

THE GROWING PROBLEM OF MOLD

The Lord spoke to Moses and Aaron: "When you enter the land of Canaan which I am about to give to you for a possession, and I put a diseased infection in a house in the land you are to possess, then whoever owns the house must come and declare to the priest, 'Something like an infection is visible to me in the house.' Then the priest will command that the house be cleared before the priest enters to examine the infection so that everything in the house does not become unclean, and afterwards the priest will enter to examine the house. He is to examine the infection, and if the infection in the walls of the house consists of yellowish green or reddish eruptions, and it appears to be deeper than the surface of the wall, then the priest is to go out of the house to the doorway of the house and quarantine the house for seven days. The priest must return on the seventh day, examine it, and if the infection has spread in the walls of the house, then the priest is to command that the stones that had the infection in them be pulled and thrown outside the city into an unclean place. Then he is to have the house scraped all around on the inside, and the plaster which is scraped off must be poured out outside the city into an unclean place. They are then to take other stones and replace those stones, and he is to take other plaster and replaster the house.

"If the infection returns and breaks out in the house after he has pulled out the stones, scraped the house, and it is replastered, the priest is to come and examine it, and if the infection has spread in the house, it is a malignant disease in the house. It is unclean. He must tear down the house, its stones, its wood, and all the plaster of the house, and bring it outside the city to an unclean place. Anyone who enters the house all the days he has quarantined it will be unclean until evening. Anyone who lies down in the house must wash his clothes. Anyone who eats in the house must wash his clothes.

"If, however, the priest enters and examines it, and the infection has not spread in the house after the house has been replastered, then the priest is to pronounce the house clean because the infection has been healed."
— *Leviticus 14:33-48*

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MOLD IS NOT A NEW substance. Organic in nature, molds have been known to cure illness (e.g., penicillin), develop the flavor of foods and wines (e.g., blue cheese), and assist with the breakdown of organic materials. Mold can survive for years in a dormant state, growing only when the conditions are favorable.

Considered a bacteria, mold spores are less than 4 microns in size. To put this in context, as many as 250,000 spores can fit on the head of a pin. When these tiny mold spores land on a damp spot indoors, they may begin growing and digesting whatever they are growing on in order to survive.

There are molds that can grow on wood, paper, carpet and foods. When excessive moisture or water accumulates indoors, mold growth will continue, particularly if the moisture problem remains undiscovered or unaddressed. According to the Environmental Protection Agency (EPA), there is no practical way to eliminate all mold and mold spores in the indoor environment; as such, the way to control indoor mold growth is to control moisture.

In the last several years, unchecked mold growth has been blamed for damaging or destroying the homes and buildings it infests, as well as causing symptoms of physical distress in individuals. This, then, makes mold a concern to code enforcement professionals, whose job it

is to ensure the public health, safety and welfare with respect to the built environment.

POTENTIAL HEALTH EFFECTS ASSOCIATED WITH MOLD

The first reported cases of health effects attributed to mold spores were found in agriculture. "Farmers' Lung" is a noninfectious allergic disease caused by inhaling dust from moldy hay or grain. Working in silos with high-moisture content and poor ventilation resulted in the inhalation of vast quantities of mold spores by many farmers. Initial symptoms of Farmers' Lung, similar to those of a common summer cold, were often ignored.

Cases of Farmers' Lung are on the rise, and many believe this can be attributed to the increased size of modern silos. Because the only controllable factor in abating mold infestation is moisture, grain must be dried properly before it is placed in the silo for storage. Storage buildings also need to be ventilated adequately to keep them cool. Recent studies show that the amount of moisture needed to permit mold growth is less than originally thought.

The extreme conditions in silos are not normally found in homes or public buildings, and it should be noted that mold infestations in homes and public buildings do not affect all individuals. In many cases, the body's natural defense systems (such as mucous lining, coughing and sneezing) will help remove some of the contaminants. It is generally believed that in-

fants, children, elderly persons or those with weakened immune systems may be affected by indoor mold more severely and sooner than others. When in contact with certain molds, sensitized individuals, including those with a predisposition to asthma or allergies, most commonly exhibit symptoms such as runny noses, headaches, sinus infections, coughs, watery eyes, breathing difficulties, and general discomfort. Other reactions might include asthmatic symptoms such as labored breathing, chest constriction and coughing. In a small percentage of cases, skin rashes may develop. It must also be noted that these same symptoms can be caused by dust mites, pet dander and other microorganisms found in homes and public buildings.

Prolonged exposure to molds may result in chronic fatigue, dizziness, shortness of breath, headaches and nosebleeds. Other symptoms might include muscle cramps and the inability to concentrate, as well as edema. Too much exposure may cause or worsen such problems as hay fever or asthma, but the most common symptoms are those of a cold or upper-respiratory infection. Usually symptoms disappear after the mold is removed.

Surprisingly, with all of the studies of molds and their effects on individuals, there are no documented cases of life-threatening conditions or deaths caused by mold. In January 1993, a cluster of cases of acute

pulmonary hemorrhage/hemosiderosis was reported in Cleveland, Ohio, where 27 infants from homes that sustained flood damage became sick. After nine of these infants died, preliminary research suggested that there was an association between *S. atra* and the illnesses. Deficiencies in the original study have since caused the Centers for Disease Control to reverse its position on this case.

TOXIC MOLD

According to the EPA, there is no practical way to eliminate all mold and mold spores in the indoor environment.

According to public health officials, the term "toxic mold" is used to describe molds capable of releasing a toxin. Whether or not that particular type of mold will release the toxin in a specific home or building is unclear.

In regard to the determination of toxins causing health issues, there are no tests currently available that will positively determine whether or not an individual was exposed to any mold toxins. Everyone agrees on principle that indoor molds are not healthy and that sensitized individuals will have adverse reactions to mold spores and toxins, but there is no way to prove exposure.

Most types of mold that are regularly discovered in homes and public buildings are not hazardous to individuals. Of the thousands of molds intrinsic to the environment, studies indicate that only a few are in any

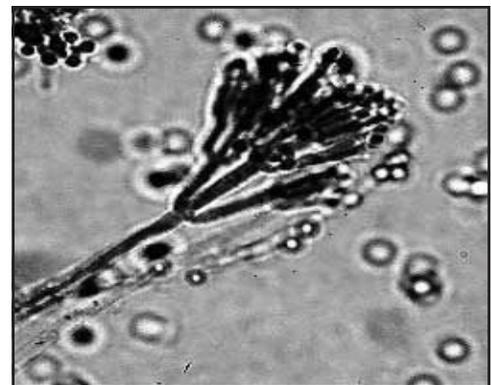
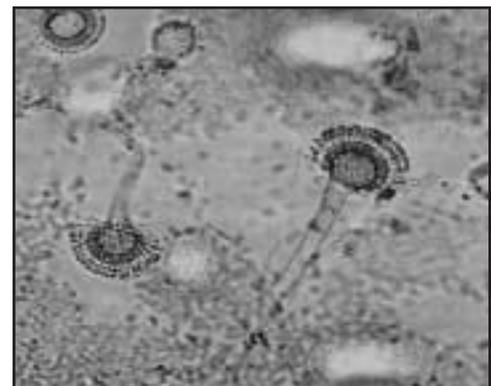
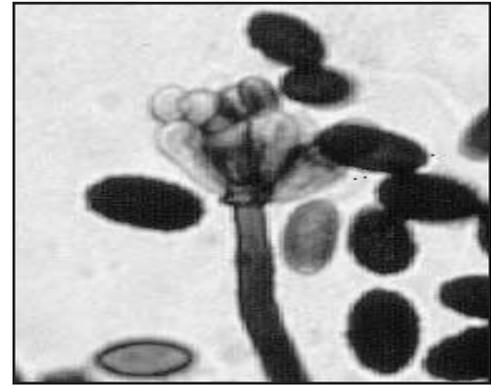
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way toxic to humans and animals, including *Stachybotrys Chartarum* (atra), *Aspergillus versicolor*, and several species of *Penicillium*. These particular molds are usually more hazardous when they infest air-handling systems than when they are discovered behind walls or in other areas of structures. *Stachybotrys atra* is the least likely variety of mold to occur because of its need for an extremely high humidity level as well as cellulose-containing materials such as wood, cotton, drywall and other building materials. It is a greenish-black fungus that is typically slimy and wet to the touch. It is not found on such things as ceramic tiles, cement, vinyl or plastic. The spores of this type of mold are often unable to become airborne because they are part of a slimy cluster. Once the mold is allowed to dry, spores are able to break away and become airborne.

The EPA has not determined strict guidelines for determining the health risks of *Stachybotrys atra*. Collecting mold cultures is difficult because of the prevalence of other types of molds in the same area, so it is not always possible to determine the extent of infestation. Attempting the removal of *Stachybotrys atra* is extremely difficult since every effort must be made to prevent the spread of the spores.

MOLD IN SCHOOLS

Occurrences of mold in schools are making headlines nationwide. From the *Chicago Tribune*, August 20, 2001, "Northbrook High School Fights a Problem with Mold," the *Cincinnati Enquirer*, Friday, January 25, 2002, "Students Relocated Over Toxic Mold Fear," *St. Petersburg Times*, February 24, 2002, "Mold At School Stirs Concern," and from the *Daily Southtown*, March 17, 2002,



Above, Top, *Stachybotrys Chartarum* (atra), as viewed under a microscope. Middle, *Aspergillus versicolor*. Bottom, several species of *Penicillium*. These photographs and the cover photos are courtesy of the University of Minnesota, Environmental Health and Safety, Minneapolis, Minnesota (www.dehs.umn.edu), and are used with permission.

“Checkup For Mold Expanding.” Moisture problems in school buildings can be caused by a variety of conditions, including roof and plumbing leaks, condensation, and excess humidity. Changes in construction practices resulting in more tightly sealed buildings are also a cause of moisture problems.

Complaints of breathing difficulties and asthma among students in the nation’s schools have brought about calls for testing for indoor air contaminants such as molds. In some cases, parents are opting to home-school their children to avoid the perceived health risks of mold in school buildings. In one Chicago-area school, more than 50 students staged a walk-out in protest of what they considered to be unsafe conditions.

With no federal guidelines as to what are acceptable levels of mold, the EPA is advising schools that any amount of mold is unacceptable. The school districts have been placed in the position of attempting to eliminate all mold found in school buildings and preventing it from recurring. Since mold is a living organism and grows anywhere there is warmth, moisture and a food source, this will be a never-ending, time-consuming, and expensive task; in some cases, schools have already been closed because of the inability to remove all mold.

Exacerbating this situation is the failure of many school districts to pass referenda to provide the necessary funding for routine maintenance and

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MOLD REMEDIATION CHECKLIST

For Schools And Commercial Buildings

INVESTIGATE AND EVALUATE MOISTURE AND MOLD PROBLEMS

- Assess size of moldy area (square feet)
- Consider the possibility of hidden mold
- Clean up small mold problems and fix moisture problems before they become large problems
- Select remediation manager for medium- or large-size mold problem
- Investigate areas associated with occupant complaints
- Identify source(s) or cause of water or moisture problem(s)
- Note type of water-damaged materials (wallboard, carpet, etc.)
- Check inside air ducts and air handling unit
- Throughout process, consult qualified professional if necessary or desired

COMMUNICATE WITH BUILDING OCCUPANTS AT ALL STAGES OF PROCESS, AS APPROPRIATE

- Designate contact person for questions and comments about medium- or large-scale remediation as needed

PLAN REMEDIATION

- Adapt or modify remediation guidelines to fit your situation; use professional judgment
- Plan to dry wet, nonmoldy materials within 48 hours to prevent mold growth
- Select cleanup methods for moldy items
- Select Personal Protection Equipment—protect remediators
- Select containment equipment—protect building occupants
- Select remediation personnel who have the experience and training needed to implement the remediation plan and use Personal Protection Equipment and containment as appropriate

REMEDiate MOISTURE AND MOLD PROBLEMS

- Fix moisture problem, implement repair or maintenance plan
- Dry wet, nonmoldy materials within 48 hours
- Clean and dry moldy materials
- Discard moldy porous items that cannot be cleaned

This checklist does not list all potential steps or problems. For more information, go to www.epa.gov/iaq/molds/checklist.html

cleanup of mold infestations as well as pending litigation brought by students and parents injured by such infestations.

LITIGATION ISSUES

During the last 10 years, toxic mold lawsuits have been filed in such states as California, Delaware, Florida, Illinois, New York, Ohio and Texas. These suits, involving bodily injuries and/or property damage, have resulted in an insurance company response of no longer including mold coverage in their normal property insurance coverage.

Personal injury lawsuits attributed to toxic mold or sick building syndrome have described symptoms ranging from burning and watering eyes, coughing and sore throat to severe edema, nausea, cancer, pregnancy problems and miscarriages. Unchecked mold infestations in homes and buildings have resulted in not only personal injury claims but also structural damage. Lawsuits from infestations have resulted in hundreds of thousands of dollars in judgments.

In Polk County, Florida, a courthouse built in 1987 was evacuated in 1992 because of the presence of toxic mold. The courthouse was built at an initial cost of \$37 million; by 1997, the total payout by the county was \$50.4 million. The sum included \$33.7 million in building repairs, \$10 million in defense expenses, \$4.1 million in relocation costs and \$2.6 million for worker's health claims.

A construction defect suit against the builder of a courthouse in Martin County, Florida, resulted in an order for the contractor to pay the county \$11.5 million in damages plus \$2.9 million in interest. In this case, it was alleged that two types of mold were

found in the building: *aspergillus* and *stachybotrys*. This award was upheld by a Florida appellate court.

Homeowners and apartment renters have also been awarded damages in toxic mold cases. The largest settlement to date was in the case of *Ballard vs. Fire Insurance Exchange (Farmers Insurance Group)*. The state court in Austin, Texas, awarded \$32.1 million in June 2001, to Melinda Ballard and her family. The breakdown of the settlement is as follows: \$6.2 million for replacement of the home and its contents; \$5 million for mental anguish; \$12 million in punitive damages; and \$8.9 million for legal fees. The jury said Farmers Insurance Group failed to respond promptly and cover the necessary repairs for a water leak, thereby allowing mold to overrun the home. According to newspaper sources, Ballard intends to continue legal action against the insurance company for health-related claims.

A story published in the *Indianapolis Star* in 2001 recounts a lawsuit alleging that ServiceMaster did a poor job removing moisture from a home and this resulted in mold growth. According to the article, attempts to remove the mold have already cost \$43,000. It is estimated that total cost will be \$100,000 and the homeowner's insurer will cover only a portion of it.

In October 2000, Allstate Insurance company was ordered to pay a policy holder \$18.5 million in a coverage dispute over mold in a plaintiff's home in California. The award called for \$500,000 in damages and \$18 million in punitive damages. The judge reduced the award to \$3 million and the case is being appealed.

In New York, residents of an apart-

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WHAT THE CODES SAY

FIGHTING THE PROBLEM of mold requires a three-fold approach. Although the model codes do not contain the words “mold resistant,” the intent is to minimize the conditions which could produce mold and its associated effects. The codes require the proper ventilation of all interior habitable and occupiable areas along with specific concealed spaces. Secondly, the exterior envelope of all buildings must be provided with vapor retarders, water-resistive barriers and the necessary flashing. Lastly, the maintenance of existing buildings and structures is most important. This includes not only the exterior of the structure but also its plumbing and mechanical systems. Such an integrated approach lessens the likelihood that mold could form unnoticed.

The interior habitable and occupiable environments of all buildings and structures must be provided with either natural or mechanical ventilation as required by Section 1202.1 of the *International Building Code* (IBC). Historically, residential buildings have only been provided with openable windows and doors. This allows the building occupants to access a fresh air source to dilute the stale air within the dwelling unit. For bathrooms and water closet compartments without an exterior window, Section R303.3 of the *International Residential Code* (IRC) requires mechanical exhaust fans with specific ventilation rates to exhaust moisture-laden air directly to the outside. Additionally, enclosed attic spaces, rafter spaces, crawl spaces, etc., are required to have vents to dissipate any accumulated moisture via cross ventilation.

Both the *International Building and Residential Codes* contain provisions that require the application of a vapor retarder over the inside of cavity framed walls prior to the installation of interior sheathing or wall coverings. This vapor retarder is intended to prevent moisture-laden air within the building or structure from entering the wall cavity spaces where

it may be trapped and subsequently condense. Further, water-resistive barriers and weather coverings are required on the exterior of all buildings and structures along with the necessary flashing. These requirements in Chapter 14 of the IBC and Section R703 of the IRC are intended to prevent rain and wind-driven moisture from entering the building or structure.

The 2000 *International Property Maintenance Code* includes requirements for all existing residential and nonresidential structures to maintain their viability and safety. Section 303 requires the exterior of all structures to be maintained in good repair, structurally sound and in a sanitary condition for the benefit of not only the building occupants but also the public. The building owner must provide dedicated upkeep of the building and its plumbing and mechanical systems.

As can be seen, the model codes provide requirements to build and maintain all structures safely. Through a complete and detailed plan review, the code official can evaluate compliance with these requirements. Builders and contractors must carefully construct buildings in accordance with those approved plans and follow good construction practices in assembling the building components. Building owners and tenants must be observant and take immediate steps to maintain existing buildings and their systems to prevent moisture from accumulating. Such a concentrated effort will certainly enhance a building’s “mold resistance.”

ment complex are seeking approximately \$180 million from Glenwood Management Corporation and the complex operator, East 77th Realty LLC, for injuries and personal property damage allegedly caused by mold exposure while they were living in the complex. The complaint revolves around the fact that the defendants knew of the mold but did nothing to remediate the situation and failed to notify tenants.

Homeowners associations have also been sued. In one case, three families filed suit alleging that toxic mold caused a variety of ailments. The case was eventually settled for \$550,000.

In 1999, an Ohio builder was forced to sell all of his company's assets because of the cost of remediating mold damage caused by excessive moisture in new homes. The situation was discovered when homeowners began to complain of wet carpeting. Then mold was discovered on the subfloor. Finally, holes were cut in the drywall to inspect the framing and a quarter of an inch of standing water was discovered in the bottom of the stud cavities. At first it was thought that poor detailing of the brick veneer was the cause, but this was proven not to be the case. The actual source of the water in the wall of the new homes was exterior vapor. The vapor entered through the sheathing and condensed on the back of the polyethylene under the drywall because of the cooled inside air. To fix the moisture problem in hundreds of homes would result in a cost of \$50,000 to \$70,000 per home. The company did not have the assets to correct the situation.

Not only are insurance companies, property management firms and contractors being sued over mold issues, but, in some cases, a property's previ-

ous owners are also being sued. Owners of a house in California filed suit against the seller of the house. The case was settled for a little over \$1.25 million.

School districts are also being sued by students, parents and staff members for alleged injuries caused by molds. In DuPage County, Illinois, 1,700 students, parents and teachers have filed a suit alleging that the school district was negligent for not properly remediating the school after a flood that precipitated mold growth.

Litigation involving mold infestation causing property damage and bodily injury has been or is being adjudicated in such jurisdictions as California, Delaware, Florida, Illinois, New York, Ohio and Texas. While these and many other cases are currently on court dockets, toxic mold injury claims still face evidentiary and causation issues. There have been no standards issued as to what is an acceptable quantity of mold and what quantity is harmful to people. There must also be a determination made as to the type of mold, since so few molds are actually capable of producing "toxic" mycotoxins. With no guidelines as to "how much exposure is too much" or until health issues caused or aggravated by mold are proven, lawyers are looking for issues involving professional malpractice, such as construction defects. Other issues involve workers' compensation, fraud and failure to disclose problems at the time of sale of the property, indoor air quality and sick building syndrome issues, and negligence on the part of architects, plumbers, and roofers for defective design or workmanship.

WHY NOW?

Many believe that the energy crisis of the 1970s and the desire to construct

more air-tight, energy-efficient buildings has resulted in the increase of poor indoor air quality and mold-related problems. Construction practices in the 1950s provided for the introduction of outside air — whether or not doors and windows were opened. In homes and buildings constructed with air-conditioning and high-efficiency heating systems, fresh air is not introduced as often and stagnant air conditions develop. The addition of moisture from condensation, cooking, showers and normal household activities without fresh air interchange has caused the buildup of moisture which, when combined with drywall, insulation, wood and other construction materials, leads to mold infestation.

High-risk buildings are schools, office buildings, nursing homes, hotels, municipal buildings, homes and apartments. The reasons these are considered high risk are the ventilation systems, improper ventilation of the exterior system, and water trapped behind the building wrap. The ideal conditions for mold growth include temperatures between 50 and 70 degrees Fahrenheit and a humidity level of 40 percent or higher. The addition of humidifiers in homes was designed to make the air temperature feel warmer and result in more energy-efficient heating. No longer is mold growth hampered by dry air.

According to research on mold occurrences, many of the severe mold problems occur in new houses that were improperly built and in older homes in

which faulty remodeling work had been completed. Some believe that the mold epidemic in Texas can be attributed to that state having the most new homes in the United States (demographics) and, possibly, a lack of experienced or trained workers doing the construction. Some of the mold problems were caused by improperly applied synthetic stucco which trapped moisture inside the structure and faulty grading and drainage systems. Incorrect installation of vinyl windows also caused moisture problems in that state.

It is considered by many that new construction is waterproof, but this is not always the case. The builders may not have properly applied sealants or the building may have been enclosed after a heavy rain, before the systems had the opportunity to dry completely. Once the building has been sealed, the moisture is locked inside.

INSURANCE INDUSTRY RESPONSE

The insurance industry is caught in the middle of the mold issue. It is dealing not only with property damages caused by mold infestations (including, on a catastrophic level, collapsing floors and structural walls) but also the health issues attributed to the inhalation of spores. In principle, it is agreed that insurers and risk managers need to be trained in the assessment of mold claims. The timing of an assessment is a critical factor, as a damp wall, if left untreated, can become infested with mold within 24 hours.

Other steps the insurance in-

dustry is looking at include the following:

- Education regarding the newest remediation techniques must be a priority.
- Preventative maintenance programs must be developed for all buildings. Buildings should be constantly checked for water leaks and, if found, the area must be thoroughly dried and properly treated for mold prevention.
- National standards must be developed for exposure to mold.

There are three main issues in mold cases which can cause problems with insurance coverage. According to Bob Travis, partner at Leonard, Street and Deinard, Minneapolis, Minnesota, the three main issues include, “First, a policy might cover physical damage to property, but the carrier can argue that mold does not constitute physical damage in some cases. Second, the insurer could cover only new losses, and argue that the mold had been in the building for years. And third, policies typically exclude damage from fungus. That means a policy might cover secondary losses if a building is uninhabitable, but will not cover mold removal.”

Dr. Robert Hartwig of the Insurance Information Institute summed up the industry consensus as follows:

“The costs of cleaning up mold caused by water from a burst pipe are covered un-

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der the policy because water damage from a burst pipe is a covered peril. But mold caused by water from excessive humidity, leaks, condensation or flooding is a maintenance issue for the property owner, like termite or mildew prevention, and is not covered by the policy.”

His statement appears on the web site of the National Association of Mutual Insurance Companies.

Nationwide, insurance companies continue to be inundated with mold-related claims. Here is a sample of the insurance industry’s response in two states, Texas and Florida.

Texas

For years Texas has had insurance coverage which differed from coverage available in other states. The general water coverage offered by the Texas standard HO-B homeowners insurance policy reads that all types of water damage must be covered. This includes damage not only from sudden water problems such as a bursting pipe, but also from slow water leaks that are extremely difficult to detect, and the policies do not specifically exclude mold from insurance coverage. No other state requires this type of coverage.

A proposal was put forth to limit the basic coverage for mold remediation to \$5,000. The proposal would allow for mold damage coverage but would place a cap on the basic coverage. Insurers would be permitted to offer policies that would increase the coverage cap for additional cost to the homeowners.

The proposal was not embraced by the insurance industry nor by homeowners and lending institutions in the state. State Farm Lloyds, the Texas property insurance affiliate of

State Farm Insurance, will no longer write new property insurance in the state. Representatives of the company say they cannot afford to pay \$1.77 for each \$1 paid for coverage. According to Melinda Ballard, recipient of \$32 million in a mold damage suit against Farmers Insurance Group and consumer activist, the mold coverage cap without a reduction in premium costs is unfair. Ballard’s lawsuit resulted from mold infestation which was the result of a small undiscovered leak. It did not result from a catastrophic water event.

The state’s lending institutions are worried that their loans will not be purchased by the secondary mortgage market because of the lack of adequate insurance coverage. This would force lenders to keep the loans in their portfolios and cut into their bottom lines.

The three largest insurance writers in the state are State Farm, Farmers and Allstate. These three companies account for two-thirds of the insurance written in the state. The cost of mold-related coverage went from \$9.1 million in early 2000 to \$79.5 million one year later. State insurance regulators dictate the type of coverage companies must offer: the three types of policies are Homeowners A, B and C. Type A offers the least amount of coverage and C the most. Most of the policies written are Type B. According to statements by the three insurance companies, State Farm will continue Homeowners B renewals, but will not issue to new clients. (Effective May 1, 2002, State Farm will no longer write new homeowner policies in California, either). Allstate and Farmers are writing new policies but will not write Homeowners B. Some of the smaller insurance companies are still offering B and C coverage, but at higher rates.

Unlike most states, Texas provides policy forms and dictates the coverage that insurance companies must offer. According to insurers, due to the broad way in which Homeowner B policy was written, it was more like maintenance insurance than catastrophe insurance. Because the policy does not spell out that only sudden and accidental water damage is covered, courts and homeowners determined that all forms of water damage, some of which led to mold damage, were covered. Insurance companies were forced to pay damages when a small leak from a pipe caused mold infestation. In most states this would be a maintenance issue for which homeowners must bear responsibility.

Florida

Like Texas, Florida has a humid climate as well as wind and water issues but, so far, insurance companies in that state have been spared the trend to sue insurers for mold-related costs. However, the state's insurers do not know how long this will last and are preparing for a change. Fifty Florida insurers have filed requests with the Florida Department of Insurance for mold coverage exclusions from homeowner and commercial coverage. The insurers are not asking for mold damage to be completely dropped but they are seeking some caps. They are asking that it be made very clear that the policies cover damage only when it relates to a sudden storm or sudden pipe break.

The insurers also want to clar-

ify that they are not responsible for problems that occur because of a homeowner's failure to perform routine maintenance. If the problem was the result of faulty construction, it is up to the homeowner to seek compensation from that source, not the insurance company.

THE TOXIC MOLD PROTECTION ACT

In an effort to address the growing problem of mold as a public safety issue, California Governor Gray Davis signed Senate Bill 732, The Toxic Mold Protection Act of 2001, into law last October. This bill directs the California Department of Health Services (DHS) to develop and adopt standards for the assessment, identification and remediation of mold by July 1, 2003. The bill addresses commercial, industrial, and residential buildings.

Although the law became effective in January 2002, no changes take effect until new regulations are issued. Hence, most matters related to indoor mold, such as disclosure in properties to be rented or sold, remain unchanged at this time. Unfortunately, the new law has yet to receive funding, and many experts question whether there is enough information available to meet one of its key directives — setting indoor mold exposure limits.

According to the law, the DHS will develop a reporting form for building inspection that may be used to document the presence of mold. It also states that public health officers, code enforcement officers, environmental

health officers, city attorneys, and employees of the Department of Industrial Relations may respond to complaints about mold and may enforce the standards developed by the department. The law also amends the state housing code to include the presence of molds and allows code enforcement officers to address effectively concerns about molds. Just how the code enforcement officers are to do this, the law does not say.

As reported in the June 10, 2001, edition of the *Sacramento Bee*, that city's Human Rights/Fair Housing Commission has begun discussions with interested parties, including city and county code enforcement representatives, on modifications that need to be made in the city and county code enforcement regulations. The intent is to provide code officers with the tools they will need to regulate or fine owners who are negligent in maintaining their properties by ignoring evidence and/or complaints of mold which may be visible or may be suspected because of smell.

According to Betty Gwiazdon, Director of Program Services, for the Sacramento Human Rights/Fair Housing Commission, the Commission has "talked to hundreds of people who are desperately seeking help to have repairs made or to have assistance in moving out of a mold contaminated home. Although, it is difficult to prove in many cases, there is the undeniable fact that many of these people are very sick. The medical world is struggling with defining

better tests and better treatment. The code enforcement agencies are struggling to find ways to force an owner to cure, not band aid, the water intrusion which is creating the mold. Help is on the way but it may not be in the very near future.”

WHAT CAN A HOMEOWNER DO?

In an effort to be proactive, homeowners should be aware of what to look for to protect themselves from mold infestation. Code enforcement officials should also be cognizant of these conditions in order to determine whether a property should be given an additional inspection.

Separation of baseboard or trim from the floor may be a sign of decay caused by unseen mold. Swelling or crumbling of the drywall in specific areas may signal the retention of water in the material and be a precursor to a mold problem. Areas of rotting

wood on the underside of flooring or in a cabinet may support mushroom-like growth which should be remediated.

After cleanup efforts have been completed, every effort must be made to reduce indoor humidity. Bathrooms, dryers and other moisture-generating sources must be ventilated to the outside. Air conditioners and dehumidifiers should be used as well to increase the ventilation. The use of exhaust fans when cooking is also recommended.

The Insurance Information Institute recommends:

- Keep the home's exterior painted;
- Keep plantings away from exterior walls to prevent soil from touching the home's siding;

TIPS FOR PREVENTING MOLD GROWTH

- Fix leaky plumbing and leaks in the building envelope.
- Watch for condensation and wet spots. Fix source(s) of moisture problem(s) as soon as possible.
- Prevent moisture caused by condensation by increasing surface temperature or reducing the moisture level in air (humidity). To increase surface temperature, insulate or increase air circulation. To reduce the moisture level in air, repair leaks, increase ventilation (if outside air is cold and dry), or dehumidify (if outdoor air is warm and humid).
- Keep heating, ventilation, and air conditioning (HVAC) drip pans clean, flowing properly, and unobstructed.
- Vent moisture-generating appliances, such as dryers, to the outside where possible.
- Maintain low indoor humidity, below 60 percent relative humidity (RH), ideally 30-50 percent, if possible.
- Perform regular building/HVAC inspections and maintenance.
- Clean and dry wet or damp spots within 48 hours.
- Don't let foundations stay wet. Provide drainage and slope the ground away from the foundation.

- Refrain from allowing sprinklers to wet walls for lengthy periods of time;
- Do not pile wood in crawl spaces or up against the sides of the house; and
- Have the home inspected if there is evidence of fungus.

If a mold situation occurs, immediate cleanup is recommended. Prior to beginning cleanup efforts, make sure that the source of the moisture is stopped. If this is not accomplished, the mold will return. Begin cleanup by washing with a nonammonia soap or detergent and hot water. Scrub the entire area using a stiff brush or cleaning pad on block walls or uneven surfaces. Rinse several times with clean water.

The surfaces must be disinfected to prevent return of the mold. To accomplish this, use a solution of $\frac{1}{2}$ cup of bleach to each 1 gallon of water. Make sure the room is well ventilated when mixing and using the solution. If dealing with a large external area, a garden hose and nozzle can be used. Let the area dry naturally, allowing the solution to permeate the surface.

CONCLUSION

Mold spores are almost always present in outdoor and indoor air, and almost all commonly used construction materials and furnishings can provide nutrients to support mold growth. Cleaning and disinfecting provides protection against mold growth, but it is virtually impossible to eliminate all nutrients. Simply removing the mold without eliminating the moisture that caused it will soon result in more mold growth. Moisture control is the important strategy in reducing mold infestations.

The type and severity of health effects that mold may produce are difficult to predict. The risks can vary greatly from one location to another, over time, and from person to person. Except for relatively minor allergic or asthmatic reactions, there is no definitive scientific evidence that mold can cause serious harm to humans. Thus, many mold cases will boil down to a battle of the experts. And, with the noticeable lack of published exposure standards, the debate won't be ended anytime soon.

IN MEMORIAM:

Susan L. Kite

BOCA Staff Editor Susan L. Kite died suddenly on April 9, 2002, shortly after finishing this article. A prolific writer, Kite's favorite part of being an editor was being able to learn something new with each assigned topic. She enjoyed not only the research and fact checking aspects of writing, but the inter-



viewing side as well. In addition to "Mold," Kite's articles featured in *The Code Official*TM include: "Playing It Safe with Haunted Houses;" "Ergonomics;" "Wired for the Future;" "Impact Fees: The Cost of Development;" and "The Passing of a Proposal:

NFPA 1710." She also attended the Annual Conferences, taking photographs and writing the daily newsletters.

Prior to joining BOCA in 1999, Kite worked with the Whispering Oaks Girl Scout Council (LaGrange, Illinois), where she held positions as Communications Director and Field Director. As Field Director, she managed more than 100 troops and 1,400 scouts. She was also responsible for orienting 200 volunteer leaders.

A former teacher with a lifelong interest in political science, Kite held secondary teaching credentials in the State of Illinois. She was a member of the Nonpartisan Committee in Park Forest, Illinois, and was a member of its Traffic and Safety Commission. She remained an active volunteer with the Girl Scouts and Boy Scouts of America, and the League of Women Voters.

Kite is survived by Michele (Patrick) McCarthy of Indiana; Blake (Fran) Kite of Arizona; and two grandchildren. Her husband, Dennis, died in 1987.

She is missed.