

**“Mold in the built environment”**

Brian Dicken

# How Long has Mold Been a Problem?

- Mold in the built environment has been a problem for a while...
  - The “Ergot Epidemic”: Mold-induced food Poison in Europe
  - The “Irish Potato Famine”: Mold stricken plants
  - The “Bible”: Leviticus chapter 14

# Why Is Mold A Problem Today?

- Mold Problems have been receiving a lot of attention due to the vast amounts of sickness and lawsuits that have been created.
- Since the 1970's, home construction has changed.

# Health Effects

- Respiratory system
- Immune system
- Neurological disorders
- Nose bleeds/bleeding lungs
- Coughing/Sneezing/Watery eyes
- Allergic reactions/rashes
-

# Exposure

- Inhalation of spores and mycotoxins
  - Spores are just the right size to go into our lungs
- Skin contact
- Ingestion



# Exposure

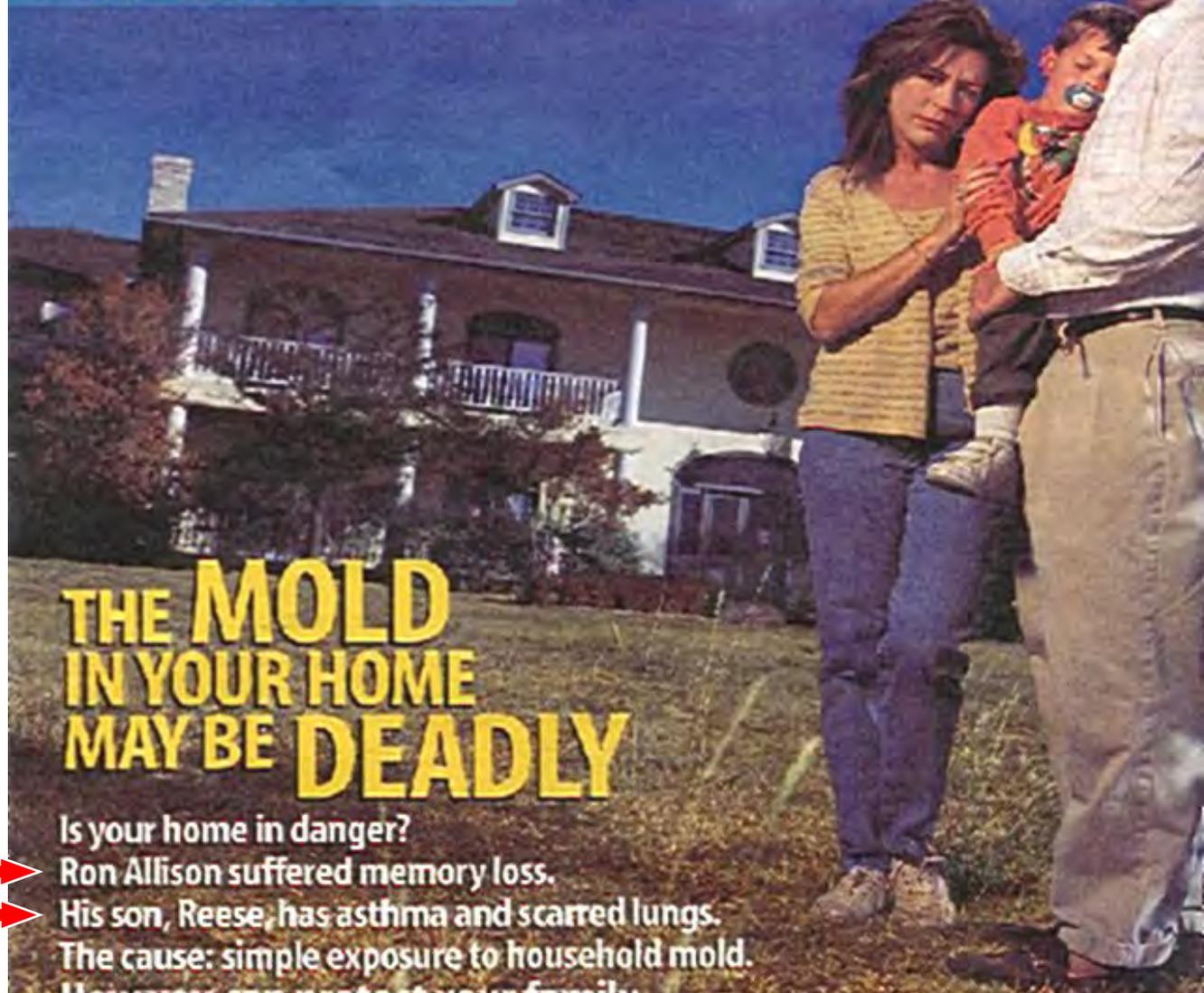
- Higher risk of problems (opportunistic infections) in immunocompromised individuals
- Increased risk in children
- Increased risk in elderly

# Health Effects

DECEMBER 5-6, 1999 [usa.weekend.com](http://usa.weekend.com)

# USA WEEKEND

- ▶ Best of the Web: Holiday gift bargains, p. 7
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## 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.

# Health Effects



“Our dream house  
turned into a  
**nightmare**”

By Kathryn Casey

Shortly after they moved into their new home, the Devault family began to get sick. What they discovered behind the walls left them hundreds of thousands of dollars in debt—and tore the family apart

# Mold Infestation Is Threatening Homes on Native American Land

## Deaths, Illness Traced to Infestation

By Brian White  
Associated Press Writer

BELCOURT, N.D. — Lowella Allard no longer goes into her basement, where mold grips the walls and the damp, thick air is hard to breathe. Mold, she says, festers inside the insulation and is the reason behind her dry cough and frequent headaches.

"I go through Tylenol like crazy and I just don't get any better," Allard said during a tour of her home by officials from the Federal Emergency Management Agency, the Indian Health Service and the Bureau of Indian Affairs.

Some 320 federally subsidized homes on the Turtle Mountain Indian Reservation are infested with mold. Residents say the infestation is sickening, and tribal officials say at least seven deaths in recent years could be related to the infestation, which is so pervasive they estimate 210 homes will have to be destroyed.

Roughly 4,000 houses occupy the 72,000-acre reservation in north-central North Dakota. About 8,300 people call it home.

Most of the infested homes are small — about 600 square feet with two bedrooms. They are built of wood-frame construction, have dirt floors and sit on a concrete block foundation over crawl spaces.

Tribal officials are especially worried about the black mold, which can cause flulike and allergylike symptoms that can include skin rashes, inflammation of the respiratory tract, bloody noses, fever, headaches, neurological problems and suppression of the immune system.

Charlissa Decoteau, whose mold-infested home was one of the five that officials visited in July, said she believes the mold contributed to the death of her 15-month-old daughter in 1998. Kyra Rose died shortly after running a 105-degree fever.

"That much mold has got to do something to a baby," she said. "There's mold everywhere."

The tribe believes two dams — Belcourt Dam near the city and Gordon Lake Dam, just off

*Most of the infested homes are small — about 600 square feet with two bedrooms. They are built of wood-frame construction, have dirt floors and sit on a concrete block foundation over crawl spaces.*

the reservation — may be contributing to excessive moisture, which could be exacerbating the mold. Additionally, a wet cycle in recent years has enabled the mold to thrive in homes. Crawl spaces under some homes are flooded with 2 feet to 3 feet of standing water.

After a brief visit to the stuffy basement as Allard waited in her kitchen, Sen. Kent Conrad of North Dakota said he could understand why she stays upstairs.

"This is bad. No wonder the woman is sick," he said as his eyes swept over a mold-covered wall.

Later in the tour, he said he, too, felt unwell even though his visits indoors were brief. "I've never had that feeling in my life," he said as he described being overwhelmed by musty air that made him gag.

"There are certainly a number of unexplained deaths, especially of children," Conrad said, "and we know that they had respiratory problems and we know that respiratory problems are caused by this type of black mold."

Tribal chairman Richard Monette said seven or eight deaths in recent years are believed to be related to black mold.

"We have no idea the scope of this health problem," he said. "The one thing that's clear to me is that it's going to be beyond what everybody is going to want to guess."

In response, tribal officials have sought federal help.

Congress approved \$5 million in July to address the problem, and Conrad, who describes the infestation as an emergency situation, said he is seeking another \$4 million.

"Uncle Sam can't be a slum lord," Conrad said. "The federal government's got a legal liability here."

But even the additional money, Conrad conceded, likely won't be sufficient to fully address the problem. He estimated about \$20 million would be needed.

"This is not a circumstance where you've got a little mold in a corner," Conrad said. "This is a situation where you have mold that's throughout the structure ... in the insulation, in the ceilings. I've never seen anything quite like it."

Two recent reports commissioned by the tribe have found large amounts of sickening mold in homes, and the authors recommend moving residents out as soon as possible.

"Let's just say it's as bad a mold situation as I've ever run across, and I've been doing this for almost 15 years," said Ronald Pearson, the principal toxicologist and industrial hygienist for Environmental Health and Safety Inc., a private consulting firm in St. Paul, Minn.

The Centers for Disease Control and Prevention is in the preliminary stages of testing homes for black mold, spokeswoman Bernadette Burdon said.

A preliminary CDC report found that three out of every four homes sampled had mold, said Becky Phelps, director of the Turtle Mountain Housing Authority.

The tribe already has moved about 25 families from severely infested homes to less moldy ones. But some reservation residents have held protests, saying a response to their plight is not happening fast enough.

"We've been moving people out based on medical emergencies as we get other units vacated for them to move into, but we're bottoming out in that area," Phelps said.

The Army Corps of Engineers has also signed on to help build about 40 new homes, said Tim Grundhoffer, a civil engineer with the corps. Construction is due to begin in September.

# Health Effects

# What is Mold?

- It's simply a fungus.
  - Mushrooms, smuts, rusts, mold
- Main purpose is to break down dead materials.
  - Such as wood and fibers (substances used in building materials)
  - It breaks down our building materials

# What is Mold?

- Molds produce airborne spores and gases.
- Molds like moisture.
- On average molds like temperatures between 32 to 104 degrees Fahrenheit.
  - They really like it between 60 and 104 F
  - Typically molds do not die above or below these temperatures, they go dormant

# Ecology

- Absorbs water from soil, wood, organic materials
- Occupies 25% of earth's biomass
- Requires greater than 60% relative humidity
-

# Moisture

- Moisture is the problem, mold is the symptom
- You cannot totally get rid of ALL mold
-

# Growth

- Most spores germinate within 12-48 hours
- Colonies will develop in 1-12 days after activation
- Can be colorful
- Velvety, granular, slimey, cottony, leathery
-



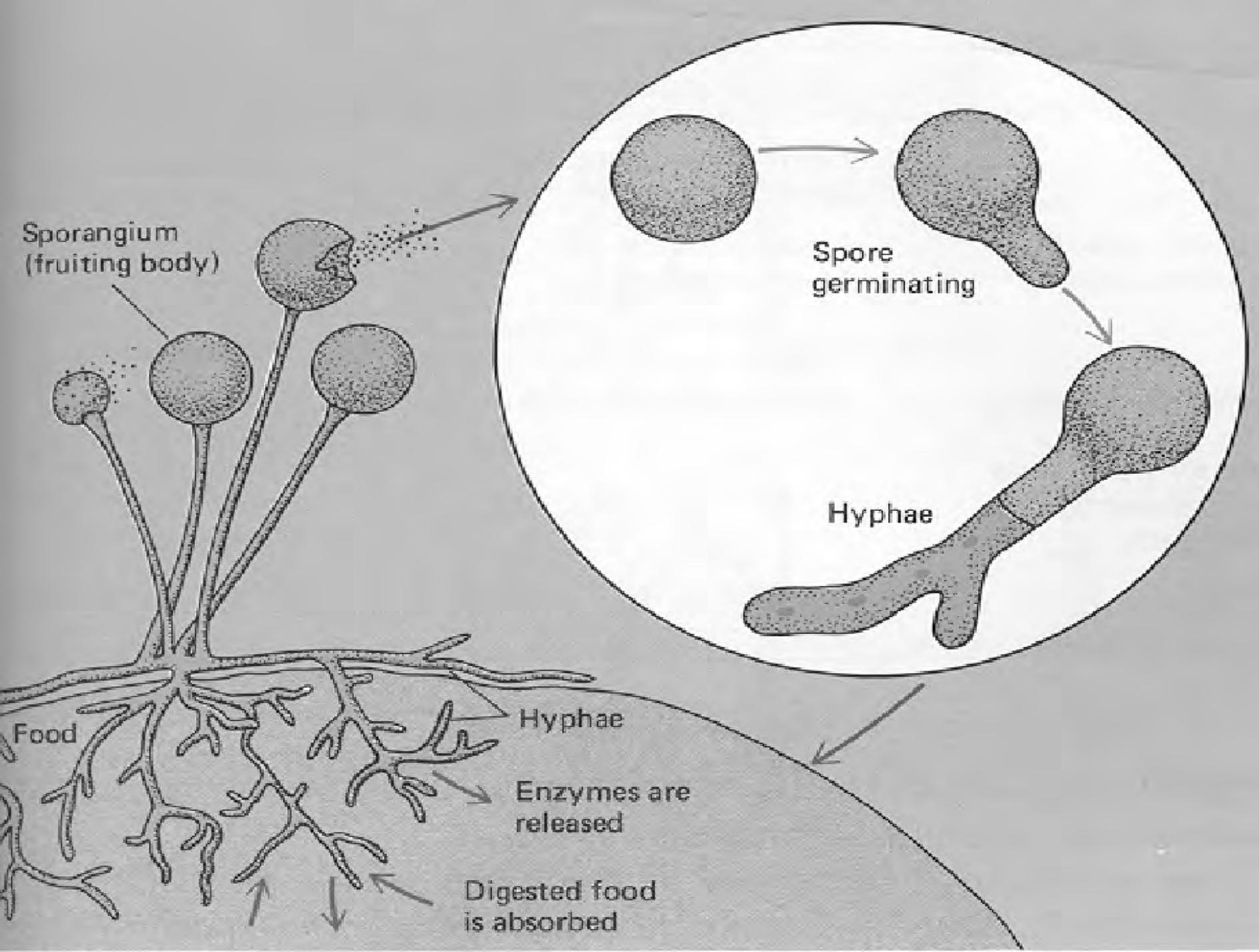
Production of a fruitbody of *Serpula lacrymans* in an apartment in three weeks! The floor has turned brown from spores.











# What Is Mold?

- Molds are divided into 3 basic groups:
  - *Allergenic*: Molds that can cause symptoms such as coughing, wheezing, runny nose.
  - *Pathogenic*: Molds that can cause suppressed immune systems.
  - *Toxic*: Molds that can cause serious health effects in almost everyone.



# Why is Mold More Prevalent in Homes Today?

- Since the 1970's oil shortage, home construction changed dramatically.
  - Heavier insulation of homes
  - “Wrapping” of homes with a vapor barrier
  - Creation of less outside air ventilation
- Building materials
  - Wood products are not kiln dried due to supplier demand
  - Other materials are more “platform” friendly for mold

5. Install window

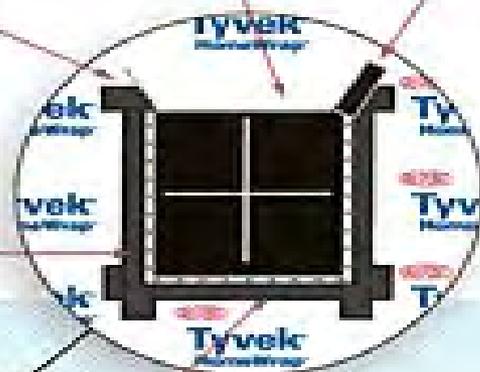
4. Insert head flashing under flap

6. Tape diagonal cuts

3. Cut Tyvek flap at 45° angle

2. Side flashing over sill flashing

1. Install sill flashing



Vapor Barrier

Insulation

# Why is Mold More Prevalent in Homes Today?

- According to the statistics from the Bureau of the Census, 35% of homes are damaged due to water or moisture.
  - Water intrusion in basements
  - Sewer or septic breakdowns
  - Water supply leaks
  - Improperly vented fans and appliances
    - Bathroom exhaust fans
    - Dryer exhaust

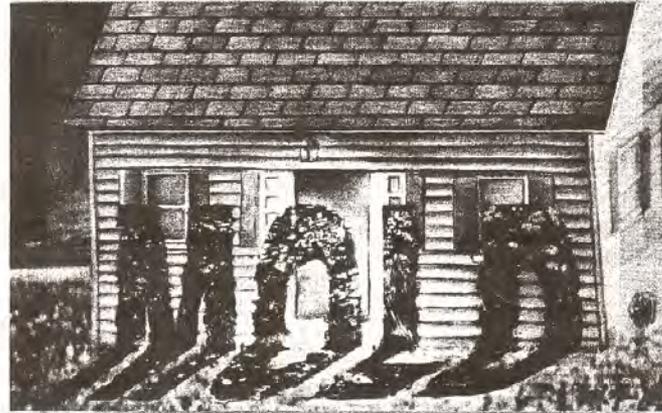
# Regulations and Standards

- Allegany County has no Health regulations based on IAQ
- Standards are based on research primarily through HVAC and Industrial Hygiene
- 
- Variability and complexity of fungus and sampling may be the reason

# Litigation

- Most claims are based upon the allegation that the companies (realtor and inspection firms) should have known about the mold or possibilities of mold and did not disclose it.
- Other claims are made when the mold is disclaimed and the inspector did not report on the water damage/entry to the buyer.

## The Law & You



# Litigation

## Mold: a fungus among us

To reduce liability, seek red flags, then defer to experts.

BY ROBERT BRAND

Unquestionably, the disclosure du jour in residential real estate is mold.

Toxic mold, as it's been called, is an increasingly important issue for real estate professionals. There are several reasons:

- Modern energy-efficient building practices provide a conducive environment for mold growth.
- Public awareness on the topic has grown.
- Litigation activity has increased after several recent multimillion-dollar judgments.

Recently, for example, a Texas court awarded a family \$32 million from their insurance company for alleged mold exposure. The verdict included payments for property damage, mental anguish, punitive damages, and legal fees.

With judgments like that, you can

be sure mold lawsuits are here to stay.

At the outset, you should understand three key points about mold liability:

1. As a real estate professional, you don't need to become an expert on mold.
2. Large legal settlements don't change what you're responsible for disclosing.
3. Some basic and simple strategies can equip you to address this important issue.

Mold, a fungus, is ubiquitous, found everywhere indoors and out. It appears as a woolly growth on damp or decaying organic material. Most of it is harmless. But some varieties, such as the aspergillus and stachybotrus strains, are known to produce potent toxins under certain circumstances.

Mold needs two conditions to

thrive: moisture, often resulting from leaky roofs, defective plumbing, drainage problems, and high-humidity rooms (such as laundry rooms); and a food source, such as certain types of insulation, wood, and carpeting.

Many times, mold is easily eliminated by removing the water source or applying common housekeeping practices, such as thorough cleaning with bleach. However, when the mold is concealed and conditions are favorable, it can take hold and release a steady stream of spores into the air, which people then breathe in.

Those who suffer from mold exposure complain most often of respiratory problems, skin irritation, and nervous system disorders. There is much disagreement in the medical community about the precise correlation between mold and health problems, but mold is a serious enough threat that it has its own page on the EPA website (go to <http://www.epa.gov/iaq> and click on Mold Resources).

Because major mold problems often start with slight indicators, you should be alert to red flags when conducting your visual inspections. The most common telltale signs are staining on walls and ceilings and a musty, mildewy odor. Discoloration can range from common water stains to the multicolored variety.

So what do you do when you detect a red flag or find out that red flags have been detected by a home inspector, a pest control company, or a prospective buyer? Federal and state protocols on mold exposure in residential structures range from minimal to nonexistent. In May the California Senate approved the country's first mold bill, which sets standards for acceptable indoor levels and requires homesellers to disclose

Fall/Winter  
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## MOLD-NO LONGER CONFINED TO THE REFRIGERATOR

... has found its way out, creating a nightmare of serious health problems. The next three articles appeared on the REALTY TIMES websites. Hopefully they will provide the reader with some insight to this problem plaguing many homes across the nation. Reprinted with permission from Real Time, www.realtytimes.com.

## MOLD CASES SPREADING, SAYS REAL ESTATE DEFENSE ATTORNEY- ROBERT BASS

by Blanche Evans

# Litigation

Nobody is to blame, yet everyone is ducking for cover because a buyer is likely to be out over \$60,000 on a problem that is no fault of her own.

An Arizona buyer, represented by her own agent, pays over half a million dollars for a home from a seller who was not the home's occupant. She accepts a buyer's inspection offered to her by the seller which was performed at the request of a previous buyer. The buyer's agent does not recommend that the buyer get her own inspection. After moving in, the buyer ripped out the kitchen cabinets to start a remodeling project, revealing a huge, virulent mold stain. Suddenly the buyer's allergies were inflamed. Upon learning that the mold would take about \$50,000 to \$60,000 to remediate, she went to her homeowner's insurance to cover the expense. The homeowner's insurer denied coverage calling it a preexisting condition. She went to the seller, who tried to get his

insurance company to cover the damage, but coverage was declined because no one could point to an event such as a flood or a crack in the foundation that caused the mold to grow. So the buyer sued the listing agent.

That's when real estate defense attorney Robert N. Bass stepped into the case.

"I am beginning to see an increase in court cases regarding mold," says Bass. "What concerns me most about this subject is the number of alarmists who are running around saying the sky is falling. There are people in the business of suing over mold, or remediating it. They have an interest in making this a huge issue."

That's why Bass says brokers and agents had better get used to the idea of hearing more and more about mold. "I read reports from environmental people that make you think you have to abandon the property or you are going to die. They are hysterical in tone, sometimes," says Bass. "I view mold and fungus as basically just another critter. The environment is full of critters from termites to scorpions to spiders to ants."

What is mold and why is it a danger to you and your E & O insurer? "Mold is an opportunistic creature that likes wood as its feeding ground, and it also likes wet dry-wall," explains Bass. "There are all kinds of mold with varying levels of potential toxicity. Similarly, people have varying degrees of sensitivity to various types of mold. I

could live in a home with mold and have no problems and someone else could walk in and immediately have trouble breathing."

That's what happened in Bass' case. He happened to personally know the hapless buyer who bought the moldy home, and knew her to be a woman of character who would not sue anyone frivolously.

"This case is a textbook example of a latent defect," says Bass. "The plaintiff happens to be very allergic to it and she wants someone to pay, but who is really at fault? The seller, real estate agents, home inspector, insurance companies, who?" "This lady has a huge problem and may wind up with no recourse at all," he adds. "But it wasn't the listing agent's fault."

The case has yet to be settled, but there are still clear lessons for the real estate community - get used to discussing mold with every buyer and seller, pronto. "I recommend that when something is an issue, and it can be a major problem in a house, it's time to add it to the list of things we talk about. Let's recommend an indoor air quality inspection to every buyer," says Bass.

In addition, Bass says to:

1. Educate yourself about these types of problems
2. Include some basic information about mold along with other information you provide a buyer or seller

Mold Cases Spreading Cont on page 7

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DENNIS McCOY / SACRAMENTO BUSINESS JOURNAL

Tom Anderson, with son Alan, said Allstate offered \$17,300 to do \$30,000 in home repairs

# 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.

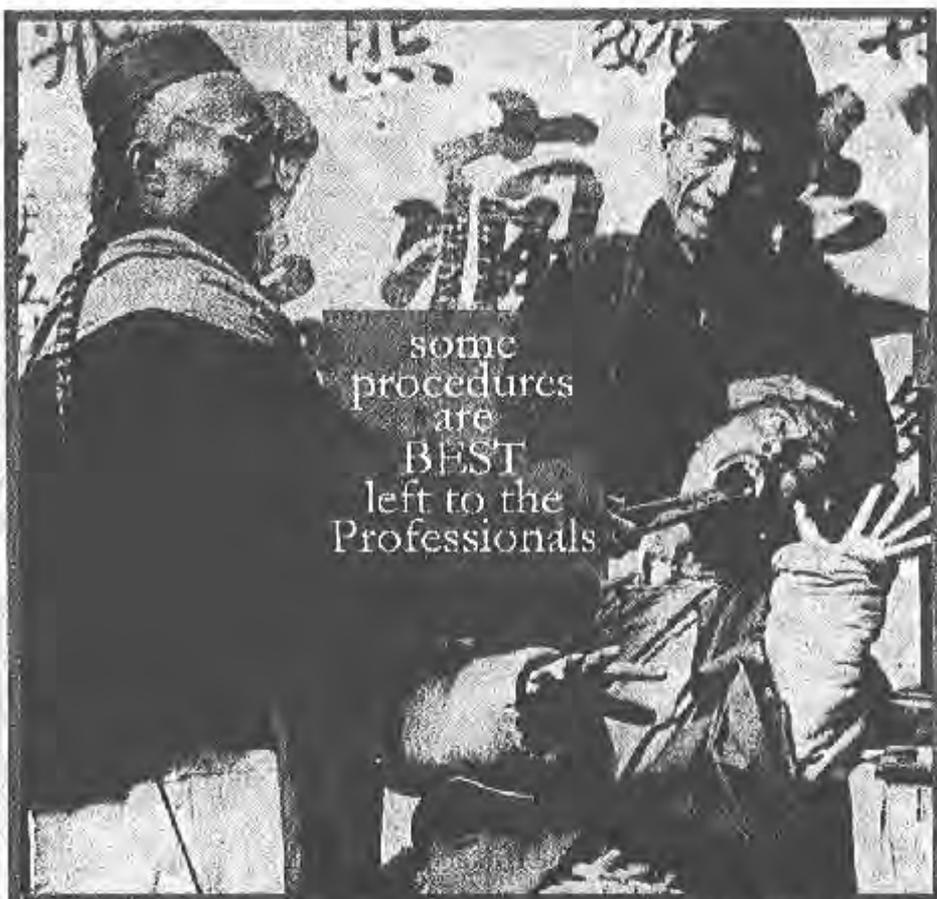
"Thank God it's over," he said Tuesday. Anderson won't collect any money while the case is on appeal. "Usually it's a two- to three-year process," said Ron Haven of the plaintiff's law firm, Shepard & Haven, in Sacramento. Anderson's lead attorney was Stan Parrish.

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."



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# How Do We Protect Our Business From Litigation?

- Use of Risk Management Practices:
  - Thorough Inspections
  - Identification of “Red Flag” areas
  - Proper Testing (if necessary)
  - Documentation
  - Disclosure
  - Being responsible

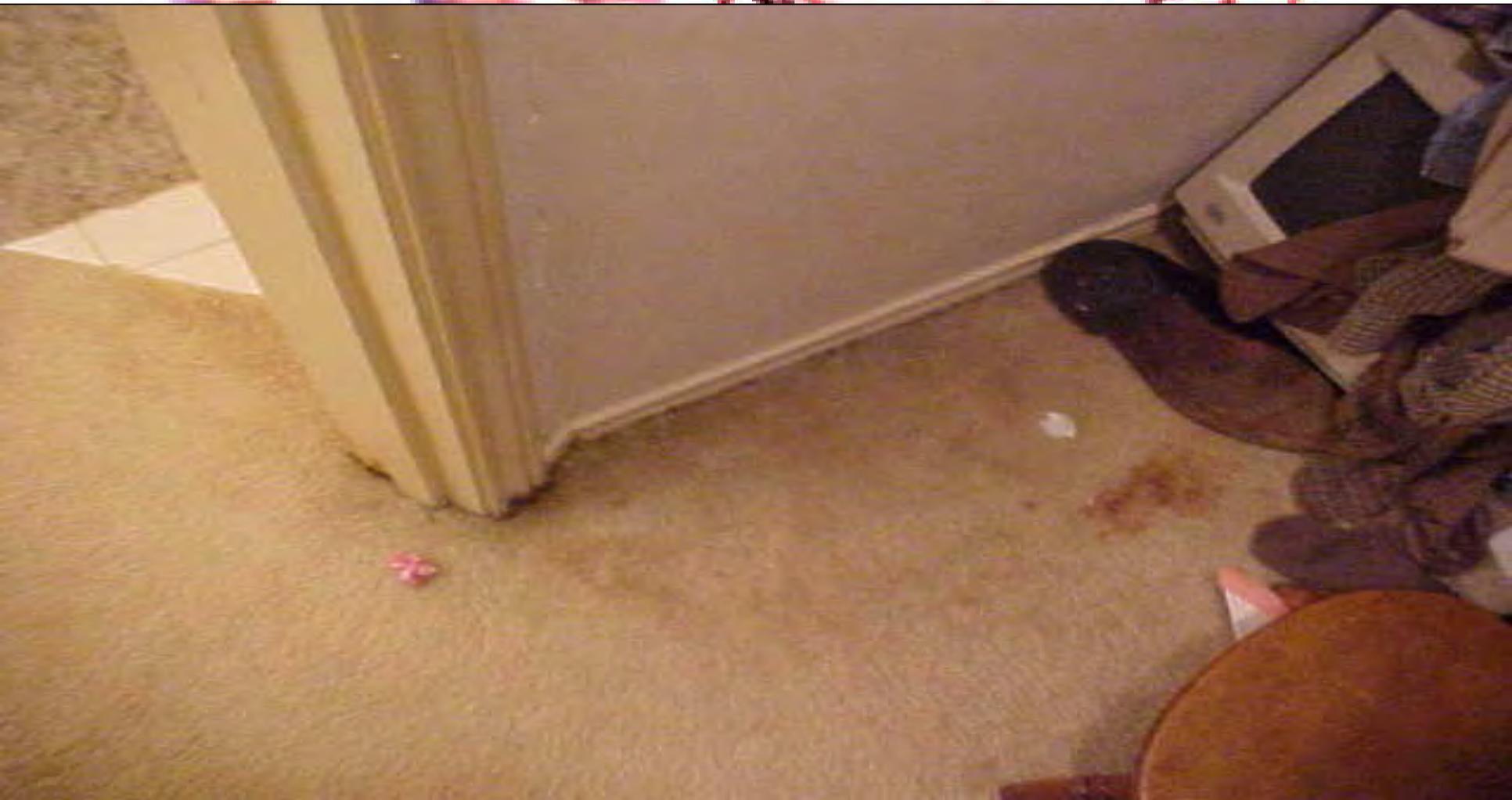
# Risk Management Practices

- An experienced Inspector will be able to identify “Red Flag” areas.
- The inspector will make recommendations for mold testing.
- The inspector will document the source of the water intrusion, and make recommendations of possible correction.
- The inspector will have agreements or disclosure statements signed by the client.

# What is a “Red Flag”?

- Visible Mold
- Evidence of water penetration
- Conditions that could allow water penetration
- Smell
- Poorly maintained HVAC
- Improperly vented fans or appliances
- Occupant complaints
-

# Red Flag



# Red Flag



# Red Flag



# Red Flag









# Testing

- There are typically 3 types of mold testing that are performed for evaluation purposes:



1. Swab Sampling
- 2.
3. Carpet Sampling
- 4.
5. Air Sampling

# Swab Sampling



- Swab Visible Mold
- Used in “Red Flag” areas
- Identifies type of molds present
- Used in guidance as to remediation

# Air Sampling



- Collection in “red flag” areas
- Collection of indoor air sample(s)
- Collection of a outdoor sample
- Compare both results to identify potential problems
- Identifies types and quantities of mold
-

# Carpet Sampling



- Collection of samples from the carpet
- Used when no “red flags” are seen
- Provides historical information
- Appropriate with air sampling

# Reports

- The reports contain valuable information for the client.
  - Spore counts (How much?)
  - Spore identification/description (What kind?)
  - Spore characterization (What type?)
    - Allergic, Pathogenic, Toxic
  - Summary (Is there an unusual mold condition?)

# Diagnosis and Remediation

- Keep temp and humidity appropriate
- Maintain HVAC systems
- Dry damp materials within 1-2 days
- Minimize exposure
- Look and smell test

# Remediation

- Can be an entire class on remediation
- Three types based on amount of area affected
- Smaller clean up can be performed by non-professional
- Larger ones should be left to the pros.

- **Questions**