

Work **Safe!** Bulletin

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BUILDING RELATED MOULD

What is mould?

Moulds are a form of fungi, as are yeast and mushrooms. Moulds are microscopic organisms, which often appear as a fuzzy looking mass of hyphae (the thread like growth of mould). They are ubiquitous; i.e. will grow almost anywhere given the right combination of nutrients, temperature and water. We live with mould in our homes, cars, workplaces, gardens, etc, and we see it often as mildew on bathroom walls, "green stuff" on bread and cheese, and rot on old boards. Mould can be useful (as in food and antibiotic production) or it can be a health hazard (as in allergies and reactions to toxins). And, depending upon circumstances, the same mould can be either useful or a health hazard.

Is mould a health hazard?

In most non-contaminated workplaces the possible mould exposure would not be expected to present a health hazard except to very susceptible individuals. In contaminated situations the risk from exposure to mould increases. Reactions are varied and complex depending upon many factors. Human factors include personal susceptibility, route of exposure, age and state of health. Mould related factors include amount and length of time of exposure, virility and viability of the organism, and whether the effect is infection, allergenic, toxigenic or some combination of these.



Example of mould growth on the inside of a wall after a flood.

Exposure to excessive amounts of mould can cause:

Infection - the mould can colonize and grow on/in a person. E.g. a superficial mouth infection such as thrush or the much more serious lung infection aspergillosis

Allergy reaction - sensitive individuals may react to organic components of the mould (living or dead mould can be allergenic), e.g. hay fever, asthma.

Toxin reactions - some mould produce toxins (mycotoxins) that are intended to give it an advantage in competing for space and food. Some of these products can be extremely hazardous to people.

Infection and toxic reactions tend to be quite uncommon. Reactions to allergens are more likely to occur, but unfortunately are difficult to diagnose with any specificity.

Who is at risk?

Infants, the elderly, immuno-compromised patients, pregnant women, people with respiratory problems such as asthma and allergies are all at increased risk when exposed to mould.

What health symptoms are related to over-exposure to moulds?

In general, most workers (those not at increased risk) in mould-contaminated buildings will experience only mild or no health symptoms. Symptoms are largely non-specific such as headache, nausea, eye and nasal irritation, tiredness, and respiratory distress. However, there can be other effects such as Farmer's Lung, respiratory pneumonitis, allergies, and psychological or neurological disorders. Adverse health effects can result from over-exposure to live or dead mould, mould components or mould products (toxins).

How to know if a mould problem exists?

Determining if a mould problem exists can be as simple as seeing mouldy material on a wall or as difficult as finding contaminated material hidden in wall cavities or in carpet fibers. If mould is visible it is simple _ get rid of it! (using proper safety procedures below). Usually it is not that simple, because if mould is growing in an obvious spot it may also be growing in not-so-obvious spots such as under carpet or in wall cavities.

When mould is not visible but is suspected, then one has to look for clues to its location e.g. behind baseboards, on ceiling tiles, in carpets, etc. This may mean destructive testing such as breaking into walls or cutting out pieces of carpet.

Before proceeding to any destructive testing, the possible existence of a mould problem should be supported by sufficient evidence. Clues to look for include: historical or present moisture problems (e.g. floods, condensation and plumbing leaks), people complaining of illness and/or musty odours, staining on carpets or ceiling tiles, and blistering paint. Generally, to locate hidden mould will require the services of a professional experienced in addressing mould issues.

Sampling and Testing for mould generally requires services of a qualified professional who uses an accredited laboratory for the analysis. Extensive testing is not advised as a method to locate mould contamination. Sampling and testing is useful however, for confirming that a problem exists or to assist medical diagnosis by relating patient symptoms to a source of exposure. Air sampling has value when confirming the mould has been remediated and the site can be re-occupied.

How should mould be remediated?

Health Canada, in *Fungal Contamination in Public Buildings: A guide to recognition and management*, states:

"Any procedures involving direct handling and manipulation of potentially contaminated materials should be assigned only to trained personnel as required by WHMIS [legislation]"

"In small scale operations such as 0.3 square meters or less, gloves and masks with a good fit and proper seal may be used. The affected material should be decontaminated [apply a 1:10 dilution of household bleach, one part bleach to nine parts water] prior to removal."

"In intermediate scale operations such as 3 square meters, appropriate gloves and half-faced respirators are advised" and "half-face-respirators and gloves are strongly recommended for any remediation at any scale if toxigenic fungi is known or suspected."

Large-scale operations such as 10 square meters require very extensive procedures (e.g. similar to Type 3 asbestos abatement) and should only be attempted by trained professionals.

For any intermediate or large-scale remediation it is strongly advised that a professional is consulted to ensure the proper procedures are used.

What should be done to prevent mould contamination?

- ✓ Regular maintenance of HVAC system and using high quality filters.
- ✓ Correct any moisture problems immediately.
- ✓ Carpets and furniture should be vacuumed and cleaned regularly.
- ✓ Any staining of tiles, carpets or other porous materials should be investigated.
- ✓ Storage of paper materials should be raised off the floor 8-10 cm.
- ✓ If possible, avoid the use of carpets (they become reservoirs of mould and dust mites).
- ✓ Vacuums should be HEPA (High Efficiency Particle Arresting). Central vacuum systems should be vented directly outside.

What should be done if my building is flooded?

- ✓ Clean, disinfect and dry all porous materials (e.g. carpets, drapes, upholstered furniture) within 24-48 hours, or discard.
- ✓ Open and dry all walls; gyproc or any porous walls should be removed to 30.5 cm above the water level.
- ✓ Discard all wetted insulation.
- ✓ Raise all furniture off the floor to allow drying and cleaning.
- ✓ Clean and decontaminate all washable and dry-cleanable materials.
- ✓ Ventilate the area thoroughly.
- ✓ Find all sources of water and correct all problems before any reconstruction.
- ✓ Thoroughly dry the area before renovating.
- ✓ For situations involving intermediate or large scale contamination post-remediation testing is advised to indicate the area is back to normal and is free of mould amplification sites.

For further information

Fungal Contamination in Public Buildings: A guide to recognition and management. (Health Canada)
 Clean-up Procedures for Mold in Houses (Canada Mortgage and Housing Corp)
 Managing Water Infiltration into Buildings (University of Minnesota)