mold Remediation