

# Mold in Buildings

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## Mold in Buildings

By Dennis Hevesi  
 July 10, 2006



It came from within. Some of the worst home health hazards, such as the black mold crawling across the ceiling of an apartment (upper left) and the cockroach droppings blanketing the floor behind a refrigerator, arise inside homes that are poorly maintained or designed. Indoor mold and cockroach antigens have both been associated with worsened asthma and other adverse health effects.

(Photo: Samuel Arbes / NIEHS)

It is a slimy, sticky, black, brownish or sometimes orangey organism that mostly comes in knobby, though sometimes hairy, microscopic ovals — half a million or more spores fitting on the face of a dime.

Mold, in some of its myriad forms, has long been known to cause serious damage to some people's pulmonary systems. But over the last five years, for a mix of reasons, the literally creepy substance has also exerted increasing strains on the real estate industry, the insurance industry, the court system and architectural and construction practices.

Yet, given that fungus (its more scientific appellation) has inhabited the planet for millions of years, there are those caught up in the current concern who contend that, however legitimate in some cases, that worry has also been exaggerated.

The confusion stems, in part, from the fact that while some people can suffer serious health damage from exposure to mold, others are unaffected.

Some of the agitation was stirred by a federal agency's initial opinion, later reversed, that mold might have caused bleeding in the lungs of infants. Also in the mix has been litigious piling on after sizable damage awards in several court cases, including one, later scaled back, for \$32 million; the insurance industry's hasty retreat from mold coverage; and insufficient understanding of the medical consequences of mold exposure.

"Five years ago, we would get one call a month about mold: a residence, a school, a commercial property," said Robert Krell, president of IAQ Technologies, an indoor environmental consulting and remediation company in Syracuse, N.Y. "Now we get 10 calls a day."

"I've seen people become deathly ill," Mr. Krell said. "I've also seen them make themselves ill with hysteria."

Daniel Sitomer, a partner in the environmental law firm of Sitomer & Hogan in Manhattan, calls for calm on the legal front, where about 10,000 mold-related lawsuits have been filed nationwide in the last three years. "What we've found where the knee-jerk response was to overreact and litigate," Mr. Sitomer said, "is that those who have commenced those suits have directly impacted the value of their own home."

Mr. Sitomer's firm represents both plaintiffs and defendants in mold-related cases, but specializes in preparing building managers and co-op and condominium boards to deal with the mold problem. "There's time to commence litigation after there's been a unified effort by the building and the residents to manage the mold," he said. "Once that's implemented, there's time to address responsibility and the development of claims."

About 24,000 homeowners across the nation — including 1,600 in New York, New Jersey and Connecticut — had mold-related insurance claims unresolved as of Dec. 31, according to a Texas-based homeowners advocacy group called Policyholders of America.

Last year, according to Robert P. Hartwig, the chief economist for the Insurance Information Institute, insurance companies paid out \$2.5 billion in mold-related claims. "That's about double what it was in 2001," Mr. Hartwig said.

"In addition, in 2002 it became clear that the mold issue was no longer confined to homeowners' insurance," Mr. Hartwig continued, "but became a problem in commercial coverage as well — particularly for co-ops, condominiums, hotels and schools." Because they are corporations, co-ops and condominiums must carry commercial liability coverage.

The insurance industry has not taken kindly to the explosion in mold-related claims. At the industry's urging, 35 states — including New Jersey, but not New York or Connecticut — have allowed insurers to exclude mold coverage from homeowner policies. "In some states," Mr. Hartwig said, "insurers have introduced caps on the coverage for this type of claim, perhaps \$5,000 or \$10,000."

All of which squeezes homeowners and building owners.

In Texas — which along with California leads the nation in mold claims, at just under 5,000 each (followed by Florida with 3,900) — the per-policy cost of industry payouts for mold coverage rose from \$23 in the first quarter of 2000 to \$444 by the end of 2001, Mr. Hartwig said. "These costs are passed on to policyholders," he said.

Rental buildings have also been affected, with some landlords informing renters that they could be

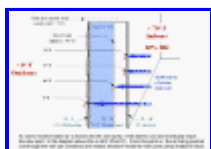
held responsible for not removing visible moisture or not reporting the appearance of mold to management.

With coverage limited and insurance companies fiercely contesting court claims, some owners of private homes are facing frightening choices — especially those with widespread contamination deep within their walls, plumbing, heating and ventilation systems. In those cases, remediation can cost hundreds of thousands of dollars.

"One issue we are seeing more and more of these days is foreclosures," said Melinda Ballard, president of Policyholders of America. Ms. Ballard started her organization after winning the nation's most publicized mold-related lawsuit against an insurer, resulting in a damage award of \$32 million — later reduced to \$4 million.

"Let's say you have a family in a home with severe contamination and it's not covered by insurance," Ms. Ballard said. "They face ugly choices. They can stay and have their children suffer the health consequences. They can put their home up for sale and not disclose anything. Or they can hand the keys to the bank."

Starting in midyear 2002, Ms. Ballard said, her organization began receiving about 50 calls a week from people facing foreclosure because of mold exposure. "Here's the rub," she said, "when the bank forecloses, they sell it at auction — as-is."



To enlarge the picture, click on it.

## A Range of Fungi, a Range of Health Effects

Several experts said widespread mold anxiety got its start in the mid-90's after 10 babies in neighboring buildings in Cleveland suffered severe bleeding in the lungs, including one who died. Investigators from the federal Centers for Disease Control and Prevention joined independent scientists in concluding that "infant pulmonary hemorrhage may be caused by exposure to *Stachybotrys chartarum* or other fungi growing in moist household environments." *Stachybotrys* has since been seized upon by some lawyers as "killer mold."

In 1997, a C.D.C. task force reviewed the initial findings and concluded that the evidence "was not of sufficient quality to support an association" between *Stachybotrys* and bleeding lungs in infants.

Which hardly means that mold is harmless. "We know that there are a range of health effects related to mold exposure," said Dr. Maida P. Galvez, a pediatrician at the Pediatric Environmental Health Specialty Unit at Mount Sinai Medical Center in Manhattan. "The most common are asthma and allergy-type symptoms."

"We know that families with strong histories of allergic diseases are more susceptible to these exposures," Dr. Galvez said, "that mold can exacerbate these conditions." At a minimum, mold can cause eye, ear, nose and throat irritation, as well as coughing and wheezing — sometimes severe and unrelenting.

While mold exacerbates those conditions for people prone to allergies and asthma, Dr. Galvez said, it has not yet been proved to be a direct instigator of asthma in families without a history of that disease. "There are ongoing studies to determine that relationship," she said.

Still, mold can be deadly. Dr. Jordan Fink, a professor in the allergy and immunology division of the Medical College of Wisconsin, Milwaukee, said mold can cause hypersensitivity pneumonitis, resulting in progressive lung impairment. "There have been fatal cases of hypersensitivity pneumonitis," he said, "because of the inflammation and scarring of pulmonary tissue."

Pointing out that there are "hundreds to thousands" of mold species that have not been studied, Dr. Fink focused on the notorious *Stachybotrys* variety. While it is proved that *Stachybotrys* causes pulmonary and allergic symptoms, he said, "there is no documentation as yet that *Stachybotrys* can cause nonallergic-type symptoms." As examples, he said, some people say they suffer memory loss, "can't think anymore, can't eat."

Ms. Ballard, president of the policyholders group, said that she, her husband and 2-year-old son lived for months in their contaminated 22-room home in a suburb of Austin, Tex. — "called, appropriately enough, Dripping Springs," she said — after being told by their insurance company that the contractors hired to remediate *Stachybotrys* in their home could not break through the walls and floors until the insurance investigation was completed. "I stupidly, not knowing jack about toxic mold, listened to them and stopped all scheduled repairs," she said. That was in 1998.

"We started getting sick," Ms. Ballard said. "My son would gasp for every breath. My husband had some strange symptoms. He became extremely forgetful. He had driven the same car for years and could not remember what kind of car it was. He had brain seizures that showed up on M.R.I.'s."

The old "fixer upper" had cost \$300,000, Ms. Ballard said, and about \$1 million to modernize. The \$32 million in damages was awarded in 2001, but was later reduced to \$4 million, plus interest and lawyers' fees.

In December, a mold suit was filed by the owner of a condominium apartment at 515 Park Avenue — advertised by its sponsors, at \$3,000 per square foot, as the world's most expensive residential building.

The suit alleges that the developer, architect, contractors and condominium board members had all been negligent in the design, construction and management of the building, which opened in 2000, resulting in "massive leaks" throughout the structure.

"As recent studies performed for the building's board of managers confirmed," the suit says, "the building is contaminated with toxic fungus molds, including a strain known as *Stachybotrys*, the 'killer fungus.'"

The plaintiff, Richard Kramer, claimed that the apartment and its contents, including antiques and artwork, were totally ruined. "Such damage pales," the suit says, in comparison with the harm to the plaintiff's 3-year-old daughter, "who has developed severe and disabling respiratory and other illnesses."

Mr. Kramer is asking for \$2 billion in damages. Lawyers for the developers, Zeckendorf Realty, did not respond to several requests for comment.

According to the American Academy of Allergy, Asthma and Immunology, 35 million Americans suffer from reactions to mold — 12 percent of the nation's population.

"Do we design buildings to take care of the person who is allergic or the person who is not?" wonders Angelo Garcia III, the principal industrial hygienist at Future Environment Designs, a consultation and remediation company on Long Island. "Do you build for one in eight persons?"

Senator Marcellino believes, "It will come to setting regulatory standards that force people to take

the effects of mold into consideration when they create buildings, maintain buildings."

## **Remediation Process Starts by Limiting Humidity and Eliminating Leaks of Water**

Mold thrives on moisture. And, as Mr. Garcia emphasized, remediation requires elimination of the source. "Whatever caused water damage must be fixed," he said. "Realistically, that should be done before the cleaning, because the mold will come back." Better yet, leaks should be eliminated before mold ever takes root.

If mold does become visible — a big if, given that it also thrives in a building's dark recesses — a cleanup is in order.

The Old Testament, while genteelly referring to mold as mildew, offers a harsh prescription. Speaking of "the priest," Leviticus 14, says: "If mildew has spread on the walls, he is to order that the contaminated stones be torn out." If mildew reappears, it says, "the house must be torn down."

Mr. Krell stressed, however, that "not every time somebody has a few square feet of mold do they have to burn the house down or default on their mortgage. Most people can wear gloves, a surgical mask and safety goggles and perform a limited cleanup themselves."

If a homeowner prefers the reassurance of hiring a professional for a small cleanup, Mr. Krell said, the least expensive job would cost about \$800. Still, he said: "We've been involved in projects in excess of \$300,000. There was a massive job in Alpine, N.J., involving faulty construction on a 20,000-square-foot mansion. There were 8,000 square feet of mold throughout the basement. Eventually, they forced the builder to buy the house back, for \$5 million."

But if mold has only crept halfway up a wall, for instance, and the owner wants to personally perform the cleanup, then strong detergent or bleach, water and a lot of elbow grease are in order. "Scrub the area until nothing is visible," Mr. Garcia said. "You only do this on nonporous surfaces — wood, metal, plaster." Fabrics, books and even wallboard are porous and, if contaminated, might have to be disposed of.

Big jobs are, obviously, more complicated. "If, let's say, it gets into the ventilation system," Mr. Garcia said, "you've got to clean throughout the house. Then the job becomes similar to asbestos removal — sealing the windows, high-efficiency filters to clean the air, vacuums with filters, all surfaces cleaned."

If the job is done correctly — another big if — the workers will wear respirators, protective suits, gloves. "They will build a chamber next to or in the house to decontaminate themselves, so they don't bring out the contaminants," Mr. Garcia said. All removed materials will be sealed in plastic bags for disposal. Pretesting will be necessary to establish parameters for the project, Mr. Krell said, and to set reference points for air and surface testing after the job is done.

In 1995, Mr. Garcia said, his company remediated an entire two-bedroom apartment in Manhattan for \$7,000. Asked if prices have gone up since, he said that, in fact, "as more contractors get into this, prices come down."

And that is part of the problem.

As Mr. Krell said: "Almost every water and fire restoration contractor, every lead and asbestos abatement contractor in the country is jumping into this field. And many are ill-prepared." There are no state or federal regulations for mold consultants and contractors.

The federal Environmental Protection Agency and the New York City Department of Health have written remediation guidelines. And there are two organizations — the American Indoor Air Quality Council, (800) 942-0832, [www.iaqcouncil.org](http://www.iaqcouncil.org); and the Indoor Air Quality Association, (301) 231-8388, [www.iaqa.org](http://www.iaqa.org) — that offer lists of contractors who have completed voluntary certification requirements. But Mr. Krell believes those requirements are not stringent enough.

So, in choosing a contractor, the watchword is "references, references, references," he said. "Ask for a list of previous clients they have done similar work for."

It is also crucial, Mr. Krell said, to make sure that the consultant and contractor have specific mold coverage in their insurance policies, in case, for example, "they spread contamination throughout the rest of the building through poor work practices."

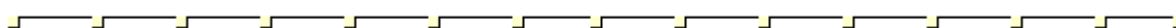
Extrapolating those precautions to the biggest residential buildings, Mr. Sitomer, the Manhattan environmental lawyer, said that, on that scale, "managing mold has to be a partnership between building owners and residents, allowing for a free flow of information that reduces fear."

Reiterating his position that apartment owners should not overreact, Mr. Sitomer said: "With litigation comes public disclosure of the issues as the plaintiff sees them. That not only can have an adverse effect on apartment values, it can also complicate the board's attempt to manage the problem."

A cornerstone of a building's partnership is that residents, board members and management fully understand the extent of insurance coverage for mold — from the apartment owners' policies to the board members' directors and officers insurance to the entire building's liability policy.

Building staff should be trained to respond quickly and appropriately — sealing mold in plastic sheeting, informing management and calling in a contractor — so problems are not increased by mishandling of mold.

And buildings should prescreen consultants and contractors — and their insurance coverage — allowing for rapid response. "If building staff first has to find qualified contractors," Mr. Sitomer said, "the spores have time to spread."



## Mold Alive and Thriving in U.S. Homes

**Survey of 160 homes finds mold in all**  
*by Kathleen Doheny, HealthScout*

May 7, 2003

After surveying 160 homes in seven U.S. cities, Kelly A. Reynolds of the University of Arizona, Tucson, found that 100 percent of the homes tested positive for mold on some inside surface.

"On average, four sites per house were positive for mold," says Reynolds, who presents her findings March 10 at the annual meeting of the American Academy of Allergy, Asthma and Immunology in Denver.

Although 96 percent of the homeowners in the study knew mold could be a problem, she adds, only 17 percent felt their home would have a mold problem. Then came the survey results: 88 percent of the homes had mold on window sills; 83 percent had mold on refrigerator seals (that accordion-like part), 83 percent had it under the kitchen sink and 82 percent had it present in air ducts.

Predictably, the bathroom was also a good breeding ground, though not as good as other areas. Almost half of the shower grouting areas and the walls above the showers showed evidence of mold.

Reynolds did not measure exact levels of the molds, but rather did a "presence-absence" test, basically getting a positive or negative result for mold but not how much was there. Mold releases microscopic fungal spores that, if inhaled, can trigger allergy and asthma symptoms in sensitive people, Reynolds say. Mold can also worsen or cause sinus infections. High mold levels can also cause symptoms such as coughing and sniffing, which people often mistake for colds or flu, she adds.

The levels of mold needed to trigger an allergy, asthma or sinus problem vary greatly by type of mold and an individual's sensitivity, Reynolds says. "The molds we found were all highly allergenic molds," says Reynolds, whose research was funded by an educational grant from the Clorox Co., which makes bleach. "No standards have been set by any agency" to say at what level molds can cause health ill effects, she adds, noting "some experts say any mold you can smell or see should be eliminated."

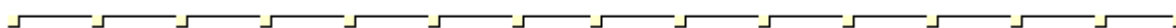
Even though the surveyed homes were in various climates, including Dallas, New York, Atlanta, San Francisco, Tampa, Tucson and Chicago, no substantial geographic differences were found in the levels of mold, Reynolds adds.

Mold releases microscopic fungal spores that, if inhaled, can trigger allergy and asthma symptoms in sensitive people, Reynolds explains. It can also lead to sinus infections.

One piece of relatively good news from the study: Only .2 percent, or two samples, of the 1,330 taken were found to be *Stachybotrys*, the so-called "toxic" or "black" mold that can cause bleeding in the lungs of infants.

Another expert, Dr. Jordan S. Josephson, a New York City sinus infection expert, is not surprised by the findings.

"I know mold is pretty much ubiquitous," he says. "You can smell it in movies, locker rooms," and other dark, damp places where molds thrive. Mold can not only aggravate asthma and allergy, but can also lead to or worsen sinus problems, adds Josephson, director of the New York Nasal and Sinus Center and an attending physician at Lenox Hill Hospital in New York City. "Once you end up with fungal [sinusitis](#), it lingers," he says. "Most people aren't aware that mold causes such problems."



## *Top 10 States at Risk for Mold*

### *Western Real Estate in Danger Despite Dry Climate*

*ATLANTA, July 10, 2006*

*Contrary to popular belief, climate is not a good gauge for mold risk, according to a ranking of states at risk for mold contamination on commercial and residential property. Areas with dry climates like Nevada and Arizona made it to the top ten while some Gulf States did not come close.*

*Because mold damage is now excluded or severely limited on standard property insurance, concerns about the financial impact of a mold outbreak in a home or business continue to rise.*

***In the relative hazard ranking model developed by American Risk Management Resources (ARMR) and now being used by MVP (Mold & Virus Protection, "dry states" (Oklahoma, Kansas) intermingle with predictably high-risk mold zones (Florida, South Carolina), but Texas beat them all:***

<b><i>Top 10</i></b>	<b><i>Relative Hazard Mold Ranking</i></b>
<b><i>Texas</i></b>	<b><i>2.95</i></b>
<b><i>Florida</i></b>	<b><i>2.50</i></b>
<b><i>Oklahoma</i></b>	<b><i>2.45</i></b>
<b><i>South Carolina</i></b>	<b><i>1.91</i></b>
<b><i>Nevada</i></b>	<b><i>1.90</i></b>
<b><i>Arizona</i></b>	<b><i>1.90</i></b>
<b><i>California</i></b>	<b><i>1.73</i></b>
<b><i>South Dakota</i></b>	<b><i>1.47</i></b>
<b><i>Tennessee</i></b>	<b><i>1.33</i></b>
<b><i>Kansas</i></b>	<b><i>1.25</i></b>
<b><i>Bottom 5</i></b>	<b><i>Relative Hazard Mold Ranking</i></b>
<b><i>Wisconsin</i></b>	<b><i>.06</i></b>
<b><i>West Virginia</i></b>	<b><i>.07</i></b>
<b><i>Alabama</i></b>	<b><i>.13</i></b>
<b><i>Massachusetts</i></b>	<b><i>.18</i></b>
<b><i>Minnesota</i></b>	<b><i>.19</i></b>

***The GEI/ARMR relative hazard ranking model was developed by comparing mold losses on insurance claims with premiums paid on property and liability coverage in each of the 50 states. The hazard ranking model does not yet reflect claims associated with 2005 hurricanes that struck the Southeastern US. Wisconsin has the lowest relative mold loss rate, which is one-50th the loss rate in Texas based on the relative frequency of insurance claims.***

***Mention mold right now, and the Gulf Coast comes to mind first, but the contamination on real estate hit by hurricanes was generally less significant overall than mold growth caused by inferior building materials or poor construction. It's counterintuitive to think of shopping centers in Phoenix or casinos in Las Vegas as being at risk for mold, but it makes sense when you examine the causes of mold and problems often caused by modern building practices and materials.***

***Accordingly, many buildings and houses in dry climates develop mold issues when moisture is nurtured within walls and windows that are tightly sealed off from consistently hot conditions outside.***

***Think of a glass of ice water sitting on your porch in 95-degree heat. Condensation quickly forms on the outside of the glass, but unlike your drink, condensation in a home or business has nowhere to run off so it builds up in the cavities of the structure, creating an ideal climate for mold contamination.***

***As mold decreases property values, it could force many owners into default, forcing mortgages into a "non-performing loan" category, the worst- case scenario for lenders. That classification causes a negative chain reaction from ratings agencies, regulatory authorities, and shareholders.***

*"In the age of universal mold exclusions on insurance policies, everyone involved in real estate needs to diligently manage the mold risk," said David J. Dybdahl, head of ARMR, an insurance brokerage and consulting firm specializing in environmental insurance covering mold.*

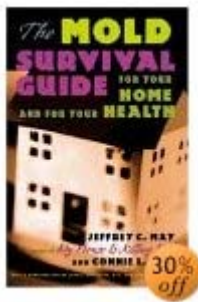
*Who is ultimately holding the financial bag for construction and permanent mortgages along with business loans to builders? The lender. The bank typically holds 80% or more of the risk in these loans (since 20% is typically invested by the borrower). Therefore, the smart lenders will work even faster to protect themselves."*

For more information on the Mold and Virus Protection Program write to [moldprotection@cableone.net](mailto:moldprotection@cableone.net)

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## Additional Sources of Information:

- [Indoor Air Quality and Mold](#)
- [The Mold Survival Guide: For Your Home and for Your Health](#) — Jeffrey C. May



- [Housing Failures due to Mold](#)
- [Renovating Your Basement for Livability](#)
- [Water barrier, wind barrier and vapor retarder](#)
- [Dealing with mold problems after a flood](#)
- [Preventing Moisture Problems in Walls](#)
- [Tips on detecting, removing and preventing toxic mold](#)
- [Second firm hired to tackle Hilton Hotel mold](#)
- [Mold Across America](#)
- [Tyvek® housewrap helps to control moisture in buildings](#)
- [Toxic Black Mold Information Center](#)

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H & E Home

Up

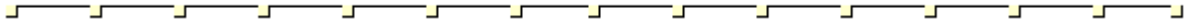
**Here are some simple actions you can take to reduce energy costs, improve comfort, and reduce air pollution in your home or other building:**

1. Use a powered exhaust system on any device that burns fuel indoors.
2. Eliminate the need for air leakage through your home's building envelope by using [mechanical ventilation](#) to supply as much fresh filtered air as you want.
3. [Seal air leaks](#) in the building's envelope to block entry of microbes, allergens, toxins, irritants, insects, and cold drafts.
4. [Insulate the walls and attic](#) as much, or more than, recommended for your local climate.

5. [Control indoor air pressure](#) to:

- a) Minimize entry of radon and water vapor from the soil.
- b) Keep insulation effective and mold-free by minimizing leakage of moist air through walls and attics that have been cooled by winter weather..

These actions will make your home a [safer shelter](#) if an accident, or a terrorist, releases chemical, biological or radiological substances upwind of your home.



Will additional energy price increases be *serious, certain and soon?* To examine the evidence, go to:

- [Association for the Study of Peak Oil & Gas](#)
- [Association for the Study of Peak Oil & Gas - USA](#)



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Please send your suggestions, comments, and questions to Jon Traudt ([jtraudt@tconl.com](mailto:jtraudt@tconl.com))