UNIVERSITY OF
TORONTO

ASBESTOS MANAGEMENT PROGRAM

Contents

1.0 INTRODUCTION

Asbestos is a fibrous material used in many University building materials in the past because of its characteristics of strength, heat resistance and chemical resistance. Different types of asbestos include chrysotile, amosite, crocidolite, tremolite, actinolite, or anthrophylite. Asbestos-containing material is defined by the Ontario Regulation 278/05 as any material found to contain 0.5% or greater content of asbestos. Hazardous exposures to asbestos can result in serious health problems. Proper control measures must be in place to prevent the disturbance of asbestos-containing materials and to prevent potential exposure to airborne asbestos by the University community. General information on asbestos is provided in Appendix A and on the Environmental Health and Safety (EHS) website: https://ehs.utoronto.ca/our-services/occupational-hygiene-safety/asbestos-management-program/ .

1.1 Program Objectives

The Asbestos Management Program, written under the authority of the University's Asbestos Management Policy, establishes a comprehensive system to actively manage and stringently control all asbestos- containing materials in University buildings, and all activities which may disturb such materials, including maintenance, alteration, and repair operations.

The objectives of the Program are:

1. To exercise due diligence in protecting University employees from the potential health risks associated with hazardous exposure to airborne asbestos fibres;
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 the University's Asbestos Management Policy;
3. To comply with the legislated requirements outlined under the *Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations (O.Reg. 278/05)*, made under the *Occupational Health and Safety Act of Ontario*; and
4. To ensure absolute compliance with this Program by all employees and contracted personnel.

The eventual removal of all asbestos-containing materials from University buildings is a long-term objective. In the meantime, the University will remove such materials based on prioritization and an assessment of risk. Priority for asbestos removal will be assigned as follows:

1. All asbestos-containing materials must be removed or encapsulated prior to any demolition activity which may result in their disturbance.
2. Asbestos-containing materials which have been damaged to the extent that repair measures are not expected to effectively maintain the material in good condition are to be removed.
3. Consideration must be given to the proactive removal of asbestos-containing materials during renovation projects or during any major asbestos removal work.

The Government of Canada's *Prohibition of Asbestos and Products Containing Asbestos Regulation* came into on effect on December 30, 2018. No products containing processed or added asbestos fibres are to be used on any University projects or on University property for construction, repairs or maintenance.

1.2 Program Elements

The basic elements of the Asbestos Management Program (AMP) are:

1. An online asbestos inventory identifying the locations of all suspected or confirmed asbestos-containing materials and provision of this information to employees who may disturb this material in the course of their regular duties;
2. The regular inspection of all asbestos-containing materials to evaluate their condition and the need for remedial action;
3. The development of risk assessment guidelines to assist in evaluating the potential for exposure to asbestos-containing materials during regular inspections;
4. The maintenance of asbestos-containing materials in good condition;
5. The prompt remediation of damaged or deteriorating asbestos-containing materials;
6. The control of access to areas containing friable asbestos-containing material;
7. The training and education of all workers who may disturb asbestos-containing materials and all supervisors and project managers who contract or oversee all work that may disturb such materials;
8. The classification of all asbestos-related work as Type 1, 2 or 3 according to O.Reg. 278/05, and the provision of appropriate safe work procedures, including emergency procedures, in keeping with this classification of work;
9. Procedures for notifying building occupants of asbestos-related work activities, including the relevant Joint Health and Safety Committees (JHSCs).
10. The maintenance of records of all asbestos-related work;
11. For new projects, repairs and building maintenance:
    a. No new asbestos-containing building materials or manufactured project will be used on any new projects, maintenance and repair work per the *Prohibition of Asbestos and Products Containing Asbestos Regulation*
    b. No new rigid floor will be installed over existing asbestos-containing vinyl floor tiles or sheeting
12. Provision of a medical surveillance program available to all employees who conduct Type 2 or Type 3 asbestos work;
13. The control and monitoring of external contractors performing work which may disturb asbestos-containing materials; and
14. A provision for auditing the implementation and effectiveness of the program.

1.3 Scope

The Asbestos Management Program applies to all buildings, structures, machinery and equipment owned, occupied or operated by the University of Toronto at all campuses and other locations. It applies to all employees and students of the University, to occupants of University buildings and to external organizations who may come into contact with or disturb asbestos-containing materials in University buildings.

1.4 Program Review

The Asbestos Management Program is developed, maintained and administered by the Office of Environmental Health and Safety. The Program will be reviewed at least once every five years or when there has been update to the regulation, in consultation with the Asbestos Advisory Committee, and the appropriate Joint Health and Safety Committees (JHSC) (e.g. Trades, Utilities, UTSC (University of Toronto Scarborough), UTM (University of Toronto

Mississauga).

2.0 RESPONSIBILITIES

The responsibility for ensuring compliance with this Asbestos Management Program rests with several departments and divisions at the University of Toronto as in Figure 1 and Table 1. Because of different organizational and management structures, some responsibilities and functions are University-wide while others are campus-specific. Each campus or department is responsible for developing procedures that reflect their local organizational and operational needs.

Divisional heads are responsible for the work contracted/initiated/performed by their employees and work that is contracted out by their department. In general, this means Divisional Heads are responsible for the following:

1) To develop and implement applicable procedures to meet the requirements listed in the Asbestos Management Program, the Occupational Health and Safety Act (OHSA) and Ontario Regulation 278/05 DESIGNATED SUBSTANCE - ASBESTOS ON CONSTRUCTION PROJECTS AND IN BUILDINGS AND REPAIR OPERATIONS.
2) To be responsible for all asbestos work performed or initiated by their department.
3) To enforce the requirements of the Asbestos Management Program, OHSA and Ontario Regulation 278/05 for all asbestos work performed by their employees or contracted out by their departments.
4) To work closely with appropriate departments on each campus who assist and support the Asbestos Management Program.

To clarify these roles and responsibilities, activities have been divided into 5 categories in Table 1. Some categories apply when asbestos work is being assigned to employees/contracted out. Other activities are required to meet other areas of the regulation (e.g. updating the asbestos inventory). The requirements of each category are further broken down later in this section.

In Table 1 and in this document, EHS refers to Environmental Health and Safety, JHSC refers to Joint Health and Safety Committee, HCMG refers to the Hazardous Construction Materials Group within Facilities and Services (F&S) on St. George campus. HCMG only provides services to the St. George campus. The same functions are managed on UTM and UTSc campuses under their respective facilities group.

Figure 1: Departments with Oversight for Asbestos Activities at the University

The roles in orange reflect individuals/departments have direct responsibilities under the AMP.

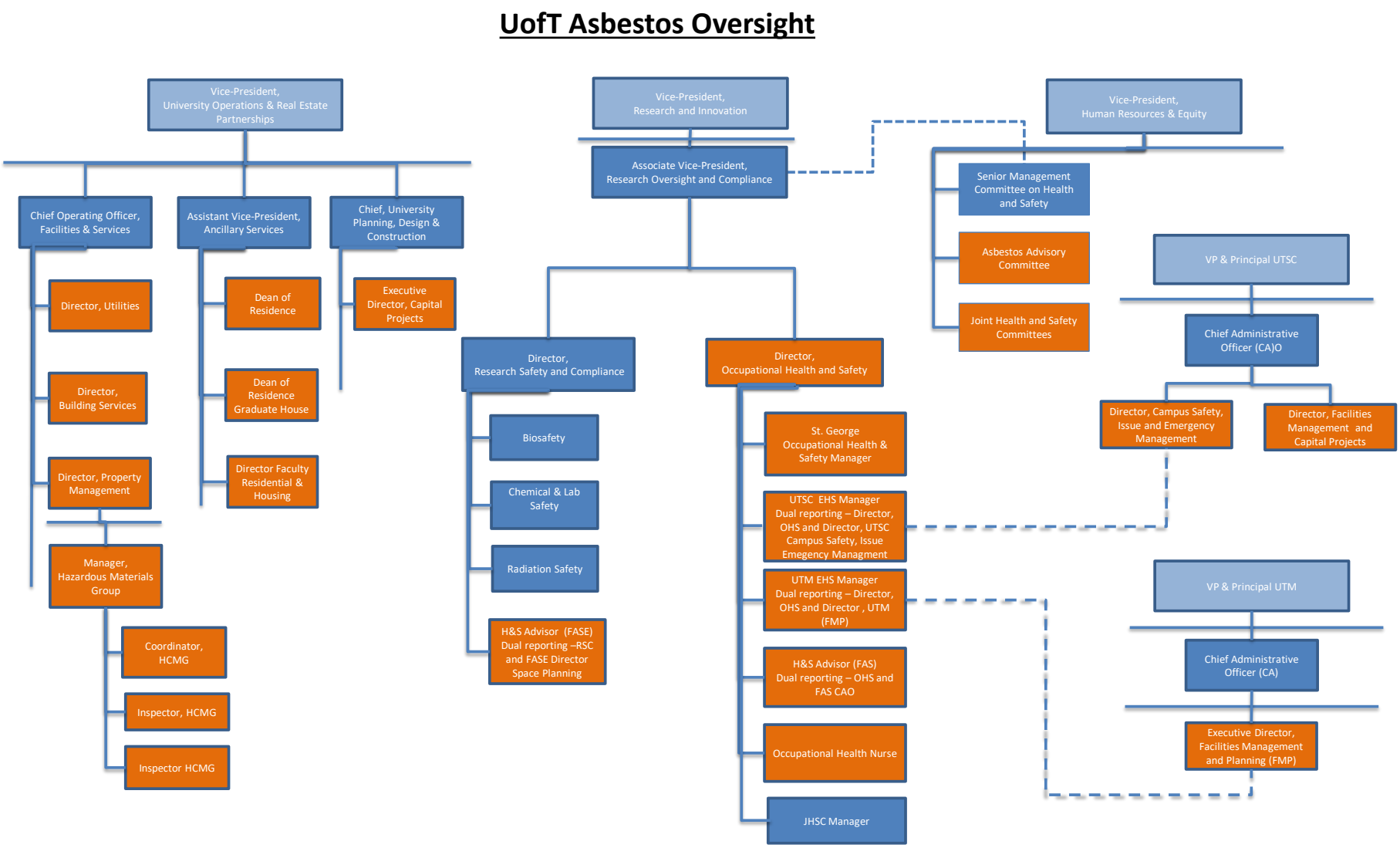


Table 1: Divisional Heads – Roles and Responsibilities

Divisional Head for:	**Executive Director, Capital Projects, University Planning, Design & Construction (UPDC)**	**St. George F&S Directors: 1) Utilities, 2) Property Management, 3) Building Services, Grounds and Trades**	**St. George Ancillary Services: 1) Deans of Residence 2) Director Faculty Residential & Housing**	**UTM: Executive Director, Facilities Management & Planning**	**UTSc: Director, Facilities Management and Capital Projects**	**All campuses: Divisional heads (occupying groups), including computing, IT and networking departments**
Geographic Location	**Tri-campus**	**St. George**	**St. George**	**UTM**	**UTSc**	**Tri-Campus**
Category of Activity						
Departments whose employees conduct asbestos work – see Section 2.1		X – Type 1 and 2 asbestos work		X – Type 1 asbestos work	X – Type 1 and 2 asbestos work	
Departments who engage contractors to perform building repairs, maintenance and construction – see Section 2.2	X	X	X	X	X	
Notify appropriate departments and occupants for Type 2 and 3 asbestos work – see section 2.3	X	X	X	X	X	X-Each department must ensure that communications from their local facilities group regarding asbestos work are distributed within their department.
Label of locations with sprayed asbestos fireproofing – see 2.8		Property Management: The Manager, HCMG, in Property Management is responsible for St. George campus.		Not applicable – no buildings with sprayed asbestos fireproofing	Not applicable – no buildings with sprayed asbestos fireproofing	
Maintain the asbestos inventory and ensure regular inspection of building materials that are asbestos-containing at least annually, as outlined in Sections 3.1 and 3.2.		X- Utilities oversee inspections in mechanical rooms, the central steam plant and tunnels. HCMG (Property management) oversees inspections in buildings managed by F&S.	X - Ancillary Services is responsible for providing updates to HCMG for buildings they manage.	X -UTM EHS provides copy inventory to HCMG	X -UTSc Project Manager in charge of campus inventory provides copy to HCMG	X – monthly JHSC inspections

2.1 Departments whose employees conduct asbestos work

1. Review all work activities to determine if asbestos-containing materials are present and might be disturbed by such activities
2. Classify all asbestos work (Type 1, 2 or 3) and provide appropriate work procedures and where required, in consultation with HCMG (St. George only) or EHS as needed.
3. Implement procedures to notify/inform employees of the presence of asbestos, prior to starting work. Procedures may vary to reflect the structure and operations of the department but the overall result is for employees to have access and know how to access the information.
4. Ensure University employees who may perform work on asbestos-containing materials are informed of the locations of asbestos, receive training (see Section 8.0 on Training) and are given the opportunity to participate in the University's asbestos medical surveillance program. Asbestos work includes the clean-up of flood water in buildings with asbestos-containing fireproofing
5. Maintain all records for Type 1 or 2 asbestos work, as applicable. UofT employees do not perform Type 3 asbestos work.
6. Ensure University employees who perform Type 2 asbestos work track how many hours they perform this work and maintain records of these hours. This is a regulatory requirement for Type 3 asbestos work but UofT employees do not perform Type 3 asbestos work.
7. When incidents of asbestos damage or discovery of unknown asbestos occur in their jurisdiction, ensure procedures as outlined in Appendix D are followed. This includes conducting an investigation with EHS to determine the cause and actions to prevent re-occurrence.

2.2 Departments who engage contractors to perform building repairs, maintenance and construction

1. Review all work activities to determine if asbestos-containing materials are present and might be disturbed by such activities
2. Implement procedures to notify/inform contractors of the presence of asbestos, prior to starting work. For contractors, this typically means provision of a designated substance report. NOTE: Per O. Reg. 278/05, a designated substance report must be provided to contractors when tendering work "for the demolition, alteration or repair of all or part of machinery, equipment, or a building, aircraft, locomotive, railway car, vehicle or ship." If there is no tender, this requirement still applies when the owner of the building is arrange or contacting any of the previously named work. This requirement applies whether or not asbestos is known to be present.
3. Classify all asbestos work (Type 1, 2 and 3) and provide appropriate work procedures and where required, in consultation with HCMG (St. George only) or EHS as needed. Qualified consultants may be engaged as needed to provide assessments/consultations including but not limited to invasive exploration (e.g. opening ceiling, walls, etc.).
4. For projects, obtain the approval for asbestos work classification from the appropriate Director (UTM, UTSc, Project Management) or the Manager, HCMG.
5. For projects, ensure that the contractor has notified the Ministry of Labour, Construction Health and Safety Branch of relevant Type 2 and all Type 3 asbestos work.
6. Hire only qualified contractors and consultants with proven service to work and ensure compliance with this Program and the legislative requirements.
7. Ensure contractors have appropriate training as outlined in the Training section.
8. Maintain all records for Type 1, 2, or 3 asbestos work.
9. When an incident occurs resulting in contractors being exposed to asbestos, Steps 1-4 for reporting and clean up in Appendix D should be followed. Contractors should also follow their own company's processes for incident reporting/asbestos exposure.
10. Where section 10(1) (a) of O. Regulation 278/05 applies (requesting tenders for the demolition, alteration or

repair of all or part of machinery, equipment, or a building, aircraft, locomotive, railway car, vehicle or ship) and where asbestos, not previously identified in the designated substance report, is discovered, report immediately to the Manager, HCMG (St. George Campus) or EHS. EHS will submit the appropriate notification to the Ministry of Labour per section 10(7) of O. Regulation 278/05.

11. For all Type 3 work, ensure that an external consultant with appropriate expertise is engaged to review the design of work and to supervise/monitor the work to ensure compliance with Type 3 asbestos requirements.
12. Ensure that EHS is notified ahead of time of any asbestos air ambient air sampling (Section 3.3) that takes place outside of Type 3 asbestos abatement areas. EHS will consult and notify the appropriate Joint Health and Safety Committee (JHSC). Form for notifying EHS: http://ehs.utoronto.ca/wp-content/uploads/2019/05/Notification-of-asbestos-air-sampling-20180710-FINAL.docx
13. Ensure that consultants engaged in asbestos ambient air sampling for Type 3 work utilize the template from EHS to ensure consistency irrespective which consultant is used: http://ehs.utoronto.ca/wp-content/uploads/2019/05/Ambient-air-sampling-tmplate-result-for-Type-3-asbestos-work.docx

2.3 Notification and Communications for Type 2 and 3 asbestos work

Procedures for notifications are outlined in standard operation procedures (SOPs) for asbestos work. Generally, the department who is responsible for coordinating the asbestos work is responsible for notifying local building occupants and the following as applicable and appropriate. Notices are typically sent 48 hours prior to the work.

- Appropriate Director (UTM, UTSc, Project Management) or the Manager, HCMG
- Director of Property Management & Maintenance for areas involving the building fabric
- Director, Utilities & Building Operations for areas under their control
- Director, Occupational Health & Safety (EHS)
- Co-chairs of the appropriate Joint Health and Safety Committees (JHSCs)

2.4 Environmental Health and Safety (EHS)

EHS, residing in the Research Oversight & Compliance (ROC) unit within VPRI (Vice-President, Research and Innovation), has a comprehensive portfolio with a broad mandate for all three campuses with the objective of ensuring and facilitating a safe environment for all employees, students, visitors and contractors who engage in activities across our community and frequent any of our spaces. EHS has a Director of Research Safety and Compliance who oversees the regulatory/legislative landscape pertaining to research related institutional compliance within the laboratory environment and reports to the AVP ROC-VPRI. EHS also has a Director of Occupational Health & Safety (OHS) who oversees the Occupational Health & Safety regulatory/legislative landscape (as per the Occupational Health and Safety Act) and facilitates institutional compliance broadly across all workplace environments as well as ensuring effective general safety measures are in place for all university spaces. The Director OHS reports to the AVP ROC-VPRI as well as the VPHRE (Vice-President, Human Resources & Equity). UTM and UTSC both have EHS Managers who oversee all health and safety matters at their respective campuses. Both Managers report into the Director-OHS. EHS also works closely with various other units in different portfolios across the campuses in order to provide a comprehensive H&S framework designed to support specific client groups based on needs.

The Director, OHS, through its offices on all three campuses, has the following tri-campus responsibilities within the Asbestos Management Program:

1. To be responsible for the development, maintenance, quality and effectiveness of the Asbestos Management Program, and to ensure that it meets all legislative requirements and industry standards.

2. To investigate asbestos-related incidents and provide technical advice and recommendations regarding asbestos identification, hazard evaluation, and control measures related to asbestos.

3. In the event of a serious containment failure or a serious deviation event, facilitate and inform the VP-Research and Innovation, VP-Human Resources & Equity, VP-Operations and Real Estate Partnerships and assist in the development of a communication strategy as applicable and appropriate to the particulars of the event.

4. To provide ongoing asbestos training and education programs and maintain records of EHS training courses.

5. To conduct respiratory protection training and fit-testing for all University employees who may conduct asbestos work, in keeping with the University's Respiratory Protection Program.

6. To submit, to the Ministry of Labour annually, asbestos work reports of University of Toronto employees, as provided by the departments.

7. To post information on Joint Health and Safety Committee (JHSC) bulletin boards with information on how building occupants can obtain information about Type 3 asbestos abatement work and who to contact for more information.

8. To audit the implementation of the Asbestos Management Program on an ongoing basis.

9. To review the Asbestos Management Program at least once every five years, in consultation with the Asbestos Advisory Committee, and the appropriate JHSC (e.g. Trades, Utilities, UTSC, UTM).

2.5 Occupational Health Services, Environmental Health and Safety

1. To develop, implement and maintain an asbestos medical surveillance program under a licensed physician. University employees may voluntarily participate in the program if they conduct or have conducted Type 2 or Type 3 asbestos work. Currently, UofT employees do not perform Type 3 asbestos work.
2. To make health assessments available to University employees:
    1. prior to assignment to Type 2 or Type 3 asbestos work (baseline exam);
    2. after an accumulated 1000 hours of Type 2 or Type 3 asbestos work;
    3. at least every five years thereafter; and
    4. at more frequent intervals if directed by the physician.
3. To include in the heath assessments:
    - a medical and work history;
    - a physical examination;
    - chest x-rays;
    - pulmonary function tests (lung capacity); and
    - any other exam or test directed by the physician

4. To maintain all employee medical information in strict confidence. Copies of an employee's medical records and/or test results may be provided to his/her family physician on written consent.
5. To provide the results of medical examinations and tests, and recommendations regarding the employee's work limitations, to the employee.
6. To provide a report of any recommendations regarding an employee's work limitations to the employee's supervisor and to facilitate all necessary job accommodation.
7. To provide, upon request, a summary of the asbestos medical surveillance program in a confidential manner to department heads, appropriate JHSC, and EHS to analyze trends and to determine whether safety programs are effective.

2.6 Manager, Hazardous Construction Materials Group, Property Management, F&S (St. George Campus Only)

The Manager, Hazardous Construction Materials Group (HCMG) has the primary responsibility for providing services and for overseeing the administration, implementation and enforcement of the Asbestos Management Program for the St. George Campus.

1. To administer, implement and monitor the requirements of the Asbestos Management Program for all asbestos work, or activities which may disturb asbestos-containing materials, planned or unplanned, at the St. George campus.
2. To work in close liaison with all divisions within Facilities and Services and Project Management (St. George Campus), the Office of Environmental Health and Safety, and any other departments who may be involved with asbestos-related work to ensure compliance with the Asbestos Management Program.
3. To maintain an online asbestos inventory of all buildings on the St. George campus with asbestos-containing materials, and to update the inventory at least once in each 12 month period.
4. To ensure that asbestos-containing fireproofing locations are identified or labeled according to established requirements and to ensure that appropriate signage is posted in buildings that contain asbestos or non-asbestos sprayed fireproofing.
5. To provide, on request, a designated substance report to St. George Campus University departments that may be authorizing or tendering work.
6. To ensure that the Ministry of Labour, Construction Health and Safety Branch, is notified of certain Type 2 work and all Type 3 work (Notice of Project) before the work commences.
7. To ensure that all asbestos work, regardless of which department initiates the work, is only conducted by qualified employees, external contractors, and consultants with proven service and performance, and written documentation of adequate training and experience.
8. To ensure that safe work procedures are in place, and that all other requirements of the Asbestos Management Program are implemented. This shall be accomplished by hiring external environmental consultants or by conducting random site inspections, and monitoring the progress of such work, with documentation of findings and observations.
9. To conduct or assist in the evaluation of the potential hazard presented by asbestos-containing materials at the University, and the making of recommendations on the appropriate abatement measures required.
10. To respond to reports of asbestos damage or disturbance, the finding of previously-unknown asbestos-containing materials or any asbestos emergency during project activities, and to ensure that appropriate cleanup and abatement are completed in a timely manner.
11. To maintain records of all asbestos-related incidents, to report such incidents with EHS and the relevant JHSC (Trades, Utilities, other JHSCs, etc.) and to investigate the incident with worker involvement from the relevant JHSC.
12. To maintain post-abatement work records of all asbestos work conducted on University owned or occupied premises on the St. George Campus and update the asbestos inventory accordingly.
13. For Type 3 asbestos abatement work, to post daily inspection and air sampling reports on the Asbestos Data webpage. For UTM and UTSc campuses, the local EHS offices are responsible for providing this information to the Manager, HCMG (St. George), for posting.

2.7 Asbestos Advisory Committee

The University's Asbestos Advisory Committee (AAC) was been established by and is chaired by the Chief Operating Officer, F&S and the Director, Occupational Health and Safety. A list of current members are available from the EHS website: https://ehs.utoronto.ca/our-services/occupational-hygiene-safety/asbestos-management-program/

The Asbestos Advisory Committee will meet periodically:

1. To monitor the implementation and execution of the Asbestos Management Program.
2. To review asbestos-related issues at the University.
3. To make recommendations to management.
4. To be consulted by the Office of Environmental Health and Safety in its review of the Asbestos Program every five years.

2.8 All Department Heads

All Department Heads not covered by Table 1, including Deans and Directors, have the following responsibilities:

1. To ensure that all employees in the department are familiar with and comply with their responsibilities under the Asbestos Management Program.
2. Ensure their employees do not access the area above the false ceiling unless they have received appropriate asbestos training and informed the Property Manager. This is especially important for buildings with sprayed asbestos fireproofing - see Appendix B for a list of buildings, St. George Campus
3. To ensure that employees and other building occupants are notified of scheduled asbestos work within their workplace.
4. To ensure that all employees in the department are informed about the location of asbestos- containing materials present in their workplace which may be disturbed in the course of their duties and to inform employees of, the online asbestos inventory for their workplace, and their means of access to the Inventory.
5. To notify the appropriate Director, (UTM, UTSC, Project Management), EHS or the Manager, Hazardous Construction Materials Group or Property Manager (F&S, St. George Campus only) when they suspect the presence of damaged asbestos-containing material in their workplace and to provide instruction to their employees on how to report building issues such as damaged building materials, floods, leaks, etc. by calling 416-978-3000 (St. George Campus), 905-828-5301 (UTM) and 416-287-7579 (UTSc).
6. To inform their building occupants on the proper procedure for making changes to their workspace. This means building occupants should not be making changes to their workplace on their own (e.g. drilling holes to hang pictures, boards, monitor arms or installing lab equipment, etc.) and should make the request through proper channels to ensure that any disturbance of asbestos materials is performed by qualified facilities employees or contractors.

2.9 Employees and Students

University employees and students have the following responsibilities:

1. To be familiar with their responsibilities and work in compliance with the requirements of the Asbestos Management Program, as it applies to their work.

2. To not access the area above the false ceiling (particularly in any building which contains sprayed asbestos fireproofing), unless they have been properly trained to do so. (See Appendix B for a list of buildings with sprayed asbestos fireproofing on St. George Campus).

3. To follow the proper procedure for requesting changes to their workspace and not disturb building materials, which may contain asbestos, on their own.

4. To abide by all access control restrictions posted on areas containing asbestos material.

5. To immediately notify their supervisor or other appropriate person and their local facilities department (416-978-3000 (St. George Campus), 905-828-5301 (UTM) and 416-287-7579 (UTSc)) of any damage or deterioration of suspected or known asbestos-containing material in their work or study environment

2.10 External Contractors and Subcontractors

External contractors have the following responsibilities:

1. To provide written acknowledgement that they have read and will comply with the requirements of the *Ontario Regulation respecting Asbestos on Construction Projects and in Building and Repair Operations (O.Reg. 278/05)* and the University's Asbestos Management Program.
2. To ensure that all their employees and subcontractors are informed about the location of asbestos-containing materials that may be disturbed.
3. To work in a manner to avoid the disturbance of asbestos containing materials, other than those asbestos work activities they have been contracted to carry out.
4. To ensure that all employees under their direction and subcontractors are properly trained in asbestos hazards and control procedures prior to conducting any work that may disturb asbestos, and to provide documentation of this to the department contracting the work (see Section 9.0 Training and Education).
5. To ensure that their employees immediately stop all work and notify the department contracting the work in the event that previously unidentified asbestos-containing materials are discovered in the course of work (see Appendix D, Unexpected Asbestos Release).
6. To ensure that all asbestos waste is safely packaged and properly disposed in accordance with legislative requirements and with the Asbestos Management Program.

3.0 INSPECTION AND ASSESSMENT

3.1 Asbestos inventory

The asbestos inventory is a record of the type and locations of known and suspected asbestos- containing materials in a given building. The preparation and maintenance of an up-to-date asbestos inventory is an important component in the Asbestos Management Program, as it enables (a) the condition of such materials to be inspected and assessed on a scheduled basis, in order to determine the need for cleanup and remediation of damaged material; and (b) appropriate controls to be put in place when work is done at a location which might disturb the asbestos.

At the University of Toronto, the asbestos inventory is available online (called the Asbestos Data website). This website is readily available to any employee, JHSC and any building occupant: https://asbestos.fs.utoronto.ca/. The Public section of the website contains asbestos survey inventory information for all three campuses accessible by members of the public. The Internal section contains more detailed information for internal use (employees only) and requires an UTORid to login.

The responsibility for maintaining the up-to-date inventory lies with:

- St. George: Manager, Hazardous Construction Materials Group
- UTM: Executive Director, Facilities Management and Planning
- UTSc: Director, Facilities Management and Capital Projects

The Inventory for each building contains the following information:

a) building address;
b) the location of all asbestos-containing materials within the building;
c) whether the material is friable or non-friable;
d) an indication as to whether the material has been sampled to determine if it contains asbestos, or whether it is assumed to contain asbestos;
e) if known to be asbestos, the type of asbestos.

3.2 Periodic Re-Inspections and Hazard Reporting

Visual inspection of asbestos-containing materials must be conducted on a scheduled basis in order to monitor the condition of the materials and the need for cleanup or abatement measures.

1. The appropriate Director, (UTM, UTSC, Ancillary Services) or the Manager, Hazardous Construction Materials Group, (F&S, St. George Campus only) shall ensure that inspections of asbestos- containing materials previously identified in building inventories are conducted regularly and that the asbestos inventory is updated at least once in each 12-month period and whenever new information becomes available.

2. Occupants must report damaged asbestos-containing material to their supervisors who in turn shall report this to the building Property Manager or call their local facilities group per Section 2.

St. George Campus

St. George Campus is largest of the three campuses. As a result, certain duties are distributed per the following:

3. Visual inspections of other asbestos-containing materials (i.e. thermal insulation) in Utility rooms are conducted by the Utilities and Building Operations JHSC at least annually. Where damaged material is noted in the course of the above inspections, a work request shall promptly be initiated by Utilities and Building Operations Division (F&S). The Manager, Hazardous Construction Materials Group (F&S) must ensure that the damaged material is repaired in a timely manner.

4. Visual inspections of other asbestos-containing materials (i.e. thermal insulation) in the Steam Tunnels are conducted on an annual basis by the staff of Utilities and Building Operations.

5. Where Trades or Utilities employees, in the course of their work, identify damaged asbestos- containing material, they shall report to their supervisor, who will ensure that the damaged material is promptly repaired. Where damaged material is noted in the course of the above inspections, a work request shall promptly be initiated by Utilities and Building Operations Division (F&S). The Manager, Hazardous Construction Materials Group (F&S) must ensure that the damaged material is repaired in a timely manner.

6. A Property Manager who receives a report of damaged asbestos-containing materials shall inform the Manager, Hazardous Construction Materials Group (F&S) immediately

7. Ancillary Services, St. George Campus, manages a number of properties. The appropriate Unit Head within Ancillary Services is responsible for providing updated asbestos inventories to the Manager, HCMG, to upload into the online asbestos inventory and to ensure that any damaged material is repaired in a timely manner.

3.3 Bulk Sampling and Air Ambient Sampling

Bulk samples may be taken to determine the presence of asbestos in a suspect building material.

1. Bulk samples shall be taken in accordance with the requirements outlined in O.Reg. 278/05.
2. Bulk samples may only be conducted by competent employees or external consultants who have been properly trained. On St. George campus, bulk samples collected by HCMG and processed by Environmental Health and Safety. On UTM and UTSc, external consultants are engaged to collect and send samples for analysis.
3. Bulk samples will be sent to an accredited lab (AIHA, NVLAP) for analysis.
4. Copies of the laboratory analyses reports for bulk samples shall be provided to the appropriate Director, (UTM, UTSC, Project Management) and Environmental Health and Safety.

Asbestos ambient air sampling is not required for any type of asbestos work. However, as part of the University's procedures ambient air sampling for total fibre concentration will be conducted in occupied areas adjacent, above or below (where applicable) Type 3 asbestos abatement work areas. In addition, ambient air sampling will be conducted outside of Type 2 abatement where grinding of asbestos floor tile mastic takes place if the abatement area is not separated from the occupied areas by walls.

Per Section 2.2, the "project manager" is responsible for ensuring that EHS is notified of the air sampling ahead of time and ensuring the consultant uses the EHS Air Sampling Reporting Template. Links are provided in Section 2.2.

1. Ambient air sampling will be collected and analyzed by Phase Contrast Microscopy (PCM), in accordance with National Institute of Occupational Health and Safety (NIOSH) Method 7400. This method detects asbestos and other fibres that have a similar appearance including non-asbestos fibres. Despite this limitation, PCM is the industry standard and is used to monitor the effectiveness of asbestos abatement controls.

2. Where applicable, samples will alternate to include locations immediately above or below the Type 3 abatement work.

3. Ambient air sample results < 0.05 fibres/cm3 are deemed acceptable. This value is more stringent than the Ontario Time Weighted Average Exposure Value for asbestos. If results exceeds, follow procedures outind in Asbestos Flowchart – Actions to be taken if Air Samples Exceed the Action Limit during Type 3 abatement work. Where applicable, additional cleaning/inspection and air sampling will take place. Please also refer to Appendix D Emergency Procedures in the event of Unexpected Asbestos Release.

4. EHS will provide ambient and clearance air sampling results within 48 and 24 hours respectively to the applicable JHSC. Reports will also be uploaded into the Asbestos Data website. JHSCs are responsible for posting the results on their building JHSC bulletin boards. Building occupants can view air sampling results either on Asbestos Data website or on the bulletin boards.

3.4 Hazard Assessment and Remediation Guidelines

1. Periodic inspections of asbestos-containing materials must be accompanied by a hazard assessment by competent individuals to determine the potential risk of exposure to asbestos fibres. Competent individuals are those who have been properly trained in the evaluation of potential asbestos exposure risk.
2. To assist in the hazard evaluation, the following factors related to a given asbestos-containing material are to be considered:
   - the condition of the material
   - the accessibility of the material to area occupants
   - the level of activity and movement in the area of the material
   - the degree of friability of the material

- asbestos content of the material
- the type of asbestos
- the location of the material
- the degree of exposed surface area of the material
- the presence of water damage

3. Recommendations for remedial work shall be based on the results of the hazard assessment.

4.0 REPAIR AND MAINTENANCE

1. Where it is determined by an inspection or by any other means that a suspect asbestos-containing material is in a condition such that exposure to the material is likely to occur, the appropriate Director, (UTM, UTSC, Project Management, Property Management, Utilities, Ancillary Services) or the Manager, Hazardous Construction Materials Group (F&S, St. George Campus only) as appropriate, shall immediately take steps to limit access to and repair the material.
2. The appropriate Director, (UTM, UTSC, Project Management Property Management, Utilities, Ancillary Services) or the Manager, Hazardous Construction Materials (F&S, St. George Campus only), shall determine whether the material contains asbestos and, if so, the type of asbestos.
3. All suspect asbestos-containing material shall be assumed to contain amphibole asbestos unless identified as otherwise in the asbestos inventory or by confirmatory sampling.
4. Where it is readily apparent that friable asbestos-containing material used as fireproofing or acoustical or thermal insulation has fallen and will continue to fall because of its deterioration, the fallen material shall be cleaned up and removed and the insulation shall be repaired, sealed, removed, or permanently enclosed.
5. The appropriate Director, (UTM, UTSC, Project Management, Property Management, Utilities, Ancillary Services) shall implement procedures to notify internal employees of the presence of asbestos prior to the start of work. The appropriate Director shall also ensure that contractors are provide a designated substance report prior to the start of work.
6. Clean-up/repair of the material shall be carried out by the appropriate Type 1, 2 or 3 procedures. Records must be kept by the appropriate Director (UTM, UTSC, Project Management, Property Management, Utilities, Ancillary Services) or the Manager, Hazardous Construction Materials Group, (F&S, St. George campus only) of all Type 1, Type 2 and Type 3 work.
7. All Type 2 and Type 3 project work involving asbestos-containing material shall be approved in advance by the appropriate Director (UTM, UTSC, Project Management, Property Management, Utilities, Ancillary Services) or the Manager, Hazardous Construction Materials Group, (F&S, St. George campus only) who shall ensure that the Ministry of Labour, Construction Health and Safety Branch is notified of all Type 3 operations (and where applicable per the regulation, Type 2 work) before the work commences.
8. Where work is done which significantly changes the building inventory (e.g. a major removal of asbestos), the appropriate Director, (UTM, UTSC) or the Manager, Hazardous Construction Materials Group, (F&S, St. George campus only) shall update the building inventory at least once every 12 months to indicate the changes.
9. The appropriate Director, (UTM, UTSC, Project Management, Property Management, Utilities, Ancillary Services) or the Manager, Hazardous Construction Materials Group, (F&S, St. George campus only) shall prepare and maintain procedures for reporting of problems and conducting repair and maintenance operations in buildings which contain asbestos-containing material.
10. The appropriate Director, (UTM, UTSC, Project Management, Property Management, Utilities, Ancillary Services) or the Manager, Hazardous Construction Materials Group, (F&S, St. George campus only) shall ensure that all asbestos-containing materials are removed or encapsulated prior to any demolition activity where such materials may be disturbed in the course of work.
11. The appropriate Director, (UTM, UTSC, Project Management, Property Management, Utilities, Ancillary Services)

or the Manager, Hazardous Construction Materials Group, (F&S, St. George campus only) shall consider the proactive removal of asbestos-containing building materials when planning any maintenance, renovation or construction activities that will expose such materials.

5.0 ACCESS CONTROL

1. Access to rooms which contain friable asbestos material (e.g. mechanical and electrical rooms, service shafts, tunnels) is restricted and controlled by the Utilities and Building Operations group (F&S, St. George Campus), UTM Facilities Management and Planning and UTSC Facilities Management and Capital Projects department. Such areas shall be locked and accessible only to authorized personnel. Signs shall be posted in a prominent location immediately inside and outside such areas warning of the presence of friable asbestos material and a contact phone number to report damage.

2. All access to other building areas for work involving asbestos-containing material must be approved by the appropriate Director (UTM, UTSc, Project Mangement), or Property Manager (St. George Campus).

3. Where sprayed asbestos-containing fireproofing or uncovered/raw friable asbestos materials are present in a building above a false ceiling or ceiling space, Type 2 asbestos work procedures including enclosures are required to access the ceiling space. Building occupants shall be advised by signage of the presence of this asbestos and that access is prohibited.

4. Signs (Appendix B) indicating the presence of asbestos sprayed fireproofing placed prominently in buildings with sprayed asbestos- containing fireproofing on the St. George Campus. There are no buildings with sprayed asbestos fire-proofing on UTM and UTSc campuses.

6.0 CLASSIFICATION OF ASBESTOS WORK

6.1 Asbestos Work Classifications

Type 1, 2 and 3 asbestos work at the University are defined below. The majority of the definitions follow Section 12 of O.Reg. 278/05 but may be more stringent in some cases. All asbestos work must be carried out following the classifications below.

Type 1 Operations

A Type 1 operation is defined as one that does not generate appreciable levels of airborne asbestos and generally presents little hazard to workers or bystanders. Type 1 operations include:

1. Installing or removing ceiling tiles that are asbestos-containing material, if the tiles cover an area less than 7.5 square metres and are installed or removed without being broken, cut, drilled, abraded, ground, sanded or vibrated.
2. Installing or removing non-friable asbestos-containing material, other than ceiling tiles, if the material is **installed or removed without being broken, cut, drilled, abraded, ground, sanded or vibrated.**
3. Breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material if,
    a. the material is wetted to control the spread of dust or fibres, and
    b. the work is done only by means of non-powered hand-held tools.
4. Removing less than one square metre of drywall in which joint-filling compounds that are asbestos- containing material have been used.

Type 2 Operations

Type 2 operations are small scale activities which may generate enough airborne asbestos to require protective equipment, but are short lived. Short lived activities are less than one shift for any single project. Type 2 operations include:

1. Removing all or part of a false ceiling to obtain access to a work area, if asbestos-containing material is likely to be lying on the surface of the false ceiling.
2. The removal or disturbance of one square metre or less of friable asbestos-containing material during the repair, alteration, maintenance or demolition of all or part of machinery or equipment or a building, aircraft, locomotive, railway car, vehicle or ship.
3. Enclosing friable asbestos-containing material.
4. Applying tape or a sealant or other covering to pipe or boiler insulation that is asbestos-containing material.
5. Installing or removing ceiling tiles that are asbestos-containing material, if the tiles cover an area of 7.5 square metres or more and are installed or removed without being broken, cut, drilled, abraded, ground, sanded or vibrated.
6. Breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material, if,
    a. the material is not wetted to control the spread of dust or fibres, and
    b. the work is done only by means of non-powered hand-held tools.

7. Removing one square metre or more of drywall in which joint filling compounds that are asbestos- containing material have been used.

8. Removing asbestos-containing vinyl floor tiles.

9. Breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material, including floor tiles, if the work is done by means of power tools that are attached to dust-collecting devices equipped with HEPA filters.

10. Removing insulation that is asbestos-containing material from a pipe, duct or similar structure using a glove bag.

11. Cleaning or removing filters used in air handling equipment in a building that has sprayed fireproofing that is asbestos-containing material.

12. An operation that,
    a. is not mentioned in any of paragraphs 1 to 10,
    b. may expose a worker to asbestos, and
    c. is not classified as a Type 1 or Type 3 operation.

Type 3 Operations

Type 3 asbestos operations are generally large scale activities which may generate significant airborne asbestos levels and may pose a serious risk both to workers and to bystanders. An example of this is the major removal of friable asbestos during building renovations or before demolition. Type 3 operations include:

1. The removal or disturbance of more than one square metre of friable asbestos-containing material during the repair, alteration, maintenance or demolition of all or part of a building, aircraft, ship, locomotive, railway car or vehicle or any machinery or equipment.

2. The spray application of a sealant to friable asbestos-containing material.

3. Cleaning or removing air handling equipment, including rigid ducting but not including filters, in a building that has sprayed fireproofing that is asbestos-containing material.

4. Repairing, altering or demolishing all or part of a kiln, metallurgical furnace or similar structure that is made in part of refractory materials that are asbestos-containing materials.

5. Removing vinyl floor sheeting with asbestos-containing paper backing.

6. Breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material, if the work is done by means of power tools that are not attached to dust-collecting devices equipped with HEPA filters.

7. Repairing, altering or demolishing all or part of any building in which asbestos is or was used in the manufacture of products, unless the asbestos was cleaned up and removed before March 16, 1986. O. Reg. 278/05, s. 12 (4).

8. Air clearance sampling is required and enclosures should be taken apart only when the samples pass the criteria prescribed in O. Reg. 278/05.

Type 3 Operations are not conducted by U of T Staff. All Type 3 work must be contracted to fully qualified contractors. All such workers, their supervisors and consultants must have completed an Asbestos Abatement Worker or Supervisor Training Program approved by the Ministry of Colleges and Universities as required by the legislation. Proof of such training must be provided to the University prior to the contract being awarded and must be available on site at all times.

6.2 Standard Operating Procedures

Standard Operating Procedures (SOPs) for asbestos work at the University of Toronto have been issued by the Office of Environmental Health and Safety, in keeping with O. Reg. 278/05. These SOPs are available through online asbestos inventory: https://asbestos.fs.utoronto.ca/. All asbestos work must follow procedures outlined in O.Reg. 278/05 or University of Toronto SOPs, whichever is more stringent.

6.3 Emergency Procedures

Emergency procedures have been developed to prevent or minimize the potential for hazardous exposure to airborne asbestos fibres in a range of emergency situations.

6.3.1 Emergency Procedures in the Event of Unexpected Asbestos Release

In the event that an individual disturbs or encounters damaged asbestos-containing material, known or suspected, all activities in the area must immediately stop and the procedures outlined in Appendix D followed in order to minimize the potential of the individual or other building occupants for exposure to airborne asbestos fibres.

6.3.2 Exit Procedures for Injured Asbestos Workers

In the event that an emergency arises during Type 2 or Type 3 asbestos work, special procedures to remove individuals from an asbestos enclosure by emergency personnel are outlined in Appendix E.

7.0 TRAINING AND EDUCATION

All University employees who work around and who may disturb asbestos containing material or who are responsible for managing, overseeing or coordinating such activities shall receive training and education on asbestos as outlined in Table 2 (University of Toronto staff). Attendance records are maintained by EHS and accessible to workers and their supervisors. Directors, managers and supervisors of University staff who work with or near asbestos are responsible for identifying these workers and ensuring that they attend required training.

Contractors and sub-contractors must also be trained in asbestos before performing work on University property. Table 3 (contractors) in the next section outlines training requirements including those who are hired to perform non-asbestos work. Directors, managers and supervisors who contract work must ensure that the contractor's workers have received appropriate training to perform the work safely.

Table 2: Required Training for University of Toronto staff

Employee Exposure Category	Training Competencies	Required Training Courses
Category A: Employees who perform Type 1 and Type 2 asbestos work and supervisors of employees who perform Type 1 and 2 asbestos work E.g. Trades, Building Engineers, Operating Engineers Control Technicians, Steam Plant Engineers, Elevator Mechanics, Maintenance Techs, Steam Plant Engineers, Utilities Managers, Trades Forepersons	• Hazards of asbestos exposure • Types/locations of asbestos-containing materials at the University • Use, care and disposal of personal protection equipment • Personal hygiene • Appropriate work practices and procedures	**Pre-2014** • Module 1 • Module 2a • Module 2b • Respiratory Protection (previously called Module 4) **2014 and after** • EHS567 Asbestos Training for Asbestos Worker & Their Supervisors (Type 1 and 2 Work) – Modules 1, 2a/b and 3 combined • Respiratory Protection Refresher • EHS568 Asbestos Refresher for Asbestos Workers & Their Supervisor (Type 1 and 2 work): every 5 years • Respiratory Protection: every 2 years
Category B: Employees who manage, oversee and coordinate asbestos work by UofT staff or contracted externally E.g. Property managers, Project Managers, Project Coordinators, Construction Coordinators, Design Engineers, Designers, Drafters, Engineering Technologist	• Hazards of asbestos exposure • Types/locations of asbestos-containing materials at the University • Use, care and disposal of personal protection equipment • Personal hygiene • Appropriate work practices and procedures	**Pre-2014** • Module 1 • Module 3 • Respiratory Protection **2014 and after** • EHS570 Managing Asbestos Projects Refresher • EHS570 should be retaken every 5 years
Category C: Employees who do not perform work with asbestos but may be exposed if they inadvertently	• Hazards of asbestos exposure • Types/locations of	• Asbestos Awareness (online)

damage asbestos-containing materials. E.g. Most caretaking staff/cleaners, Service workers who move furniture, Campus police Any staff member interested in learning about asbestos	asbestos-containing materials at the University • Appropriate work practices and procedures	

8.0 EXTERNAL CONTRACT WORK

External contractors and consultants must be reputable in the field of asbestos consulting and management, and must be able to demonstrate compliance with the requirements of the legislation and this Program.

1. Before authorizing work on any buildings or structures where asbestos-containing materials may be disturbed or removed, the appropriate Director (UTM, UTSC, Project Management, Property Management, Utilities, Ancillary Services) must provide a Designated Substance Report to any prospective contractors as part of the work specification. The Designated Substance report identifies the presence of asbestos-containing material in the work area and any other Designated Substances aside from asbestos that may be present.

2. The report shall contain the following information:
    a. whether the material contains asbestos and if so the type of asbestos. If the material has not previously been sampled then sampling and analysis will be required at this time. If the material is shown not to contain asbestos then the report shall state this;
    b. drawings and plans to show the location of the asbestos-containing material that will be handled or disturbed;
    c. if the material contains asbestos, specifications and procedures for the work indicating the type of operation (Type 1, 2 or 3);

    In some cases, the building inventory may form the basis for this report. In most circumstances, additional inspections or sampling may be required.

3. The classification of the work as Type 1, 2, or 3 is the responsibility of the department authorizing the work. The appropriate Director (UTM, UTSC, Project Management, Property Management, Utilities, Ancillary Services) or Manager, Hazardous Construction Materials Group (F&S, St. George only) will review all Type 2 and Type 3 asbestos work to ensure that the work has been appropriately classified. Where there is some uncertainty about the classification of any asbestos work, the authorizing department must consult with the Manager, Hazardous Construction Materials Group (F&S, St. George Campus), or EHS.

4. Type 2 work and all Type 3 work **must** be approved by the appropriate Director (UTM, UTSC, Project Management, Property Management, Utilities, Ancillary Services).

5. Where the general contractor for the work subcontracts part of the work, the appropriate Director (UTM, UTSC, Project Management, Property Management, Utilities, Ancillary Services) or the Manager, Hazardous Construction Materials Group (F&S, St. George Campus only or the authorizing department shall ensure that the general contractor provides to the subcontractor a copy of the Designated Substance Report referred to above.

6. Contractors must provide sign and return the form “Acknowledgement of University of Toronto Asbestos Management Program and Designated Substance Survey Report.”

7. External contractors must follow the appropriate procedures for the control of asbestos as established by the Asbestos Management Program and O. Reg. 278/05. The appropriate Director (UTM, UTSC, Project Management, Property Management, Utilities, Ancillary Services) or Manager, Hazardous Construction Materials Group (F&S, St. George Campus) or the authorizing department shall ensure that general contractors and subcontractors follow these procedures.

8. External contractors must provide written evidence that their workers have received appropriate training and education as outlined in this Program (see Table 3).

9. All asbestos work shall be subject to inspections by appropriately qualified and experienced personnel chosen by the appropriate Director (UTM, UTSC, Project Management) or Manager, Hazardous Construction Materials Group (F&S, St. George Campus only).

10. Advance notification of Type 2 and 3 shall be given to relevant parties (the appropriate Director(s), the Office of Environmental Health and Safety and relevant JHSCs) as outlined in Table 1.

11. The appropriate Director (UTM, UTSC, Project Management, Property Management, Utilities, Ancillary Services), or the Manager of Hazardous Construction Materials Group, (F&S, St. George Campus only) shall ensure that the Ministry of Labour, Construction Health and Safety Branch is notified of all Type 3 operations undertaken before the work commences. The Notice of Asbestos Work Form is available electronically.

12. Where during the course of work, suspect asbestos-containing material is discovered which was not referenced in the designated substance report, the contractor shall immediately stop work which may disturb that material and inform the department responsible for the contract.

13. The department responsible for the contract shall immediately notify EHS, the appropriate Director ((UTM, UTSC, Project Management, Property Management, Utilities, Ancillary Services) or Manager, Hazardous Construction Materials Group (F&S, St. George Campus only). A report of the discovery, orally and in writing, to an inspector of the Construction Health and Safety Branch, Ministry of Labour, the relevant JHSC and EHS. The written report shall contain the following information:

    a. the name and address of the owner where the work will be carried out;
    b. the building and address where the work is taking place;
    c. a description of the work;
    d. the starting date and scheduled duration of the work;
    e. the name and address of the contractor or supervisor in charge of the work.

14. Where suspect asbestos-containing material has been discovered, work shall not resume until it has been determined whether or not the material contains asbestos and the type of asbestos. If the material is found to contain asbestos, work shall not resume until the appropriate procedures (Type 1, 2 or 3) have been put in place.

Table 3: Required Training for Contractors
General contractors are responsible for ensuring that sub-contractors have the appropriate training prior to working on University property. General contractors are also responsible for ensuring sub-contractors are provided with information regarding the location of asbestos (i.e. Designated Substance Report) before starting work on University Property.

Employee Exposure Category	Training Competencies
Contractors Hired for Non-Asbestos Work Contractors who may inadvertently disturb asbestos-containing materials. E.g. Contractors who work in and around asbestos-containing material, contractors working in mechanical or utility rooms where there is asbestos materials, contractors whose work may disturb the building fabric.	• Hazards of asbestos exposure • Types/locations of asbestos-containing materials at the University • Awareness of control measures • Procedures when asbestos is encountered emergency procedures in case asbestos is disturbed.
Contractors – Type 1 and 2	• Hazards of asbestos exposure • Types/locations of asbestos-containing materials at the University • Use, care and disposal of personal protection equipment • For workers carrying out Type 2 work, respiratory protection fit-testing is required. • Personal hygiene • Appropriate work practices and procedures
Contractors – Type 3	All workers and supervisors must have completed an Asbestos Abatement Worker or Supervisor Training Program approved by the Ministry of Trades, Colleges and Universities (MTSU) which would include subjects covered above for Type 1 and 2 work.

9.0 PROGRAM AUDIT

1. EHS shall audit various components of the Asbestos Management Program on an annual basis and provide results to the Asbestos Advisory Committee and the appropriate Joint Health and Safety Committee(s).

2. The audit may consist of but is not limited to the following:
    a) inspections of buildings to confirm the presence and completeness of the inventory;
    b) inspections of asbestos work completed and in progress to confirm adherence to the procedures;
    c) review of training records to confirm that workers have had appropriate training to work with asbestos;
    d) review of worker (exposure) reports .

3. A Joint Health and Safety Committee may, as part of the inspection of the workplace, and subject to the access control procedures and training requirements established under this program, inspect the condition of materials identified in the inventory. Copies of their inspection reports and recommendations shall be sent to the appropriate Director, (UTM, UTSC, Property Management, Utilities) or the Manager, Hazardous Construction Materials Group (F&S, St. George Campus only). JHSC inspection reports are uploaded in the My JHSC module: https://ehs.utoronto.ca/jhsc/my-jhsc/.

Appendices

Appendix A - Background Information on Asbestos

Appendix B - Buildings Containing Sprayed Asbestos Fireproofing (St. George Campus)

Appendix C - Asbestos Signage

Appendix D - Emergency Procedures in the Event of Unexpected Asbestos Release

Appendix E - Exit Procedures for Injured Asbestos Workers

Appendix F – Asbestos Advisory Committee

Appendix A – Background Information on Asbestos

Background

Asbestos is a generic term describing a number of naturally occurring fibrous minerals that have been used in a wide range of products because of their insulating, acoustical, fire protective and chemical resistant properties. Different types of asbestos include chrysotile, amosite, crocidolite, tremolite, actinolite, or anthrophylite.

During construction from the 1930's up to the late 1970's, asbestos was used in many building materials. Even today, asbestos containing transite pipes may still be used. Many University buildings constructed during that time period (and some since) still contain some form of asbestos materials, such as:

- Sprayed fireproofing on structural members
- Thermal insulation on heaters, boilers, pipes, fittings and other mechanical equipment
- Decorative or acoustic plasters or finishes on ceilings and walls
- Asbestos-cement products, including roofing material, acoustic panelling, electric insulation, laboratory table tops, fume hoods, or water and sewage piping systems
- Ceiling tiles
- Vinyl floor tiles or sheet flooring.

Asbestos is a known hazardous material. The inhalation of harmful levels of airborne asbestos fibres can lead to serious diseases such as:

- Asbestosis (scarring of lung tissue)
- Lung cancer
- Mesothelioma (a rare form of cancer affecting the lung lining)

The release of asbestos fibres from asbestos-containing materials is primarily a result of activities that result in their disturbance. In order to prevent the exposure of individuals to harmful levels of asbestos fibres, proper precautions and safe work procedures must be implemented whenever any work is conducted on or close to asbestos containing materials. In addition, regular inspections to readily identify damaged or deteriorating materials must be conducted so that they can be promptly addressed.

Definitions

Asbestos

Asbestos is a generic term describing a number of naturally occurring fibrous, hydrated mineral silicates that differ in chemical composition and are suitable for use as non-combustible, non-conducting and chemically resistant materials. Different types of asbestos which may be found in buildings are chrysotile, amosite, tremolite, actinolite or anthrophylite.

Asbestos Abatement

Corrective action taken to minimize or eliminate the hazards associated with asbestos-containing materials, including repair, encapsulation, enclosure or removal.

Asbestos-Containing Material (ACM)

Any material found to contain 0.5% or greater content of asbestos by dry weight, as determined by Polarized Light Microscopy, in accordance with the U.S. Environmental Protection Agency, Test Method EPA/600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials, June 1993 (as per O.Reg. 278/05).

Asbestos inventory

The asbestos inventory is a record of the location of all asbestos-containing materials (or those suspected of containing asbestos) present within a building and whether these materials are friable or non-friable. In the case of sprayed-on material, if the material is known to be asbestos-containing material, the record should state the type of asbestos, if known, or in any other case, a statement that the material will be treated as though it contained a type of asbestos other than chrysotile.

The Inventory must be updated at least once in each 12-month period and whenever the owner becomes aware of new information. It must be available on the premises, and the information must be provided to any employee whose work involves these materials or may result in the disturbance of such materials, and to any occupier of that area of the building.

Friable and Non-friable Materials

Asbestos-containing materials may be classified as friable or non-friable. A friable material is defined as a material that, when dry, can be crumbled, pulverized or powdered by hand pressure or is crumbled, pulverized or powdered.

Friable materials present a greater hazard of releasing asbestos fibres than non-friable materials. Common friable asbestos-containing building materials include sprayed fibrous fireproofing, thermal pipe insulation, and decorative or acoustic texture plasters. Common non-friable asbestos-containing building materials include asbestos cement boards, ceiling tiles and vinyl floor tiles.

Appendix B - Buildings Containing Sprayed Asbestos Insulation (St. George Campus)

This is a list of buildings with sprayed asbestos fireproofing on St. George campus. There are currently no buildings on UTM or UTSc campus with sprayed asbestos fireproofing. Aside from sprayed asbestos fireproofing, asbestos may be present in other forms (e.g. pipe insulation, floor tiles, ceiling tiles, etc.) in these and other buildings at the University. Please check the Asbestos Data webpage for more information: https://asbestos.fs.utoronto.ca/

Note: Buildings and rooms with sprayed on fireproofing are labeled with warning signs to indicate its presence.

Designated Buildings (13)

Buildings with Significant Areas of Sprayed Asbestos Fireproofing (mainly in ceiling spaces)

1. **Sidney Smith Hall, 100 St. George Street**
2. **Galbraith Building, 35 St. George Street**
3. **Medical Sciences Building, 1 King's College Circle**
4. **215 Huron Street**
5. **Dentistry Building, 124 Edward Street**
6. **Edward Johnson Building, 80 Queen's Park**

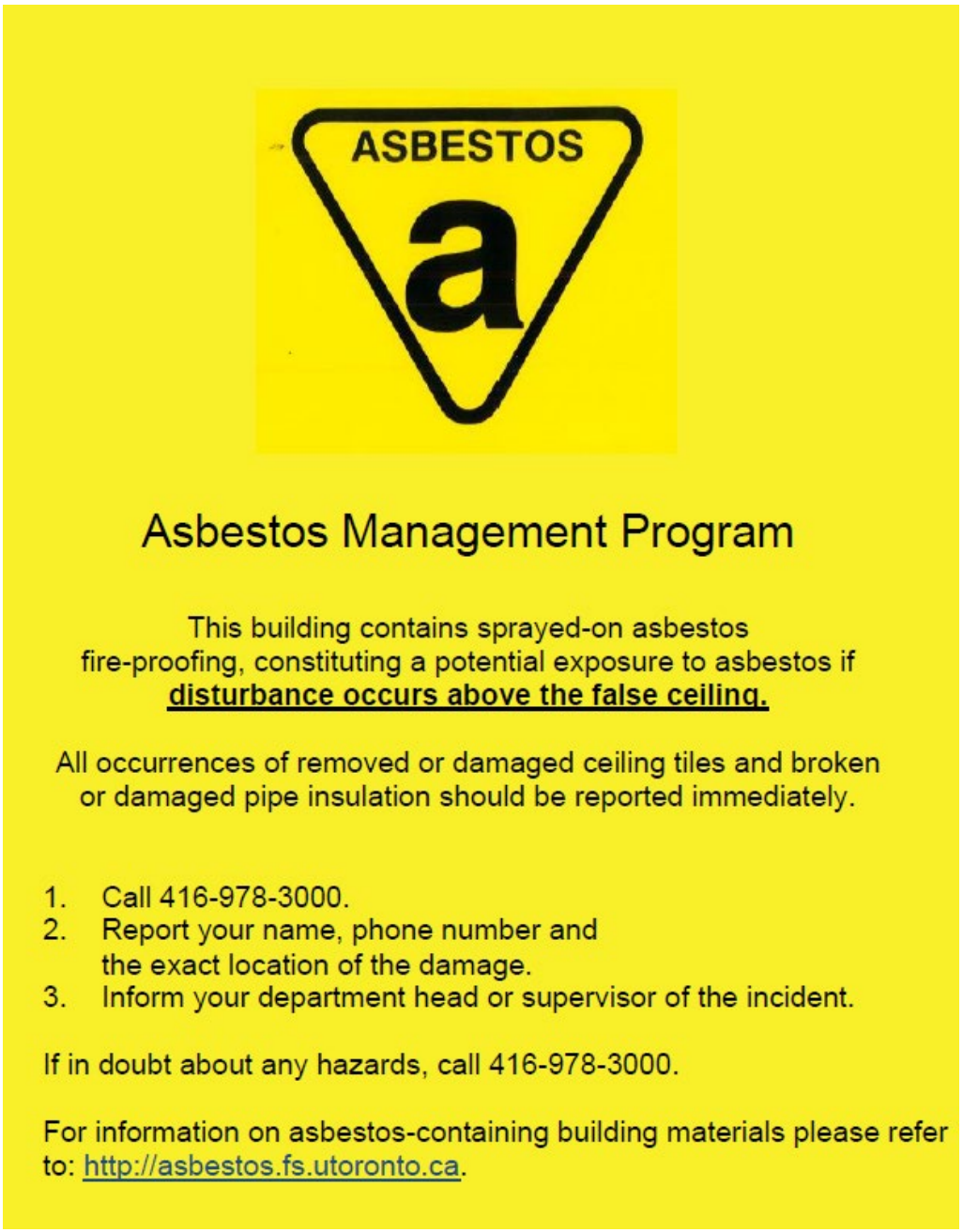
Buildings with Minor Areas of Sprayed or Packed Asbestos Fireproofing (mainly in ceiling spaces)

7. **McLennan Physical Laboratories, 60 St. George Street**, sprayed fireproofing inside perimeter overhang on 1st floor. Encapsulated spray insulation on ceilings and perimeter beams in sections of 15th floor
8. **Ramsay Wright Zoological Laboratories**, **25 Harbord Street** (Sprayed fireproofing on beams in Basement 13 and ground floor 108K only)
9. **Old Administration Building, 263 McCaul St**. (on 5th floor only – 263 McCaul Street, sprayed fireproofing on beam located at north, east and west perimeter of 5th floor only. The beam is currently encased in plaster bulkhead. Remnants of sprayed fireproofing present at wall/deck joint on south perimeter wall.)
10. **256 McCaul Street (on 5th floor only** – hand packed in between drywall ceiling joints and wood deck. Also packed around electrical and other junction boxes located above ceilings).
11. **Robarts Library, 130 St. George St**. Sprayed fireproofing on deck and beams 14th floor adjacent to central mechanical room (some sections encapsulated). Also on beams inside mechanical shafts and ducts in PH mechanical room. Suspect behind fire/utility cabinets.
12. **Claude T. Bissell, 140 St. George St.** (sprayed fireproofing inside mechanical shafts only)

Buildings with Uncovered Friable Material on Exterior of Ventilation Ducts

13. Clara Benson Building - 320 Huron Street

Appendix C - Asbestos Signage for Buildings with Sprayed Asbestos Fireproofing (St. George Campus only)



Appendix D - Emergency Procedures in the Event of Unexpected Asbestos Release

In the event that an individual unexpectedly disturbs or discovers damaged known or suspected asbestos-containing material, the following procedures are to be immediately implemented to prevent or minimize the exposure of individuals to airborne asbestos fibres, and to report the incident to the appropriate authorities.

1. Immediately stop all activities which may disturb the asbestos material.

2. Leave the area, and do not resume any work in the area until advised to do so by the supervisor or Project Manager. If work clothing or equipment have been contaminated with asbestos, do not leave the immediate work area until appropriate decontamination has been carried out.

3. Promptly notify your supervisor, who in turn will inform the appropriate Director, (UTM, UTSC, Project Management) or the Manager, Hazardous Construction Materials Group (F&S, St. George Campus only) or the Office of Environmental Health and Safety as needed.

4. Depending on the scenario, the ventilation may be shut down. For small, localized incidents, this is generally not required. During clean up, since specialized HEPA vacuums and/or damp wiping are used. If affecting a large area, ventilation shutdowns may occur after consultation with HCMG (St. George campus only) and EHS. For laboratories, the Office of Environmental Health and Safety will be consulted prior to shutting down the ventilation system.

5. The supervisor or Project Manager, in consultation with the appropriate Director, (UTM, UTSC, Project Management) or the Manager, Hazardous Construction Materials Group (F&S, St. George Campus only) or the Office of Environmental Health and Safety as needed.
    a. Determine whether the material contains asbestos or not, by consulting with the asbestos inventory and/or taking a bulk sample for rush analysis. (else, assume it is amphibole asbestos)
    b. Arrange for appropriate asbestos remediation and cleanup should the results be positive for asbestos.
    c. Give authorization for return to work when safe to do so.
    d. Investigate the incident in consultation with the local Joint Health and Safety Committee and determine the cause. Prepare a list of all employees who were involved in the incident and who may have been exposed to asbestos.
    e. Complete an Accident/Incident report and submit to the Health and Wellbeing Programs and Services office, with a copy to the appropriate Director, (UTM, UTSC, Project Management) or the Manager, Hazardous Construction Materials Group (F&S, St. George Campus only) and the Office of Environmental Health and Safety.
    f. EHS will investigate the incident with the supervisor and in consultation with the Hazardous Construction Materials Group (St. George Campus) and provide a copy will be provided relevant Joint Health and Safety Committee.
    g. For all confirmed asbestos materials, provide any employee directly exposed to asbestos an opportunity to complete the Worker's Exposure Incident Form from the Workplace Safety Insurance Board
    h. For all confirmed asbestos materials, provide any employee directly exposed to asbestos as a result of the incident, with the opportunity to consult with the Occupational Health Service or their own physician.

6. If the incident involves contractors being exposed to asbestos, it is their employer's responsibility to follow their company's reporting processes and procedures for asbestos exposure.

For Type 3 abatement work where ambient air sampling results are above the action limit of 0.05 f/cc, please refer to this flowchart for action items for the consultant, contractor and UofT contacts.

Appendix E - Exit Procedures for Injured Asbestos Workers

In the event that an emergency arises during Type 2 or Type 3 asbestos work, these procedures provide guidance for removing an injured worker from a contaminated asbestos work site, and for preventing undue exposure to emergency response workers.

1. If an employee has been appropriately trained and it can safely be done, he/she can provide first aid to the injured party.

2. Contact the University of Toronto Police, the supervisor and/or Project Manager.

3. If the injured worker is ambulatory and can be moved safely from the contaminated work area, follow standard decontamination procedures prior to removing the injured worker from the contaminated area.

4. If the injured worker is not ambulatory or movement of the injured worker would be unsafe, in waiting for the emergency response personnel:

   a. Make the injured party as comfortable as possible.

   b. Conduct standard decontamination procedures on the injured worker only if it is safe to do so.

   c. Clean obvious contamination from the worker using the HEPA vacuum or damp wiping methods.

   d. Mist and clean the work area using water to reduce fibre levels prior to the arrival of the emergency response personnel.

   e. Emergency response personnel are to wear respirators equipped with HEPA filters and disposable coveralls prior to entering the contaminated work area.

   f. Assist the emergency response personnel in covering the injured party with clean polyethylene prior to removal from the work area.

   g. Continue to mist the work area with water during and after the removal of the injured party.