

MOULD CONTROL PROGRAM

University of Toronto

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1.0 INTRODUCTION

Moulds are microscopic organisms that can be found growing on water damaged materials or in areas with high humidity. Although most common types of mould are generally not hazardous to healthy individuals, some mould species may be hazardous to certain individuals. To prevent potentially hazardous exposure to mould at the University by employees, students, visitors and external contractors, proper control measures must be implemented.

Objectives:

The objectives of the Mould Control Program are:

- 1) To protect the University community from the potential health risks associated with exposure to mould contamination;
- 2) To provide a safe and healthy work and study environment for employees, students, contractors and visitors, in accordance with the University's Health and Safety Policy; and
- 3) To comply with the general duty clauses (Sections 23, 25(2)(h) and 27) under the Occupational Health and Safety Act of Ontario.

Program Elements:

The basic elements of the mould control program are:

- 1) Prevention of mould growth;
- 2) Ongoing surveillance for mould growth;
- 3) Identification and reporting of mould contaminated material;
- 4) Identification and reporting of water episodes (leaks, spills, seepage, flooding, etc.);
- 5) Training and education of workers who may come into contact with mould contaminated material;
- 6) Provision of appropriate procedures for all mould remediation work, and classification of such work as Level I, II, III, IVa and IVb according to the University of Toronto Procedures for Remediation of Fungi in Indoor Environments;
- 7) Control and monitoring of University employees and external contractors performing mould remediation work;
- 8) Auditing of the implementation and effectiveness of the program;
- 9) Communication of this program and of mould related work taking place in

University buildings to joint health and safety committees and to other persons who may be affected by the work.

Scope

This program applies to all buildings and structures owned or leased by the University of Toronto, to all employees and students of the University, to occupants of University buildings and to external organizations, who may be exposed to mould in University buildings.

2.0 BACKGROUND AND DEFINITIONS

2.1 Background

Moulds are microscopic organisms that are present throughout the natural world. Mould spores are always present in buildings. They can be carried indoors by the wind, insects, in dirt, on clothing or by ventilation equipment. Mould presents a problem when it starts growing in indoor environments. Mould growth indoors can occur when spores on susceptible building materials become wet long enough to allow the spores to germinate, grow and multiply. Common sites for mould growth in buildings include:

- Drywall
- Wood
- Ceiling tiles
- Pipe Wrap
- Organic carpet backing
- Cardboard, building paper
- Soil in crawlspaces
- Soil in carpets

In workplaces where there are no mould amplification sites, mould exposure would not be expected to present a health hazard except to very susceptible individuals. In situations where indoor mould amplification sites are present, the risk from exposure to mould increases. The factors influencing the risk from mould exposure include personal susceptibility, age, state of health and route of exposure. The potential health effects of mould exposure also depend on the amount and duration of exposure, and the species of mould.

The health effects of inhaling mould spores include:

- Allergic reactions
- Infectious diseases
- Toxic and irritation effects

The greatest potential exposure to mould occurs during the remediation of mould contaminated material. During remediation, the mould is disturbed, releasing a large number of spores as well as other parts of the mould organisms into the surrounding

air. In order to prevent the exposure of individuals to high levels of airborne mould, proper precautions and safe work procedures must be implemented whenever mould remediation work is being performed.

2.2 Definitions

Amplification Site

Refers to a location, which due to a suitable nutrient base and water content, is fostering fungal growth.

Fungi Kingdom

Classification of living matter that is separate from the Plant Kingdom and Animal Kingdom. The Fungi Kingdom includes spore-bearing organisms, such as mushrooms, moulds and yeasts.

High Efficiency Particulate Air (HEPA) Filter

A specialized filter capable of removing 99.97% of particulates 0.3 micrometers in diameter and greater.

Heating, Ventilation, and Air Conditioning (HVAC) System

HVAC system refers to the equipment and distribution system used for heating, ventilating, cooling, humidifying, dehumidifying, and cleansing air for a building zone for the purpose of comfort, safety and health of the occupants.

Mould

Moulds are microscopic organisms, part of the Fungi Kingdom of living matter, most of which reproduce through production of massive numbers of spores. Most moulds need moisture to grow and will grow on any organic material (drywall, ceiling tiles, wood, paper, backing on carpet etc.).

Mould Remediation

Treatment of mould contamination either by cleaning or by removal of the contaminated materials.

3.0 RESPONSIBILITIES

This section outlines the responsibilities within the University for implementation of the Mould Control Program.

3.1 Office of Environmental Health and Safety

The Director, Environmental Health and Safety has the following responsibilities within the Mould Control Program:

1. To be responsible for the development, maintenance, quality and effectiveness of the Mould Control Program.
2. To provide technical advice and recommendations regarding prevention of mould

growth, identification of mould, hazard evaluation, and the control measures related to mould.

3. To provide consultation to University departments in the classification (Level I, II, III, IVa or IVb) of mould remediation work when required.
4. To provide consultation to University departments in investigations/assessments for mould contamination when required.
5. In situations where the mould investigation is triggered by the occupant(s) experiencing symptoms listed in Appendix B, the Property Manager (St. George), Director, Facilities Management and Planning (Mississauga), or the Director, Facilities Management (Scarborough) shall contact the Office of Environmental Health and Safety who will then conduct an investigation.
6. To provide ongoing mould training and education programs as necessary.
7. To conduct respiratory protection training and fit-testing for all University employees who may conduct mould remediation work, in keeping with the University's Respiratory Protection Program.
8. To audit the implementation of this program on an on-going basis.
9. In cases of mould related illness, to provide health professionals with information regarding the mould exposures.
10. To review the Mould Control Program once every two years.

3.2 St. George Campus - Facilities and Services (F&S)

3.2.1 Manager, Environmental Hazards and Safety

The Manager, Environmental Hazards and Safety, in the Utilities and Building Operations Division, Facilities and Services, has the following responsibilities:

1. To assist in implementing, and to enforce the requirements of the Mould Control Program for all mould remediation work initiated by any division within Facilities and Services.
2. To work in close liaison with all divisions within Facilities and Services, Capital Projects, the Office of Environmental Health and Safety, and other departments who conduct mould related work to ensure compliance with the Mould Control Program.
3. To assist internal and external departments in the classification (Level I, II, III, IVa or IVb) of mould remediation work.
4. To notify the Office of Environmental Health and Safety of all Level II, III, IVa or IVb mould remediation work.

5. To review and approve all Level II, III, IVa and IVb mould remediation work initiated by divisions within Facilities and Services.
6. To ensure that all work involving mould, regardless of which department initiates the work, is only conducted by qualified employees or external contractors, that safe work procedures are in place, and that all other requirements of the Mould Control Program are implemented. This shall be accomplished by monitoring the progress of such work and by conducting random site inspections.
7. To ensure that competent and reputable mould remediation contractors and consultants are used, based on proven service and performance, and documentation of adequate training and experience.
8. To conduct or assist in the investigations for potential mould contamination, and to make recommendations on the appropriate remediation measures required.
9. To respond to findings of newly reported mould contaminated material and water damage during project activities and to ensure that appropriate cleanup and remediation are completed in a timely manner and in accordance with the Mould Control Program.

3.2.2 Director, Division of Facilities and Services Contracting or Performing Mould Remediation Work

The Director of each Division of F&S who contracts or performs mould remediation work has the following responsibilities:

1. To classify all mould remediation work under his/her jurisdiction as Level I, II, III, IVa or IVb, in consultation with the Manager, Environmental Hazards and Safety (F&S) as needed.
2. To obtain approval of all Level II, III, IVa and IVb mould remediation work from the Manager, Environmental Hazards and Safety (F&S) prior to authorizing the start of the remediation.
3. To be responsible for all mould remediation work (Level I, II, III, IVa and IVb) performed by his/her staff or external individuals whom he/she contracts to do the work, and to ensure that such work is conducted in accordance with the Mould Control Program by regular monitoring of the progress of the work and conducting regular site inspections.
4. To ensure that his/her employees and external contractors who are permitted access to areas where mould contamination is being disturbed have been provided proper training and education in accordance with the Mould Control Program.
5. To provide notification of Level II, III, IVa and IVb remediation work, reasonably in advance of the commencement of the work, to:
 - a. the Manager, Environmental Hazards and Safety (F&S);
 - b. the Director, Property Management for areas involving the building fabric;

- c. the Director, Utilities & Building Operations for areas under the control of Utilities & Building Operations;
 - d. the Director, Office of Environmental Health and Safety; and
 - e. the pertinent joint health and safety committee.
6. To be responsible for notifying and liaising with building occupants and local joint health and safety committees regarding the precautions for all mould remediation work taking place in their building.
 7. To maintain records of all mould remediation work for which he/she is responsible and to forward copies to the Manager, Environmental Hazards and Safety (F&S).
 8. To respond to findings of newly reported mould contamination and water damage, and to ensure that appropriate cleanup and remediation are completed in a timely manner and in accordance with the Mould Control Program.

3.2.3 Director, Utilities and Building Operations

In addition to those responsibilities listed under Section 3.2.2, the Director, Utilities and Building Operations, Facilities and Services, has the following responsibilities under the Mould Control Program:

1. To ensure that regular inspection of the Utilities equipment for conditions listed in Appendix A2 are conducted and that any discovered problems are corrected in a timely manner.
2. To respond to findings of newly discovered mould contamination and water damage, and to ensure that appropriate cleanup and remediation are completed in a timely manner and in accordance with the Mould Control Program.

3.2.4 Managers, Mechanical Operations and Maintenance

The Managers, Mechanical Operations and Maintenance, Facilities and Services have the following responsibilities:

1. To ensure that the HVAC systems are inspected on a regular basis for any signs of mould growth.
2. To ensure that the steps in Appendix A2 are implemented to prevent mould growth in the HVAC system.
3. To report any discovered mould contamination in the HVAC system to the Manager, Environmental Hazards and Safety (F&S).
4. To classify all mould remediation work under his/her jurisdiction as Level I, II, III, IVa or IVb, in consultation with the Manager, Environmental Hazards and Safety (F&S) as needed.
5. To obtain approval for all Level II, III, IVa and IVb mould remediation work from the

Manager, Environmental Hazards and Safety (F&S) prior to authorizing the start of remediation.

6. To ensure that all his/her employees or external contractors who are permitted access to areas where mould contamination is being disturbed have been provided proper training and education in accordance with the Mould Control Program.
7. To provide notification of Level II, III, IVa and IVb mould remediation work, reasonably in advance of the commencement of the work, to:
 - a. the Manager, Environmental Hazards and Safety (F&S);
 - b. the Director, Environmental Health and Safety; and
 - c. the pertinent joint health and safety committee.
8. To be responsible for notifying and liaising with building occupants and joint health and safety committees regarding the precautions for all mould remediation work on the Utilities equipment in their building.
9. To maintain records of all mould remediation work for which he/she is responsible and forward copies to the Manager, Environmental Hazards and Safety (F&S).
10. To ensure that all mould-related activities are performed in accordance with the procedures established under the University Mould Control Program.

3.2.5 Director, Property Management

In addition to the general responsibilities listed under Section 3.2.2, the Director, Property Management, Facilities and Services, has the following responsibilities under the Mould Control Program;

1. To manage University buildings in accordance with the guidelines for prevention of mould growth in buildings listed in Appendix A1.
2. To ensure that any deficiencies in the envelopes of buildings resulting in water intrusion are attended to and promptly repaired.
3. To respond to findings of newly discovered mould contamination and water damage, and to ensure that appropriate cleanup and remediation are completed in a timely manner and in accordance with the Mould Control Program.

3.2.6 Property Managers

The Property Managers, Facilities and Services have the following responsibilities:

1. To manage University buildings in accordance with the guidelines for prevention of mould growth in buildings listed in Appendix A1.
2. To conduct investigations for mould contaminations as outlined in Section 5.0.
3. To classify all mould remediation work under his/her jurisdiction as Level I, II, III,

IVa or IVb, in consultation with the Manager, Environmental Hazards and Safety (F&S) as needed.

4. To inform the Manager, Environmental Hazards and Safety when the mould contamination is classified as Level II, III, IVa or IVb.
5. To obtain approval for all Level II, III, IVa and IVb mould remediation work from the Manager, Environmental Hazards and Safety (F&S) prior to authorizing the start of remediation.
6. To inform prospective external contractors or internal departments who may be contracted to perform work about the presence of mould.
7. To ensure that internal or external contractors who are permitted access to areas where mould contamination is being disturbed have been provided proper training and education in accordance with the Mould Control Program.
8. To provide notification of Level II, III, IVa and IVb remediation work, reasonably in advance of the commencement of the work, to:
 - a. the Manager, Environmental Hazards and Safety (F&S);
 - b. the Director, Environmental Health and Safety; and
 - c. the pertinent joint health and safety committee.
9. To be responsible for notifying and liaising with building occupants and joint health and safety committees regarding the precautions for all mould remediation work taking place in their building.
10. To maintain records of all mould remediation work for which he/she is responsible and to forward a copy to the Manager, Environmental Hazards and Safety (F&S).
11. To ensure that any deficits in the envelopes of buildings resulting in water intrusion are attended to and promptly repaired.
12. To manage buildings in accordance with the guidelines for prevention of mould growth in buildings listed in Appendix A1.
13. To respond to findings of newly discovered mould contamination and water damage, and to ensure that appropriate cleanup and remediation are completed in a timely manner and in accordance with the Mould Control Program.
14. To ensure that all mould-related activities are performed in accordance with the procedures established under the Mould Control Program.

3.2.7 Manager, Trade Services

1. To notify the Manager, Environmental Hazards and Safety (F&S) of all mould contamination discovered by the Trades personnel.
2. To ensure that his/her employees who are permitted access to areas where mould

contamination is being disturbed have been provided proper training and education in accordance with the Mould Control Program.

3. To ensure that all mould-related activities are performed in accordance with the procedures established under the Mould Control Program.

3.2.8 Director, Building Services and Grounds Services

In addition to the general responsibilities listed under Section 3.2.2, the Director, Building Services and Grounds Services, Facilities and Services, has the following responsibilities under the Mould Control Program:

1. To ensure clean-up of flood water in buildings and drying of the wet areas is completed within 48 hours.
2. To ensure that all his/her staff are properly informed about the location of any identified mould contaminated materials they may disturb, and that they report any newly discovered mould contamination.

3.3 Capital Projects (CP)

3.3.1 Director, Capital Projects and Manager, Design and Engineering

The Director, Capital Projects and Manager, Design and Engineering have the following responsibilities:

1. To be responsible for all mould remediation work performed by his/her staff or by external individuals whom he/she contracts to do the work and to ensure that all such work is conducted in accordance with the Mould Control Program by regular monitoring of the progress of the work and regular site inspections.
2. To ensure that his/her employees and external contractors who are permitted access to areas where mould contamination is being disturbed have been provided with proper training and education in accordance with the Mould Control Program.
3. To notify prospective internal or external contractors who may be contracted to work on the project with information on the presence and location of any known mould contaminated material.
4. To classify all mould remediation work under his/her jurisdiction as Level I, II, III, IVa or IVb, in consultation with the Manager, Environmental Hazards and Safety for St. George Campus or with the Office of Environmental Health and Safety for Mississauga and Scarborough Campuses as needed.
5. To provide a notification and description of all projects involving Level II, III, IVa and IVb mould remediation work, reasonably in advance of the commencement of the work, to:

For All Campuses:

- a. the Director, Environmental Health and Safety; and
- b. the pertinent joint health and safety committee.

In addition, for St. George Campus:

- a. the Manager, Environmental Hazards and Safety (F&S);
- b. the Director, Property Management for areas involving the building fabric; and
- c. the Director, Utilities & Building Operations for areas under the control of Utilities & Building Operations.

In addition, for Mississauga Campus:

- a. the Director, Facilities Management and Planning.

In addition, for Scarborough Campus:

- a. the Director, Facilities Management.

6. To be responsible for notifying and liaising with building occupants and local joint health and safety committees regarding precautions for all mould remediation work taking place in his/her building.
7. To maintain records of all mould remediation work for which he/she is responsible and to forward copies to the Manager, Environmental Hazards and Safety (F&S) for St. George Campus and the Office of Environmental Health and Safety for Mississauga and Scarborough Campuses.
8. To respond to findings of newly discovered mould contamination and water damage, and to ensure that appropriate cleanup and remediation are completed in a timely manner and in accordance with the Mould Control Program.

3.3.2 Project Managers

The Project Managers, Capital Projects have the following responsibilities:

1. To inform the Manager, Environmental Hazards and Safety (St. George) or the Office of Environmental Health and Safety (Mississauga and Scarborough) of any newly discovered mould contamination.
2. To classify all mould remediation work under his/her jurisdiction as Level I, II, III, IVa or IVb, in consultation with the Manager, Environmental Hazards and Safety for St. George Campus or the Office of Environmental Health and Safety for Mississauga and Scarborough Campuses as needed.
3. To inform prospective external contractors or internal departments who may be contracted to perform work about the presence of mould.
4. To ensure that internal or external contractors who are permitted access to areas where mould contamination is being disturbed have received proper training and education in accordance with the Mould Control Program.

5. To provide a notification and description of all projects involving Level II, III, IVa and IVb mould remediation work, reasonably in advance of the commencement of the work, to:

For All Campuses:

- a. the Director, Environmental Health and Safety; and
- b. the pertinent joint health and safety committee.

In addition, for St. George Campus:

- a. the Manager, Environmental Hazards and Safety (F&S);
- b. the Director, Property Management for areas involving the building fabric; and
- c. the Director, Utilities & Operations for areas under the control of Utilities & Building Operations.

In addition, for Mississauga Campus:

- a. the Director, Facilities Management and Planning.

In addition, for Scarborough Campus:

- a. the Director, Facilities Management.

6. To be responsible for notifying and liaising with building occupants and joint health and safety committees regarding the precautions for all mould remediation work taking place on their project.
7. To maintain records of all mould remediation work for which he/she is responsible.
8. To respond to findings of newly discovered mould contamination and water damage on the project, and to ensure that appropriate cleanup and remediation are completed in a timely manner and in accordance with the Mould Control Program.
9. To ensure that all mould-related activities are performed in accordance with the procedures established under the Mould Control Program.

3.4 Mississauga Campus

3.4.1 Facilities Management and Planning

Director, Facilities Management and Planning

1. To ensure that all mould-related activities are performed in accordance with the procedures established under the Mould Control Program.
2. To manage University buildings in accordance with the guidelines for prevention of mould growth in buildings listed in Appendix A1 and A2.
3. To ensure that the HVAC systems are inspected on a regular basis for any signs of mould growth.

4. To respond to findings of newly discovered mould contamination, and to ensure that appropriate cleanup and remediation are completed in a timely manner and in accordance with the Mould Control Program.
5. To ensure clean-up of flood water in buildings and drying of the wet areas is completed within 48 hours.
6. To ensure that all his/her staff are properly informed about the location of any identified mould contaminated materials they may disturb, and that they report any newly discovered mould contamination.
7. To ensure that his/her employees who are permitted access to areas where mould contamination is being disturbed have been provided proper training and education in accordance with the Mould Control Program.
8. To ensure that designated employees within his/her department have been trained in the investigation of mould contamination and that such resources are available to conduct investigations as needed. Such employees are responsible for classifying all mould remediation work under his/her jurisdiction as Level I, II, III, IVa or IVb. The Office of Environmental Health and Safety may be consulted as needed.
9. To be responsible for all mould remediation work (Level I, II, III, IVa and IVb) performed by his/her staff or external individuals whom he/she contracts to do the work, and to ensure that such work is conducted in accordance with the Mould Control Program by regular monitoring of the progress of the work and conducting regular site inspections.
10. To ensure that competent and reputable mould remediation contractors and consultants are used, based on proven service and performance, and documentation of adequate training and experience.
11. To inform prospective external contractors or internal departments who may be contracted to perform work about the presence of mould.
12. To provide notification of Level II, III, IVa and IVb mould remediation work, reasonably in advance of the commencement of the work, to:
 - a. the Director, Environmental Health and Safety; and
 - b. the pertinent joint health and safety committee.
13. To be responsible for notifying and liaising with building occupants and local joint health and safety committees regarding the precautions for all mould remediation work taking place in their building.
14. To maintain records of all mould remediation work for which he/she is responsible and to forward copies to the Office of Environmental Health and Safety.

3.5 Scarborough Campus

3.5.1 Facilities Management

Director, Facilities Management

1. To ensure that all mould-related activities are performed in accordance with the procedures established under the Mould Control Program.
2. To manage University buildings in accordance with the guidelines for prevention of mould growth in buildings listed in Appendix A1 and A2.
3. To ensure that the HVAC systems are inspected on a regular basis for any signs of mould growth.
4. To respond to findings of newly discovered mould contamination and to ensure that appropriate cleanup and remediation are completed in a timely manner and in accordance with the Mould Control Program.
5. To ensure clean-up of flood water in buildings and drying of the wet areas is completed within 48 hours.
6. To ensure that all his/her staff are properly informed about the location of any identified mould contaminated materials they may disturb, and that they report any newly discovered mould contamination.
7. To ensure that his/her employees who are permitted access to areas where mould contamination is being disturbed have been provided proper training and education in accordance with the Mould Control Program.
8. To ensure that designated employees within his/her department have been trained in the investigation of mould contamination and that such resources are available to conduct investigations as needed. Such employees are responsible for classifying all mould remediation work under his/her jurisdiction as Level I, II, III, IVa or IVb. The Office of Environmental Health and Safety may be consulted as needed.
9. To be responsible for all mould remediation work (Level I, II, III, IVa and IVb) performed by his/her staff or external individuals whom he/she contracts to do the work, and to ensure that such work is conducted in accordance with the Mould Control Program by regular monitoring of the progress of the work and regular site inspections.
10. To ensure that competent and reputable mould remediation contractors and consultants are used, based on proven service and performance, and documentation of adequate training and experience.
11. To inform prospective external contractors or internal departments who may be contracted to perform work about the presence of mould.

12. To provide notification of Level II, III, IVa and IVb mould remediation work, reasonably in advance of the commencement of the work, to:
 - a. the Director, Environmental Health and Safety; and
 - b. the pertinent joint health and safety committee.
13. To be responsible for notifying and liaising with building occupants and local joint health and safety committees regarding the precautions for all mould remediation work taking place in their building.
14. To maintain records of all mould remediation work for which he/she is responsible and to forward copies to the Office of Environmental Health and Safety.

3.5.2 Design and Construction Management

Director, Design & Construction Management

The Director, Design & Construction Management, has the following responsibilities for projects under his/her responsibility:

1. To respond to findings of newly discovered mould contamination in the HVAC system or other equipment/areas falling under his/her jurisdictions, and to ensure that appropriate cleanup and remediation are completed in a timely manner and in accordance with the Mould Control Program.
2. To ensure that his/her employees who are permitted access to areas where mould contamination is being disturbed have been provided proper training and education in accordance with the Mould Control Program.
3. To ensure that designated employees within his/her department have been trained in the investigation of mould contamination and that such resources are available to conduct investigations as needed. Such employees are responsible for:
 - a. Classifying all mould remediation work under his/her jurisdiction as Level I, II, III, IVa or IVb. The Office of Environmental Health and Safety may be consulted as needed.
 - b. Informing the Director, Design & Construction Management of any mould found during the investigation.
4. To respond to findings of newly discovered mould contamination and to ensure that appropriate cleanup and remediation are completed in a timely manner and in accordance with the Mould Control Program.
5. To be responsible for all mould remediation work (Level I, II, III, IVa and IVb) performed under his/her jurisdiction by his/her staff or external individuals whom he/she contracts to do the work, and to ensure that such work is conducted in accordance with the Mould Control Program by regular monitoring of the progress of the work and regular site inspections.
6. To ensure that competent and reputable mould remediation contractors and

consultants are used, based on proven service and performance, and documentation of adequate training and experience.

7. To inform prospective external contractors or internal departments who may be contracted to perform work about the presence of mould.
8. To provide notification of Level II, III, IVa and IVb remediation work, reasonably in advance of the commencement of the work, to:
 - a. the Director, Environmental Health and Safety; and
 - b. the pertinent joint health and safety committee.
9. To be responsible for notifying and liaising with building occupants and local joint health and safety committees regarding the precautions for all mould remediation work taking place in equipment/areas falling under his/her jurisdiction.
10. To maintain records of all mould remediation work for which he/she is responsible and to forward copies to the Office of Environmental Health and Safety.

3.6 All Department Heads

Department Heads have the following responsibilities with respect to the Mould Control Program:

1. To ensure that all employees in the department are familiar with and comply with their responsibilities under the Mould Control Program.
2. To ensure that employees and other building occupants are notified of scheduled mould remediation work within their workplace.
3. To notify the Property Manager (St. George), Director, Facilities Management and Planning (Mississauga) or Director, Facilities Management (Scarborough) when they identify suspect mould present in their workplace.
4. To notify the Property Manager (St. George), Director, Facilities Management and Planning (Mississauga) or Director, Facilities Management (Scarborough) of any water episodes (leaks, spills, seepage, flooding, etc.) in their workplace.

3.7 University Staff and Students

University staff and students have the following responsibilities:

1. To be familiar with and work in compliance with the requirements of the Mould Control Program as it applies to their work.
2. To abide by all access control restrictions posted on areas where mould remediation is taking place.
3. To report any suspected (potential) mould contamination in their work or study environment to their supervisor.

4. To report any water episodes (leaks, spills, seepage, flooding etc.) in their work or study environment to their supervisor.

3.8 External Mould Remediation Contractors

External mould remediation contractors have the following responsibilities:

1. To comply with the requirements of the University Mould Control Program.
2. To ensure that all employees under their direction are properly trained in the hazards of mould and control procedures prior to conducting any mould remediation work, and to provide documentation of this to the department contracting the work.
3. To ensure that workers immediately stop all work and notify the department contracting the work in the event that previously unidentified mould contaminated materials are discovered in the course of work.
4. To ensure that any water episodes are responded to promptly.

4.0 PREVENTION OF/ONGOING SURVEILLANCE FOR MOULD GROWTH

Mould needs moisture to grow. In order to prevent the growth of mould in the indoor environment, the sources of moisture must be identified and controlled.

4.1 Inspections and Reporting

Visual inspections of buildings and materials/fabric must be conducted on a regular basis in order to detect any water episodes (leaks, spills, seepage, flooding etc.) early, so they can be dealt with promptly.

1. Supervisors shall, on an ongoing basis, inspect for signs of water episodes or water damage in their area as part of their workplace inspection. Potential problem areas should be inspected on a more frequent basis.
2. Visual inspections in the University buildings for signs of water episodes or water damage may be conducted by local Joint Health and Safety Committees as part of their workplace inspections. JHSC workplace inspections are conducted in addition to routine workplace inspections performed by the supervisor.
3. Visual inspections in the utility rooms and steam tunnels and of the HVAC systems for signs of water episodes or water damage may be conducted by the Trades/Utilities Joint Health and Safety Committee (St. George), Director, Facilities Management and Planning (Mississauga), or Director, Facilities Management (Scarborough) as part of their workplace inspections.
4. Where water intrusion, leaks, spills, signs of flooding or water damage are noted in the course of the above inspections, they must be reported to the building Property

Manager (St. George), Director, Facilities Management and Planning (Mississauga) or Director, Facilities Management (Scarborough).

5. All other individuals shall report signs of water episodes or water damage to their supervisor, who in turn shall report this to the building Property Manager (St. George), Director, Facilities Management and Planning (Mississauga) or Director, Facilities Management (Scarborough).

4.2 Mould Prevention Guidelines

4.2.1 Prevention of Mould Growth in Building Fabric

1. The Property Manager together with the Manager, Mechanical Operations and Maintenance (St. George), Director, Facilities Management and Planning (Mississauga) or Director, Facilities Management (Scarborough), where appropriate, shall follow guidelines outlined in Appendix A1.
2. The Property Manager (St. George), Director, Facilities Management and Planning (Mississauga) or Director, Facilities Management (Scarborough) shall promptly respond to any reports of water episodes (leaks, spills, seepage, flooding etc.) and shall, where appropriate, follow guidelines outlined in Appendix A3
3. The Property Manager (St. George), Director, Facilities Management and Planning (Mississauga) or Director, Facilities Management (Scarborough) shall ensure that any roof leaks, building envelope failures, construction defects, foundation leaks, or design flaws are remedied to prevent water from entering the building.
4. The Project Manager (St. George), Director, Facilities Management and Planning (Mississauga) or Director, Facilities Management (Scarborough) shall ensure that any water episodes during project work are attended to promptly.

4.2.2 Prevention of Mould Growth in HVAC System

1. The Manager, Mechanical Operations and Maintenance (St. George), Director, Facilities Management and Planning (Mississauga) or Director, Facilities Management (Scarborough) shall follow the guidelines outlined in Appendix A2.

4.2.3 Prevention of Mould Growth on Other Materials

1. The occupants of University buildings shall avoid storing paper products (cardboard, files), furniture, clothing or other organic materials in basements or high humidity areas.

5.0 INVESTIGATIONS FOR MOULD GROWTH

1. An investigation for potential mould contamination shall be conducted should any of the following conditions occur:
 - a. Occupant(s) report presence of potential mould growth;

- b. Water damage is noted;
 - c. Musty odours are present;
 - d. Occupant(s) experiencing symptoms listed in Appendix B.
2. All the investigations for potential mould contamination in University buildings shall be initiated by the Property Manager (St. George), Director, Facilities Management and Planning (Mississauga) or Director, Facilities Management (Scarborough).
 3. The investigations for mould shall involve interviews with the occupants in the area of the potential contamination, review of the building history with respect to water episodes, and visual inspection of the affected area and the surrounding areas.
 4. In situations where the mould investigation is triggered by the occupant(s) experiencing symptoms listed in Appendix B, the Property Manager (St. George), Director, Facilities Management and Planning (Mississauga) or Director, Facilities Management (Scarborough) shall contact the Office of Environmental Health and Safety who will then conduct an investigation.
 5. The Property Manager may consult the Manager, Environmental Hazards and Safety (F&S) at St. George Campus anytime during the mould investigation. The Director, Facilities Management and Planning (Mississauga) and Director, Facilities Management (Scarborough) may consult the Office of Environmental Health and Safety anytime during the mould investigation.
 6. The Project Manager may consult the Manager, Environmental Hazards and Safety (St. George) or the Office of Environmental Health and Safety (Mississauga and Scarborough) anytime during the mould investigation.
 7. Any identified mould growth shall be removed according to the procedures in Section 6.0. Should the Property Manager (St. George), Director, Facilities Management and Planning (Mississauga) or Director, Facilities Management (Scarborough) be unable to confirm that the observed contamination is mould, he/she shall consult the Manager, Environmental Hazards and Safety (St. George) or the Office of Environmental Health and Safety (Mississauga and Scarborough) for assistance.
 8. Where the investigation steps in Section 5.0 reveal no obvious signs of mould growth, but the investigator still suspects that mould growth is present, invasive inspection and/or sampling shall be conducted as deemed appropriate.
 9. Where invasive inspection is required, the extent of the inspection shall be determined by the Manager, Environmental Hazards and Safety (St. George) or the Office of Environmental Health and Safety (Mississauga and Scarborough) and shall be conducted by persons who have received the training outlined in Section 8.0.
 10. Where bulk or tape lift samples are deemed necessary, the Office of Environmental Health and Safety shall be notified. The bulk or tape lift samples shall be taken by the Manager, Environmental Hazards and Safety (St. George) or

the Office of Environmental Health and Safety (Mississauga and Scarborough).

11. Where air sampling is required, it shall be conducted by the Office of Environmental Health and Safety or by a reputable consultant selected by the Office of Environmental Health and Safety with expertise in Mould Investigation.
12. In situations where the extent of the mould contamination is classified as Level II, III, IVa or IVb, the Office of Environmental Health and Safety shall be notified. For St. George Campus, the Property Manager shall contact the Manager, Environmental Hazards and Safety who will then conduct an investigation. For Mississauga and Scarborough Campuses, the Director, Facilities Management and Planning (Mississauga) or the Director, Facilities Management (Scarborough), shall contact the Office of Environmental Health and Safety who will then conduct an investigation.
- t 13. For Capital Projects, in situations where the extent of mould contamination is classified as Level II, III, IVa or IVb, the Project Manager shall contact the Manager, Environmental Hazards and Safety (St. George) or the Office of Environmental Health and Safety (Mississauga and Scarborough) who may then conduct the investigation. Where the Manager, Environmental Hazards and Safety (St. George) or the Office of Environmental Health and Safety (Mississauga and Scarborough) deems appropriate, a reputable consultant with expertise in Mould Investigation shall be contracted by the Capital Projects to conduct the investigation.
14. The local joint health and safety committee is to be informed by the Property Manager (St. George), Director, Facilities Management and Planning (Mississauga), Director, Facilities Management (Scarborough) or by the Project Manager (All Campuses) when mould sampling is conducted for investigative purposes, and a worker member on the committee is to be given the opportunity to be present at the beginning of sampling.

6.0 MOULD REMEDIATION PROCEDURES

The Office of Environmental Health and Safety has issued standard operating procedures for mould remediation. These procedures are based on the New York City Department of Health *Guidelines on Assessment and Remediation of Fungi in Indoor Environments* (2002) and the Manitoba Department of Labour *Guidelines for the Investigation, Assessment & Remediation of Mould in Workplaces* (2001). The University of Toronto recognizes five levels of mould remediation work, Levels I, II, III, IVa and IVb, based on the mould hazard they present.

The detailed mould remediation procedures that have been issued by the Office of Environmental Health and Safety, are outlined in the manual *Mould Control Program – Procedures for Remediation of Fungi in Indoor Environments*. They include the following:

Level I Small Isolated Mould Contaminated Area (less than 10 sq. ft.)

Level II	Mid-Sized Isolated Mould Contaminated Area (10-30 sq. ft.)
Level III	Very Large Isolated Mould Contaminated Area (greater than 30 contiguous sq. ft.)
Level IVa	Mould Contamination in the HVAC System (less than 10 sq. ft.)
Level IVb	Mould Contamination in the HVAC System (10 sq. ft. or greater)

7.0 COMMUNICATIONS PLAN

It is imperative that all building occupants as well as persons responsible for the building and their operation are aware of the planned activities concerning remediation of fungi. As appropriate, the following methods shall be used to communicate this message:

1. The Director, Facilities and Services Contracting or Performing Mould Remediation Work (St. George), shall provide notification of Level II, III, IVa and IVb mould remediation work, reasonably in advance of the commencement of work, to:
 - a. the Manager, Environmental Hazards and Safety (F&S);
 - b. the Director, Property Management for areas involving the building fabric;
 - c. the Director, Utilities & Building Operations for areas under the control of Utilities & Building Operations;
 - d. the Director, Environmental Health and Safety; and
 - e. the pertinent joint health and safety committee.

2. The Director, Capital Projects and the Manager, Design and Engineering, shall provide notification of Level II, III, IVa and IVb mould remediation work, reasonably in advance of the commencement of work to:
 - a. the Director, Environmental Health and Safety;
 - b. the pertinent joint health and safety committee;
 - c. the Manager, Environmental Hazards and Safety (F&S) (St. George);
 - d. the Director, Property Management for areas involving the building fabric (St. George);
 - e. the Director, Utilities & Building Operations for areas under the control of Utilities & Building Operations (St. George);
 - f. the Director, Facilities Management and Planning (Mississauga); and
 - g. the Director, Facilities Management (Scarborough).

3. The Director, Facilities Management and Planning (Mississauga), the Director, Facilities Management (Scarborough) shall provide notification of Level II, III, IVa and IVb mould remediation work, reasonably in advance of the commencement of work to:
 - a. the Director, Environmental Health and Safety; and
 - b. the pertinent joint health and safety committee.

4. The Director, Facilities and Services Contracting or Performing Mould Remediation Work (St. George), the Director, Facilities Management and Planning

(Mississauga), the Director, Facilities Management (Scarborough), the Director, Capital Projects, and the Manager, Design and Engineering shall notify and liaise with building occupants and local joint health and safety committees regarding all mould remediation work taking place in their building and all the precautions associated with the mould remediation. This shall include:

- a. Memorandum to building occupants;
 - b. Signage in the building lobby/entrance; and
 - c. Signage at the work location.
5. The local health and safety committee is to be informed by the Property Manager (St. George), Director, Facilities Management and Planning (Mississauga), Director, Facilities Management (Scarborough), or by the Project Manager when sampling for mould is conducted for investigative purposes, and a worker member on the committee is to be given the opportunity to be present at the start of sampling.
6. The local joint health and safety committee is to be provided with results of all mould investigations by the Property Manager (St. George), Director, Facilities Management and Planning (Mississauga), Director, Facilities Management (Scarborough) or by the Project Manager in their building.

8.0 TRAINING AND EDUCATION

All University employees who may encounter mould contamination in the course of their work and/or who may be involved in the removal or handling of mould contamination shall receive appropriate training and education.

1. The required training for University employees who may encounter mould contamination in the course of their work includes:
 - 2.5 hour Mould Awareness training
2. The required training for University employees who may be involved in removal or handling of mould contamination includes:
 - 2.5 hour Mould Awareness training
 - 3 hour Small-Scale Mould Remediation Workshop
 - 2 hour Respiratory Protection training
3. The Mould Awareness training shall cover the following topics:
 - Hazards of mould
 - Investigation and assessment of mould contamination
 - Control measures for mould
 - Overview of UofT Procedures for Remediation of Fungi in Indoor Environments
4. Attendance records will be kept by individual supervisors to record the type of training and the dates training was given to employees.
5. Individual project coordinators or managers must obtain written evidence from external mould remediation contractors that all workers have received appropriate

instruction in the following:

- Hazards of mould
 - Use, cleaning and disposal of respirators and protective clothing
 - Entry and exit from work areas
6. Individual project coordinators or managers must ensure that external mould remediation contractors are familiar with the UofT Procedures for Remediation of Fungi in Indoor Environments.
 7. Individual project coordinators or managers must obtain written evidence from external mould remediation contractors that their on-site supervisor has received the instruction through a mould course of at least one day duration.

9.0 EXTERNAL CONTRACT WORK

External contractors and consultants for mould remediation must be experienced and reputable in the field of mould consulting and management, and must be able to demonstrate compliance with the requirements outlined in this program.

1. Before authorizing work on any buildings or structures where mould removal might be required, Facilities and Services (St. George), Director, Facilities Management and Planning (Mississauga) or Director, Facilities Management (Scarborough) shall provide a report to any prospective contractors as part of the work specification. The report shall contain the following information:
 - a. the location of mould contamination that will be handled or disturbed;
 - b. specifications and procedures for mould remediation work.
2. The classification of mould remediation work as Level I, II, III, IVa or IVb is the responsibility of the department authorizing the work. Where there is some uncertainty about the classification of any mould remediation work, the authorizing department must consult the Manager, Environmental Hazards and Safety (F&S) for St. George Campus or the Office of Environmental Health and Safety for Mississauga and Scarborough Campuses.
3. Level II, III, IVa and IVb work **must** be reviewed and approved by the Manager, Environmental Hazards and Safety (F&S) for St. George Campus or the Office of Environmental Health and Safety for Mississauga and Scarborough Campuses.
4. External contractors responsible for mould remediation must provide written evidence that their workers have received appropriate training and education as outlined in this Program.
5. The authorizing department within Facilities and Services (St. George), the Director, Facilities Management and Planning (Mississauga), or the Director, Facilities Management (Scarborough) shall ensure that general contractors and subcontractors responsible for mould remediation follow the appropriate procedures.

6. All general contractors and subcontractors shall report any water damaged materials found during the course of their work to the appropriate Project Manager.
7. All Level III and IVb work shall be subject to inspections by appropriately qualified and experienced personnel chosen by the Director of the appropriate Division in Facilities and Services (St. George), Director, Capital Projects, Director, Facilities Management and Planning (Mississauga) or the Director, Facilities Management (Scarborough).
8. The Office of Environmental Health and Safety shall be informed of all Level II, III, IVa and IVb mould remediation work reasonably in advance of commencement of the work.
9. Where during the course of remediation work, mould contamination is discovered which was not referenced in the report referred to in Section 9.1, the contractor shall immediately stop work, which may disturb that material and inform the department responsible for the contract.
10. Where mould contamination has been discovered as per Section 9.9, work shall not resume until the appropriate procedures (Level I, II, III, IVa or IVb) have been put in place.

10.0 PROGRAM AUDIT

1. The Office of Environmental Health and Safety shall audit various components of the Mould Control Program on an annual basis.
2. The audit may consist of but is not limited to the following:
 - a. inspections of mould work in progress to confirm adherence to the procedures;
 - b. review of training records to confirm that workers have had appropriate training to work with mould.

APPENDICES

APPENDIX A1– Preventing Mould Growth in the Building Fabric

The Property Manager and/or the Manager, Mechanical Operations and Maintenance (St. George), Director, Facilities Management and Planning (Mississauga) and the Director, Facilities Management (Scarborough), where appropriate, shall do the following:

1. maintain relative humidity indoors below 60% to prevent condensation
2. maintain caulking in bathrooms, showers, and at exterior locations
3. avoid carpeting on cool floors, to prevent condensation
4. avoid carpeting in bathrooms and old basements
5. provide exhaust fans for shower moisture
6. ensure even heating of buildings during winter to prevent condensation on the walls and exterior corners of unheated rooms
7. promptly respond to any water incursions, even minor dripping pipes, rapidly
8. ensure that proper cleaning practices are followed (e.g. do not use excess water in floor cleaning in areas with drywalls)
9. in the event of a flood:
 - a. remove the water as soon as possible
 - b. discard non-salvageable materials immediately
 - c. dry construction and finishing materials rapidly (less than 24 hours)
 - d. dry surfaces in wall cavities and plenums

APPENDIX A2 –Preventing Mould Growth in HVAC System

The Manager, Mechanical Operations and Maintenance (St. George), Director, Facilities Management and Planning (Mississauga), and the Director, Facilities Management (Scarborough) shall ensure the following:

1. use the highest grade of filters compatible with the system, to reduce incoming mould spores
2. maintain bird screens at air intake; keep roosting birds from air intake area
3. maintain biocide treatment of cooling tower
4. avoid, and replace porous insulation installed in damp sections of ductwork with nonporous insulation
5. keep spray washers, sumps and drip pans well drained and free of slime
6. regularly inspect and permanently repair all areas where water collection or leakage is occurring in HVAC equipment
7. operate HVAC system so as to avoid water droplets from dehumidification cooling coils, water spray systems, and humidifiers or from the mixing of air from hot and cold decks

APPENDIX A3 – Responding to Water Episodes to Reduce the Potential for Mould Growth

The Property Manager and/or the Manager, Mechanical Operations and Maintenance (St. George), Director, Facilities and Management (Mississauga), Director, Facilities Management (Scarborough) and the Project Manager, where appropriate, shall do the following:

1. Stop the source of water/repair leak, etc.
2. Remove all water and debris.
3. Washable surface can be wiped with detergent and water. Then Rinse. Do NOT use bleach.
4. After cleaning, ventilate or dehumidify the area. Suggested methods include:
 - a. Increase central HVAC circulation
 - b. Open windows
 - c. Dehumidifiers
 - d. Fans
5. Discard insulation materials and other porous materials (insulation, carpet, etc) that cannot be easily dried (within 24 hrs). Books and paper require professional conservators.
6. Ensure interior cavities and structural members are completely dry before closing cavities.
7. If the HVAC system was soaked, consult a HVAC contractor and inspect/clean the system as required.
8. When dealing with grey or black water, highly absorbent materials that has been soaked/contaminated should be discarded. Spraying with disinfection twice is generally recommended before handling. The Office of Environmental Health and Safety should be contacted when dealing with grey or black water.

APPENDIX B –Health Symptoms Commonly Associated with Exposure to Mould

- Cold like or Flu-like symptoms
- Eye irritation
- Congestion
- Cough
- Hoarseness
- Respiratory tract irritation
- Respiratory tract infection
- Headache
- Fatigue
- Skin rashes