

Mould

in the Workplace

A Basic Guide



Canadian Centre for
Occupational Health and Safety

Summary

Mould is a fact of life. Moulds will grow practically everywhere people live and work. Mould is recognized as an occupational hazard for indoor workers as well as outdoor workers who work in warm and humid environments. All moulds are not harmful. However certain types of moulds can cause adverse health effects.

Occupational health and safety legislation does not specifically address adverse health effects of mould exposure. Mould growth within buildings is not acceptable and prompt remediation is necessary.

Mould contamination can affect building components such as walls, floor coverings, windows, ventilation systems, and support beams that are likely to be moist or water damaged. Mould may grow in warm and wet areas such as bathroom tubs, between tiles and window frames.

There have been reports linking health effects to mouldy surfaces in persons who worked in contaminated offices. Symptoms such as fatigue, respiratory ailments and eye irritation were typically experienced in these cases. All exposed people are not affected. Individuals with compromised immune systems are at the greatest risk.

In recent years potential adverse health effects of mould have caused widespread concern. Short-term effects of mould exposure include allergy-type symptoms such as runny nose, cough, and sore throats. This guide provides an overview that will help you recognize, evaluate and control mould exposure in the workplace. Topics covered include: a description of moulds; health effects of mould; what to do when mould is found; how to interpret mould measurement data; how to clean up mould; and how to prevent mould growth.

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Introduction

The guide will provide an overview of mould related workplace issues and enable a reader to:

- recognize mould and the conditions which are favourable to its growth;
- understand how people might be effected by mould exposure;
- access guidelines and regulations;
- identify jobs that can potentially pose a risk of harmful mould exposure;
- plan workplace mould surveys;
- understand when mould measurement and analysis are needed;
- interpret information from mould measurement;
- understand how to clean up mould; and
- develop and implement a mould management and control program.

For many years, moulds have been recognized as potential health hazards in some specific workplaces. For example, workers in construction and demolition operations have become ill after exposure to dust containing mould. In recent years, there has been increasing concern about mould related health effects due to incidence of mould related complaints in:

- schools (specially in portable classrooms);
 - residences for senior citizens; and
 - office buildings with indoor air quality problems.
-

2. Causes of Mould Growth

Mould needs two factors to flourish and grow – moisture and food (nutrient). Mould growth can start in any building where the following events have occurred:

- flooding,
- water leaks,
- inadequate air exchange,
- excess humidity, or
- condensation, especially in winter, on poorly insulated surfaces.

Sources of Indoor Moisture that Can Cause Mould Problems

- floods,
- backed-up sewers,
- leaky roofs,
- humidifier which is not regularly cleaned and disinfected,
- damp basements or crawl spaces,
- plumbing leaks,
- house plants and their debris,
- steam from cooking and showers, and
- wet clothes hung to dry indoors.

Mould can use a wide variety of material as food (nutrient). These can be organic materials such as wood, paper, leather, fabric, etc., or inorganic materials such as grout, painted walls, cement, plaster, etc., where moulds can get nutrients from dust and soil particles.

Since these materials are often part of the structures in which we work, we cannot effectively remove them to prevent mould growth. Our first line of defense against mould growth is to prevent excessive moisture and dampness.

VISUAL MOULD INSPECTION CHECKLIST

Date: _____ Location: _____ Inspected by: _____ and _____

INSPECT	LOOK FOR	OBSERVATION		RECOMMENDATION(S)
		Needs Further Action	Yes	
		No	Yes	
Ventilation system	Damp filters/insulation	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Damp conditions	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Overall cleanliness	<input type="checkbox"/>	<input type="checkbox"/>	_____
Ceiling tiles, exposed insulated pipes	Signs of leak	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Dampness	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Unusual patches/stains	<input type="checkbox"/>	<input type="checkbox"/>	_____
Gypsum wallboard surfaces	Dampness	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Unusual patches/soiling	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Degraded wall surfaces	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Mould under wall paper and wall coverings	<input type="checkbox"/>	<input type="checkbox"/>	_____

3. Controlling and Mitigating Mould Growth

Controlling moisture is the key to preventing indoor mould growth. The relative humidity of indoor environments should be maintained at 20–40% in winter and no more than 60% the rest of the year. Excessively dry air can also cause adverse health effects. If and when moisture problems develop, rapid and appropriate responses are important to prevent mould spores from germinating (see sources and strategies below). If wetness or spills are dried within 24–48 hours, mould growth is less likely to occur.

Eliminating Possible Sources of Excessive Moisture

Indoor sources



FIX plumbing leaks, drips or “sweating” pipes.

LIMIT sources of indoor humidity/dehumidify indoor air.

IMPROVE air movement in poorly ventilated areas.

INCREASE fresh air ventilation when outdoor air is not humid.

INSULATE areas where dampness or condensation can occur.

WARM cold surfaces where condensation may occur.

Outdoor Sources



MAINTAIN roof and gutter/downspout system.

DIRECT runoff away from foundation by grading, draintile, landscaping, etc.

USE air conditioning and keep building closed during high outdoor humidity.

PREVENT leakage around windows, doors, flashing, etc.

WATERPROOF foundations.

Level IV – Extensive Contamination

*(Greater than 100 contiguous sq. ft. in an area)
(10 m²)*

A health and safety professional with experience performing microbial investigations should be consulted prior to remediation activities to provide oversight for the project. The following procedures are recommended:

- a. Personnel trained in the handling of hazardous materials equipped with:
 - i. Full-face respirators with high efficiency particulate air (HEPA) cartridges.
 - ii. Disposable protective clothing covering both head and shoes.
 - iii. Gloves.
- b. Containment of the affected area:
 - i. Complete isolation of work area from occupied spaces using plastic sheeting sealed with duct tape (including ventilation ducts/grills, fixtures, and any other openings).
 - ii. The use of an exhaust fan with a HEPA filter to generate negative pressurization.
 - iii. Airlocks and decontamination room.
- c. Vacating people from spaces adjacent to the work area is not necessary but is recommended in the presence of infants (less than 12 months old), persons having undergone recent surgery, immune suppressed people, or people with chronic inflammatory lung diseases (e.g., asthma, hypersensitivity pneumonitis, and severe allergies).
- d. Contaminated materials that cannot be cleaned should be removed from the building in sealed plastic bags. The outside of the bags should be cleaned with a damp cloth and a detergent solution or HEPA vacuumed in the decontamination

2. Cleaning Up Water Damage

A wide variety of materials can be water damaged and may need to be cleaned. This includes furniture, carpets, textiles, books, files and papers, ceiling tiles, wall paneling, plaster, vinyl, hardwood floors, concrete floors, fiberglass, etc. The types of cleaning required for various water-damaged materials are summarized on the following pages.

General Guidelines for Cleaning Up Water Damage

- ✓ USE controlled conditions that prevent dispersion of any contaminants to other areas of the building.

ISOLATE the area and use negative air pressure where the work is proceeding so that clean air from surrounding rooms is drawn towards the work area (rather than having debris and dust from the work area dispersed to other parts of the building).

REMOVE debris and wet materials with care, sealing them in bags and covered containers. Once outside the building discard these materials as normal construction waste. Clean all equipment used inside the “hot” zone before removal.

ASSUME a hazard unless it is proven that a hazard does not exist. Wear personal protective equipment: eye protection, gloves, boots, disposable coveralls and appropriate respiratory protection.

A flow chart showing the clean up process is shown on the following page.