Mould Contamination in Buildings Guideline

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What is mould or fungus?

A mould or fungus is a microscopic, plant-like organism that grows on organic material and reproduces by broadcasting spores. In proper usage, "mould" refers to a group of plant disease-producing fungi that grow on crops, but in common use refers to any type of fungus. Moulds are found throughout the natural world, and are essential for the recycling of organic material in our forests, lawns and gardens. All require relatively damp environments to grow.

Why worry about mould growth in buildings?

Although moulds are naturally occurring, it is now well established that the growth of mould in buildings can cause a variety of health problems in some residents, occupants or workers. Different species of mould may have varying health effects. All moulds are allergenic. Pathogenic moulds are those that can cause disease in humans. Toxigenic moulds are those that contain potent poisons (mycotoxins), usually on the surfaces of the spores. The spores released to the air from mould contamination in buildings continue to be potentially harmful even after the mould colony has stopped growing.

What are the possible health effects of mould exposure?

Allergic response: When spores are airborne or the mould growth is disturbed, occupants with pre-existing allergies to moulds may react with running nose, eye and throat irritation, cough, etc. Asthmatics with sensitivity to mould are at risk of reacting to indoor mould with more frequent and severe asthmatic
attacks. Prolonged exposure to mould in buildings may result in development of allergies, or hypersensitivity pneumonitis, which can result in permanent lung damage.

**Infectious disease:** Exposure to the pathogenic moulds can result in infectious lung diseases. These exposures are normally associated with agriculture or renovations of contaminated buildings. Individuals with reduced immune systems are most susceptible. Bird and bat droppings should be presumed infected with pathogenic moulds, and are a special concern in renovation and demolition of buildings contaminated with droppings.

**Toxic response:** A variety of symptoms have been associated with the toxigenic moulds, including headache, sore throat, cough, skin rash, flu-like symptoms, nosebleeds, fatigue, fever, etc. Stachybotrys chartarum is one of the most recognized fungi with toxicogenic effects, but many other toxigenic moulds are known. Persons exposed to heavy airborne levels of many moulds (not just toxigenic moulds) may react within a few hours with flu-like symptoms, fever and respiratory symptoms.

**Who is at risk?**

Persons with allergies to mould or have asthma may react to the presence of any mould.

Anyone may react to toxigenic moulds or high levels of other moulds. There is insufficient evidence at this time to establish "safe" exposure levels for the toxigenic moulds.

Infants and young children, individuals with reduced immune function, or those with pre-existing lung disorders, may have a more severe reaction to infectious or toxigenic moulds.

Maintenance and construction workers in buildings are at risk if mouldy materials or bird or bat droppings are disturbed without appropriate precautions.

**Are there regulations or guidelines that apply to control of mould in buildings?**

Municipal Public Health departments have the authority to issue orders to owners of public buildings and rental housing regarding potentially hazardous mould growth. Some municipalities have already acted on this issue by ordering the building owner to inspect for and abate any hazardous mould. In some cases, the order requires the affected areas to remain unoccupied until the remediation is complete.

The Ontario Ministry of Health has issued guidelines for management of mould in school portable classrooms.

The Ontario Ministry of Labour has issued guidelines for workers who will be performing mould remediation, with requirements for protective clothing and respiratory protection, and has also upheld refusals to work where mould contamination in buildings was suspected.

Good advice is also available in a number of professional guidelines.

**How would I investigate a potential mould problem?**

Suspected mould problems can be difficult to investigate, especially since the reported signs and symptoms have many other potential causes, such as poor air quality, seasonal allergies, and common infections such as colds and the flu.

In order to separate mould concerns from other issues, you should consider at least the following lines of investigation. If employees are involved, the joint health and safety committee or safety representative must be informed of the investigation, has a right to observe the testing and must receive reports.

**Health investigation:** The investigator should gather information from the occupants or employees regarding any problems they might associate with the building. Of special concern would be reports of
headache, nose or throat irritation, chronic respiratory infections, rash, allergy-like reactions, or fatigue, especially if these symptoms clear when out of the building.

**Building inspection:** Mould needs water intrusion to grow, and the investigation will consider the history of roof leaks, leaking pipes, floods, wet basements, etc. Note signs of water damage, stained surfaces or deterioration, or musty odour. Although the water problem may have been fixed, the hazard will remain until all the contaminated material is abated, since the mouldy materials remains hazardous even after the surfaces have dried and further growth has stopped. The hazard is not abated until the water problem is fixed and all contaminated materials are removed under careful controls.

**Air monitoring:** Air sampling is often useful to check for the possibility of hidden growth within wall cavities, in crawlspace, within ventilation equipment and ductwork, in carpets, etc. The results of indoor air samples are compared those taken outdoors, and if substantially different, point to the growth of mould in the building.

**What can be done to remedy a mould problem?**

Small areas of fungal growth can be removed by the homeowner or a maintenance worker. The underlying moisture problem must be fixed first, or else the mould will grow back. The area should be isolated, a respirator with high efficiency filters is worn, porous mouldy materials are removed, and all surfaces in the area are cleaned with a disinfectant solution and clear water.

Note that authorities advise specialized help for the clean-up of more than a few square feet of mould growth. Special containment, ventilation and safety measures are required for large scale work, and if the work is performed incorrectly, the situation can be made worse.

**Where can I get more information or advice?**

For more information, you can contact:

- Department Wellness/Safety Specialists
- Corporate Workplace Safety Section
- Local Public Health department
- Ontario Ministry of Labour