

Mould – A Growing Problem

Introduction	The number of workplaces that have been involved with the investigation and remediation of mould contamination in buildings has been growing rapidly.
What are moulds?	Moulds belong to the Fungi family. Unlike plants, they lack chlorophyll and survive by digesting plant and other organic materials for food. Moulds produce many tiny spores. When these spores land on a damp surface, they can begin to grow and digest whatever substrate they are on.
Where are moulds found?	Moulds are found everywhere. They exist in soil, on plants, and dead or decaying matter. Moulds have a key role in degrading dead plant matter in the environment. They can grow on almost anything as long as sufficient water and oxygen are available.
Why should I be concerned about mould?	Moulds have the potential to cause health effects. These potential health concerns are an important reason to prevent mould growth and to remediate (clean up) any existing indoor mould growth. The presence of mould, water damage, or musty odors should be addressed immediately. People with weakened immune systems are particularly susceptible to mould-related illness, also infants and children and the elderly.
What health effects can mould cause?	Mould can produce toxic substances known as mycotoxins. Some mycotoxins adhere to the mould spores while others can be found within the spore itself. Persons exposed to mould can experience a variety of health effects. These may include: <ul style="list-style-type: none">• Allergic and other immune responses: allergic rhinitis/sinusitis, allergic conjunctivitis, eczema, asthma, hypersensitivity pneumonitis, allergic contact dermatitis;• Infectious responses: mycosis (infection caused by fungal spores), aspergillosis (lung infection associated with exposure to <i>Aspergillus fumigatus</i>);• Mycotoxin responses: commonly exhibited as eye and throat irritations; and• Neurotoxic responses: headache, fatigue, dizziness, memory and verbal problems, depression.

How can I prevent mould growth?

Mould is found everywhere – indoors and outdoors. Mould can be carried into the indoor environment by wind currents through open doors, on personal clothing and tracked in on shoes and boots.

For mould growth to occur, three conditions are required:

- Temperatures between 5^oC and 38^oC
- Nutrients, i.e. dirt, soil, cellulose, paper, insulation, etc.
- Water (water can occur as a result of floods, roof leaks, condensation, humid rooms, damp basements etc.)

By controlling one or more of these conditions the potential for mould growth is significantly reduced.

In the event of a catastrophic incident involving clean water an immediate response (within 24 to 48 hours) and thorough clean-up, drying and/or removal of water damaged materials by qualified disaster recovery contractors should prevent or limit mould growth. It is important that during and following the clean up that the relative humidity should be maintained at levels below 60% to inhibit mould growth.

How do I determine if I have a mould problem?

A visual inspection is the most important initial step in identifying a possible contamination problem. The use of equipment to measure relative humidity in the building or a moisture meter to measure moisture levels in building materials may be helpful in identifying hidden sources of fungal growth and the extent of water damage. Air sampling, surface sampling and bulk sampling are used to identify and document the type of mould present.

How can I address my mould problem?

An initial assessment should be conducted before remediation (removal) begins. It is suggested that an experienced mould assessor be retained to ensure that appropriate methods of assessment are used to develop an effective strategy to address the mould contamination. The assessment must address the following questions:

- What is the extent of the mould contamination?
- What types of materials are affected?
- What is the source of the moisture?

Once the initial assessment has been conducted, a plan of action must be developed. The plan should include:

- Steps to correct the moisture problem
 - Specific actions that must be implemented to remediate the mould contamination
 - Special control measures (which may include containment or isolation) to prevent worker exposure and the spread of moulds from the remediation zone to adjacent areas
 - Measures to relocate occupants during the remediation if necessary
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What is involved with remediation of mould?

Minor mould contamination (non-porous surfaces with less than 1 square meter of visible growth) may be addressed by the householder or maintenance staff.

Anything more significant should only be handled by a competent mould remediation contractor. The contractor will implement steps to ensure that the area being remediated is contained and will have equipment and techniques that a typical householder will not have such as high volume fans and HEPA air scrubbers.

Regulatory Status

There are currently no regulatory standards in Ontario or Canada for acceptable or unacceptable exposure levels for mould. The Ontario Ministry of Labour issued a "Hazard Alert" fact sheet in December 2000 entitled "Mould in Workplace Buildings" that provides some guidance to affected workplaces.

Even though the Occupational Health and Safety Act does not specifically address moulds, an employer must take every precaution reasonable in the circumstances for the protection of the worker. Employers have a duty to instruct workers in the safe removal and handling of mould contaminated material. Workers in turn have a duty to follow these instructions. Building owners must ensure that trade contractors follow proper remediation procedures.

Several documents have been published by other jurisdictions to provide guidance with respect to corrective measures, mould remediation and worker training. These include:

- Guidelines on Assessment and Remediation of Fungi in Indoor Environments, (New York City Department of Health, April 2000)
 - Guidelines for the Investigation, Assessment & Remediation of Mould in Workplaces, (Manitoba Department of Labour)
 - Fungal Contamination in Public Building: A Guide to Recognition and Management, (Health Canada, June 1995)
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How can LEHDER help?

LEHDER is a Sarnia based consulting firm with extensive experience in dealing with mould issues in commercial and institutional settings. Our team includes a Certified Industrial Hygienist that oversees all mould related investigations. Our capabilities include:

- Developing Investigation Strategies
 - Conducting mould investigations in commercial/institutional/residential buildings
 - Performing air, bulk and surface sampling for mould species and related volatile organic compounds
 - Interpreting results
 - Developing mould remediation plans
 - Managing mould remediation projects
 - Performing post removal inspections to determine the effectiveness of mould remediation
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Industrial Hygiene Services

Related Industrial Hygiene Services provided by LEHDER include:

- Health hazard assessments of new and existing processes and products
 - Exposure assessment and monitoring
 - Development of hazard control programs
 - Regulatory Compliance Assessments
 - Program Development and Implementation
 - Specific health and safety training
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Environmental Health, and Safety Management

EH&S services provided by LEHDER Environmental Services include:

- Occupational Noise Exposure Assessments and Surveys
 - Hazardous Building Materials Assessments and Investigations
 - Training
 - DOT/CFR49
 - TDG
 - IATA
 - International Marine Dangerous Goods
 - WHMIS / GHS
 - Waste Generation and Transportation
 - New Substance Notification Submissions
 - Onsite Environmental, Health and Safety Support
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For further information

For further information please contact:

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About LEHDER

LEHDER recognizes our client's need to make decisions that provide for operational flexibility while meeting regulatory, economic and social requirements.

LEHDER Environmental Services Limited provides totally integrated solutions to industrial clients throughout North America. Our team of consulting professionals is built around our core strength in industrial environmental, health and safety management.

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