

MOLD

If you or a family member has suffered a serious illness or disease as a result of toxic mold exposure at home or work, please contact EICHEN LEVINSON & CRUTCHLOW LLP. Illnesses associated with mold include adults and infants with pulmonary hemosiderosis, asthma attacks, breathing problems and infections. Our lawyers are interested in pursuing cases in which people have serious claims and received medical treatment directly related to mold exposure.

If you are a large property owner, building owner or own multiple units and have extensive mold damage that an insurance company is refusing to pay to repair, please contact EICHEN LEVINSON & CRUTCHLOW LLP to get legal help. Your insurance company may be improperly denying coverage for your property damage.

Different species of fungi have probably been present in human suffering since the dawn of time. In fact, the adverse health effects of fungal exposure are mentioned in the Book Of Leviticus. However, it wasn't until relatively recently that the scientific community has identified mold and other fungi as a possible cause of human's adverse health effects.

Today, certain fungi and mold are known to the scientific and medical world to be responsible for allergies, hypersensitivity pneumonitis, humidifier fever, infections, mushroom poisoning, mycotoxicoses, mucous membrane irritation, and many other ailments. A few examples of fungi/mold species that can be hazardous to the health of humans include:

- Penicillium
- Aspergillus
- Stachybotrys
- Paecilomyces
- Fusarium

Mycotoxins

Mycotoxins are poisonous substances that are produced by fungi. They are one reason for the adverse health effects that molds have on humans. They occur when humans inhale or ingest fungal spores. Mycotoxins tend to concentrate in fungal spores, and thus present a potential hazard to those who inhale these airborne spores. Toxicogenic spores can have a significant affect on the function of the alveolar macrophage and be a health hazard to those exposed. Dangerous mold species include *Stachybotrys atra*, *Aspergillus versicolor*, and several toxigenic species of *Penicillium*.

Health Effects of Toxic Molds

Although mold affects individuals differently and to different degrees, the following are some of the most common adverse health effects.

- Respiratory problems---wheezing, difficulty in breathing
- Nasal and sinus congestion
- Eyes-burning, watery, reddened, blurry vision, light sensitivity
- Dry, hacking cough

- Sore throat
- Nose and throat irritation
- Shortness of breath and lung disease
- Chronic fatigue
- Skin irritation
- Central nervous system problems (constant headaches, loss of memory, and mood Changes)
- Aches and pains
- Fever
- Headaches
- Diarrhea
- Immune suppression

Research on Toxic Mold

There has been quite a lot of literature detailing specific case studies of mold contaminating homes and other structures. However, there has been relatively little work on the specific conditions and surroundings that allowed this growth. Beginning in the early '90s, the Environmental Protection Agency (EPA) began to study material properties, temperatures, and ecological niches that allowed fungi and mold to thrive, expand, and then eventually die. One of the results discovered was that humidity played a very indirect role to the growth of mold. However, small amounts of moisture can foster the development of certain mold cultures. Other types of mold require much greater levels of moisture. The fairly toxic species, *S. atra*, needs a lot of moisture and lots of materials that contain cellulose in order to foster growth.

Recent studies and cases have revealed greater rates of poisonous fungal species in poorly maintained offices/homes with water damage or moisture problems. While only a small number of molds and fungi are considered toxic and allergenic, species such as *Stachybotrys* (*S. atra*) have been directly linked to numerous cases of hemorrhagic lung disease in infants.

Within the last two decades, there has been significant recognition on the part of government agencies, communities, families, and individuals regarding the dangers associated with damp, moist, and wet indoor environments. At once time it was thought that bacteria or viruses were responsible for many of the health problems within buildings. Today, many home and workplace-related ailments are now being properly attributed wholly or, in part, to fungi and mold. As science and medicine continue to expand our knowledge of the effects of toxic mold, individuals are becoming much more aware of indoor air quality issues. For example, only relatively recently have individuals and families had enough education on the effects of mold to begin making cases for mold contamination.

Molds are but one type of fungi that exist in nearly every location across the globe. The purpose of fungi is to break down organic material and recycle them for future use by plants and animals. The family of fungi includes mildews, yeasts, large mushrooms, and mold. Fungi require organic materials in order to form and expand.

When damp conditions are present, mold is able to grow on such diverse materials as wood, carpet, insulation, cloth, and all types of food. Mold thrives in damp, moist, or wet surroundings, frequently in areas where humans exist. Molds typically reproduce through their spores that are released into the air and land on moist, organic materials. The spores then germinate and began expanding out in elaborate networks. The factors that determine the rate of this growth include amount of moisture, type of food or organic material, temperature, and many others.

Humans often come in contact with molds in moist areas in or around their homes or when mold spores become airborne. These airborne mold spores can come into contact with humans either through the skin or when ingested.

If the mold spores are "toxic", they can adversely affect the health of humans. The effect on humans will depend on the type of mold involved, the metabolic byproduct of the mold, as well as how much contact there is and the length of exposure, as well as the level of susceptibility of the human victim. This last factor is important for children who can be affected much more easily than adults.

The ill effects of molds generally break down into 4 categories that include allergies, infections, irritations, and toxicities.

Allergies

Allergies are probably the most common reaction to contact with molds. Atopic individuals (those who experience allergic reactions that is often hereditary) who are exposed to mold, mold spores, or mold byproducts may manifest allergic reactions once they become vulnerable (sensitized) to the particular mold. The reactions can run the spectrum, from very mild and temporary reactions to acute, chronic illness. Of course, molds are simply one of the causes of indoor allergens. Other common causes include dust mites, cockroaches, effluvia from domestic pets and other microorganisms (molds are included in this category).

However, according to The Institute of Medicine:

- 1 in 5 Americans suffer from allergic rhinitis, the most common chronic disease in humans.
- 1 in 9 Americans suffer from allergy-related sinusitis.
- 1 in 10 Americans have allergic-related asthma.

- 1 in 11 Americans experience allergic dermatitis.
- Less than 1 in 100 Americans suffer from serious chronic allergic diseases.

These statistics indicate that allergic reactions are extremely common in humans. Often times, the specific cause of the allergies is in question. Recently, the existence of mold in homes and workplaces has cropped up as a very real possibility as the cause of some of these allergic reactions.

Many different types of molds can put their spores and byproducts into the air, but only a few purified mold allergens are available for allergy tests. Atopic individuals can become sensitized to certain molds, but this may not always be cited by a health care

professional as a mold-related allergy. A positive mold allergy test indicates that an individual is susceptible to a specific allergen, but testing negative doesn't necessarily rule out mold allergy for atopic individuals.

Infections

This type of reaction from indoor mold is fairly rare, occurring primarily in those individuals who are susceptible. Aspergillus types of mold have been known to be pathogenic (a disease producing microorganism) For instance, Aspergillus fumigatus (A. fumigatus) is a fairly weak pathogen thought to cause infections in vulnerable individuals. A. fumigatus is also fairly commonly implicated in ABPA and allergic fungal sinusitis.

Other fungi that cause infection include Coccidioides, Histoplasma, and Blastomyces. However, these fungi are rarely found indoors, growing instead in soil and dirt. Human contact is usually due to contact with animals.

Irritations

Fungal exposure can also come from any volatile compounds (VOCs) that a fungi/mold creates through primary or secondary metabolism that then becomes airborne. (Primary metabolic processes are those necessary to sustain the life of an organism.) These volatile compounds may be constantly created as the fungus consumes its food source during the primary metabolic process. VOCs can irritate the mucous membranes of the eyes and respiratory system.

Fungi that consume certain organic sources can release highly toxic gases. For instance, a fungus that grows on wallpaper often releases toxic gas arsine directly from the wallpaper that contains arsenic pigments. Thus, fungi and molds can release dangerous materials when they break down the host material. This can cause mucous membrane irritation in sensitized individuals.

Fungal volatile compounds may impact the "common chemical sense" which senses pungency and responds to it. This sense is primarily associated with the trigeminal nerve. The sensory and motor nerves respond to pungency by trying to hold the breath, discomfort, or through sensations such as itching, burning, and skin crawling. Changes in sensation, swelling of mucous membranes, constriction of respiratory smooth muscle, or dilation of surface blood vessels may be part of fight or flight reactions in response to trigeminal nerve stimulation. Reactions often include a reduced attention level, general disorientation, lowered reflex time, dizziness, etc.

Volatile Compounds found in or around homes can be responsible for mucous membrane irritants. It is thought that fungi can add to the already existing compounds when breaking down certain organic substances. A mold-contaminated building may have a significant contribution from its fungal contaminants that is added to common VOCs---building materials, paints, plastics and cleaners. VOCs in general can result in symptoms that include lowered attention span, headaches, lack of concentration, and dizziness.

Reaction to Mold Odors Some individuals have very strong reactions to the smells given off by molds. Among humans, there is a high degree of variation in ability to detect these

odors. Certain individuals can detect low levels of VOCs, while others can only detect relatively high levels. Those individuals who are particularly susceptible to mold odors may react with headache, nasal stuffiness, nausea or even vomiting. Asthmatics often exhibit symptoms when exposed to certain odors.

Toxicities

Molds also produce secondary metabolites such as antibiotics and mycotoxins (a poisonous substance produced by a fungus). Sometimes it is possible to isolate antibiotics from the molds themselves in order to utilize some of their properties in fighting infections. Secondary metabolisms are not necessary for maintaining the existence of a mold---either by creating energy or synthesizing structural components, informational molecules or enzymes. They do, however, function to provide molds with advantages over other mold and bacteria and are toxic to certain plant and human cells. Toxic conditions exist when a human has exposure to these mycotoxins---either through ingesting mycotoxin-containing mold spores or with skin contact to mold itself. Mycotoxins are nearly all cytotoxic (substances produced by microorganisms that are toxic to individual cells), which disrupt various cellular structures such as membranes, and interrupt important processes, including protein, RNA and DNA synthesis.

Mycotoxins vary in how dangerous they are for humans. Mycotoxins pose a threat to larger organisms not because they are specifically targeting them, but rather because these large organisms inadvertently come across the byproduct of the competing molds all vying for the same ecological niche. Numerous mold types produce mycotoxins, including some found indoors in contaminated homes and office buildings. Another factor that determines the mycotoxins that are produced by specific molds usually depends on the materials or organisms that they grow on.

It used to be thought that dangerous molds were primarily contaminants in foods. This notion is quickly changing. Recently, researchers have become more concerned with multiple mycotoxins that derive from many types of mold spores growing in moist indoor environments. Health effects from exposures to such mold mixtures can differ from those related to single mycotoxins in controlled laboratory exposures. Although it is difficult to predict how exposure to multiple toxigenic molds can affect an individual (they can synergize the effects), the following provides possible poor health effects from mycotoxin exposure to multiple molds indoors.

- Problems with the vascular system. Increased vascular fragility, possibility of hemorrhaging into body tissues. Possible molds include aflatoxin, satratoxin, roridins.
- Problems with digestive system. Diarrhea, vomiting, intestinal hemorrhage, liver effects (such as necrosis and fibrosis). Aflatoxin results in deleterious effects on mucous membranes.
- Problems with respiratory system. Including respiratory distress, and bleeding from the lungs.
- Problems with nervous system. Tremors, lack of coordination, depression, and headaches.
- Problems with cutaneous system. Symptoms include rash, burning sensation, and sloughing of skin.
- Problems with urinary system.

- Problems with reproductive system. Including infertility, changes in reproductive cycles, etc.
- Many mycotoxins can produce changes or a weakening of the immune system.

Unfortunately, not all types or species of molds have been tested for the presence of mycotoxins. The production of toxins varies according to the type of mold, the substrate on which it grows, and seasons of the year.