Asbestos Awareness at the University of Toronto

What is Asbestos?

Asbestos is a general term given to a group of naturally occurring mineral silicates that are made up of long thin fibres. These fibrous minerals were used in a wide range of products in construction and industry, because of their unique properties which include heat resistance, chemical resistance, and heat and electrical insulation.

Asbestos materials that are in good condition do not pose a health risk. Serious health effects can result when asbestos is disturbed such as during building repair and maintenance work. Stringent procedures are followed to reduce the risk to employees and to building occupants.

Types of Asbestos

Asbestos minerals are divided into two main groups - serpentines and amphiboles – based on their fibre structure. The amphibole group is generally regarded as more hazardous because of its greater tendency to become airborne and its greater persistence in the body.

- **Chrysotile** (white asbestos) is made up of fine flexible white fibres, and is the only asbestos mineral in the serpentine group. It is the most common type used, accounting for approximately 95 percent of all asbestos found in buildings.
- There are five types of asbestos in the amphibole group. **Amosite** (brown asbestos) is made up of straight brown/grey fibres, and is the second most common type of asbestos found in building materials. **Crocidolite** (blue asbestos) consists of straight blue fibres. **Anthophyllite**, **tremolite** and **actinolite** are occasionally found as contaminants in asbestos-containing materials.

Uses of Asbestos

Asbestos was mined and used commercially in North America since the late 1800's. It was added to a wide variety of products to strengthen them, to provide heat or electrical insulation, to offer fire or chemical resistance, and/or to absorb sound. Asbestos-containing products ranged from fireproofing to vehicle brake pads.

Asbestos-containing building materials were commonly used up until the mid-1980s, including friable asbestos materials. Many University buildings constructed or renovated during these times still contain some form of asbestos materials, including:

- Sprayed fireproofing on structural steelwork in buildings – a list of University buildings with sprayed asbestos fireproofing is provided at the back of this brochure.
- Thermal insulation used as lagging for heaters, boilers, pipes and hot water tanks to retain heat or cold.
- Acoustic or decorative finishes on ceilings and walls.

- Asbestos-cement products, including roofing materials, acoustic panelling
- Electric insulation, laboratory bench tops, or water and sewage piping systems.
- Asbestos paper, felt or textile products, including door gaskets on furnaces and stoves, pipeline wrap, table pads, heat protective mats, electrical insulation, fire blankets, or protective clothing.
- Asbestos coatings, sealants and adhesives.
- Acoustic ceiling tiles.
- Vinyl floor tiles or vinyl sheet flooring.

Friable vs. Non-Friable Materials

A material that is **friable** is one which can be crumbled, pulverized or powdered by hand pressure. If a friable asbestos-containing material is damaged or disturbed, it presents an inhalation risk because asbestos fibres are more easily released into the air. Examples of friable materials include sprayed fireproofing on structural steelwork, or thermal insulation on pipes.
A **non-friable** asbestos product is one in which the asbestos fibres are bound or locked into the product matrix, so that the fibres are not readily released. Such a product would present a risk for fibre release only when it is subject to significant abrasion through activities such as sanding or cutting with electric power tools. Examples of non-friable asbestos products include vinyl asbestos floor tiles, acoustic ceiling tiles, and asbestos cement products.

Health Effects from Asbestos Exposure

Occupational Exposure

Asbestos fibres can have serious health effects when inhaled. As exposure increases and more fibres are inhaled, so does the risk of developing an asbestos-related disease. To lower the risk of developing disease, measures must be in place to minimize exposure and accumulation of fibres in the lungs.

Asbestos-related diseases are generally associated with exposure to high levels of asbestos over an extended period of time. Studies on workers in mines, factories and shipyards have shown that heavy exposures to asbestos can lead to three serious diseases: **asbestosis** (scarring of lung tissue), **lung cancer**, and **mesothelioma** (a rare form of cancer affecting the lining of the lungs). These diseases may not appear for as much as 20-40 years after exposure to asbestos. Although the evidence is less clear, there is some suggestion that cancers of the gastrointestinal tract may be associated with asbestos exposure.

Studies have also shown that smoking increases the risk of disease, with smokers exposed to high levels of asbestos having a much greater chance of developing lung cancer than non-smokers.

Exposure to asbestos can result in other benign conditions such as pleural fibrosis (thickening of the lining of the lungs), pleural plaques or skin warts.

Non-Occupational Exposure

Asbestos-specific diseases are almost always a result of occupational exposure to asbestos. Non-occupational exposures resulting in disease have been seen in spouses or other family members living with an asbestos worker, or those who have lived in the neighbourhood of asbestos plants.

Asbestos fibres are naturally occurring and result in a natural background present in our environment. This combined with the widespread use of asbestos in products such as automotive brake linings, means that we are all exposed to very small amounts of asbestos in our daily lives. It is not this very low level of exposure that results in asbestos disease but the higher levels of occupational exposure that are of concern to most authorities. Studies have not shown any evidence of asbestos-specific diseases in individuals who breathe asbestos in the outdoor air or who occupy asbestos-containing buildings. Regardless, proper measures for preventing or minimizing exposure to asbestos must always be in place.

Managing Asbestos at U of T

The University is committed to providing a safe and healthy work and study environment to its employees, students, contractors and visitors. Recognizing the potential hazards associated with asbestos, the University has adopted an Asbestos Management Policy which outlines its commitment to protecting individuals from harmful exposure to asbestos.

The mere presence of asbestos in a building does not constitute a hazard or unacceptable risk to health. Asbestos fibres are a concern when they become airborne as a result of disturbance or deterioration. Asbestos-containing materials that are in good condition, undisturbed and well managed will not release asbestos fibres into the air. Under the authority of the Policy, the University's Asbestos Management Program establishes proper precautions, practices and procedures to prevent the exposure of individuals to airborne asbestos fibres. The Program meets the requirements defined 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.

The Asbestos Management Program outlines requirements for:

- Inventories listing the locations and types of asbestos-containing materials in University buildings, to be made readily accessible to its occupants and the joint health and safety committees;
- Regular inspections of asbestos-containing materials to ensure that they are maintained in good condition;
- Prompt repair or removal of damaged asbestos-containing materials;
- Proper signage or labelling of asbestos-containing materials, where feasible;
- Proper training and education of employees and contractors who work with or may disturb

asbestos-containing material;
- Proper work practices and procedures for all asbestos-related work;
- Control and monitoring of external contractors performing work that may disturb asbestos-containing material; and
- Communication of the Program and of asbestos-related work to building occupants, joint health and safety committees, and other persons who may be affected by such work.

Asbestos Work and Training

University employees as well as contractors are sometimes required to conduct work that involves the disturbance of asbestos-containing materials. Such work activities are strictly regulated. Asbestos work is categorized into three types of work operations - Type 1 (low risk), Type 2 (moderate risk) or Type 3 (high risk). For each type of work, the Asbestos Management Program designates corresponding standard operating procedures to prevent the exposure to airborne asbestos. These procedures include strict requirements for preparation of the work area, use of personal protective equipment, use of proper work practices to reduce the spread of asbestos fibres, personal hygiene practices, and asbestos waste handling.

In addition, all University employees and contractors who work with asbestos-containing materials undergo a rigorous training program before being allowed to work with asbestos materials. The University also provides asbestos training to employees in property and project management to ensure asbestos materials are identified ahead of time, before a renovation or construction project begins. Asbestos awareness training is also available to all employees so that they are aware of the types of asbestos materials in University buildings and understand the University's management program.

Building Surveys and Inventories

An asbestos survey and inventory has been prepared for each University building which contains asbestos materials. The inventory lists friable and non-friable asbestos-containing materials, and identifies those materials that are confirmed or suspected to contain asbestos. The inventory is available to building occupants including joint health and safety committees (JHSCs). On St. George campus, the information is available on the Asbestos Data website (http://asbestos.fs.utoronto.ca/Account/Login). On Scarborough and Mississauga campuses, the inventories are available through their local facilities management group.

General Precautions

- Be aware of materials in your workplace that may contain asbestos. Consult the Asbestos Inventory for your building.
- Do not damage, disturb or remove asbestos-containing materials.
- Promptly report damaged asbestos-containing material (e.g. pipe insulation, ceiling tiles) to

your supervisor to have it properly inspected and repaired.

- Do not dust, sweep or vacuum any debris that may contain asbestos. This must only be carried out by properly trained staff. Leave the area if the amount of damage is significant. Restrict access to others.
- Do not enter any ceiling space in which there is sprayed fireproofing unless you have been specifically trained to do so. Labels in the vicinity indicate the presence of such materials.
- Before contracting out any work to be done adjacent to or involving building materials which contain or are suspected to contain asbestos, contact your Property Manager for appropriate requirements and procedures.

Questions or Concerns

If you have any questions or concerns regarding asbestos in your building, contact:

- Your Supervisor
- Your Property or Facility Manager
- Office of Environmental Health and Safety: http://www.ehs.utoronto.ca/
- **Online Asbestos Awareness Course (EHS509):** https://ehs.utoronto.ca/training/my-ehs-training/

References

- University of Toronto **Asbestos Management Policy**
- University of Toronto **Asbestos Management Program**
- Ontario Regulation 278/05: Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations

St. George Campus

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

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

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

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

- 256 McCaul Street
- McLennan Physical Laboratories, 60 St. George Street
- Ramsay Wright Zoological Labs, 25 Harbord Street
- Old Administration Building, 263 McCaul Street

Buildings with Minor Areas of Sprayed Asbestos Fireproofing (in mechanical shafts only)

- Claude T. Bissell Building, 140 St. George Street
- Robarts Library, 130 St. George Street

Buildings with Uncovered Friable Material on Exterior of Ventilation Ducts

- Clara Benson Building (#68) - 320 Huron Street

UTSC and UTM

- Not applicable – For more information, please contact your local facilities group.