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Asbestos: towards zero exposure

Asbestos-related disease is the single largest cause of work-related death in Canada. This has been the case for some time. Seventy-one per cent of accepted occupational cancer fatality claims in Ontario from 1997 to 2010 were the direct result of exposure to asbestos.

As startling as these statistics are, most asbestos-related illnesses and deaths are never reported to or recognized by compensation systems. Affected workers and their families suffer in silence and die, often unaware their illness was caused by workplace exposure decades earlier.

For asbestos-related diseases, the time between initial exposure and the diagnosis of illness is often between 10 and 50 years. Now consider the use of asbestos peaked in the 1970s and continued into the 1980s, before its use was strictly regulated in Canada. It's no surprise then we are experiencing an asbestos-related disease epidemic. Many predict this suffering is far from subsiding.

What is asbestos?

Asbestos is a naturally occurring fibrous mineral categorized into two main types:

- **Chrysotile** asbestos fibers are curly and form together as spirals. Also known as serpentine and white asbestos, this type was widely used and is the most common found in buildings today.
- **Amphibole** asbestos fibers are straight and needle-like. There are several types of these fibers, including amosite (brown asbestos) and crocidolite (blue asbestos).

The utility of asbestos for industrial and commercial purposes relates to its strength, durability, fire and heat resistance and insulating properties. These fibres have been used over the years to manufacture thousands of asbestos containing materials (ACMs). These items range from floor tiles and thermal/electrical insulation to automotive brakes and cement pipes.

How are workers (and others) exposed?

Most ACMs were used in the construction of homes, hospitals, schools, apartment buildings, office towers and other structures built from the 1930s through the 1980s. They were also used in ships, aircraft, railway cars and vehicles.

As associated health hazards became more widely recognized, workers, their representatives and many others mobilized for its control (and eventually for a wholesale ban). Many manufacturers were also motivated by the need to limit legal liability. The production and use of ACM here in Canada and in other developed countries decreased accordingly and significantly.

Consequently, risk to the health of workers, their families and others today mostly relates to the deterioration, maintenance, removal, renovation and other sources of agitation in buildings constructed prior to 1990.

However, the Canadian government continues to allow the importation and use of products containing asbestos. Brake pads and cement pipes are two of the more common examples. Until recently, Canada also mined and exported asbestos to developing nations, this until the government in Quebec cancelled a loan in 2014 destined to prop up the industry.

Regardless, the mere presence of ACM in a workplace or building may not pose a risk to health. However, if ACMs are disturbed, microscopic fibres are released into the air. When inhaled they can become trapped in the lungs where, over time, these fibers can accumulate and lead to serious health issues.

Asbestos containing materials fit into two categories that relate to the risk of fibres becoming airborne—friable and non-friable.

Friable ACM is easily crumbled, pulverized or powdered by hand pressure. Though friable asbestos products are now banned in Canada, they remain prevalent in older buildings. Examples include:

- insulation on steam pipes and mechanical systems including boilers, heaters and vessels
- sprayed fireproofing material on ceilings, walls, beams and other structural supports, and
- sprayed acoustical soundproofing and decorative material.

For **non-friable ACM**, asbestos fibres are bound by cement, vinyl or other material and cannot be reduced to powder or dust by hand. These materials, however, **can become friable when agitated** by cutting, grinding, sanding or some other mechanical force. They can also become friable through normal wear and tear as materials break down over time or as a result of demolition. Examples include:

- reinforced cement products including roofing, shingles, sheet walls and panels
- cement moulded products (pipes)
- floor tiles, the backing on vinyl sheet flooring, and adhesives used for installing floor tile, and
- automobile brake pads and linings, clutch mechanisms and other friction products.

Who is exposed?

More than 150,000 Canadians are regularly exposed to asbestos in their workplace — 50,000 in Ontario.

The largest at-risk group are those in construction-related trades. Others at risk include workers who perform demolition, asbestos abatement and remediation along with regular maintenance, repair and renovation work in older commercial, industrial, institutional and residential buildings.

Workers in shipyards and power plants, auto mechanics, along with teachers, health care workers, maintenance personnel, custodians, firefighters and others working in older buildings are also at risk.

Of course, family members and others may also be exposed if fibres collected on workers' clothing are transported to the family car or home.

What are the specific risks to health?

According to the International Agency for Research on Cancer (IARC), **all forms of asbestos have been classified as Group 1 substances, in other words, "carcinogenic to humans."**

Symptoms and the onset and/or diagnosis of cancer and other related diseases can occur 10, 20, even 50 years after initial exposure — a period of time commonly known as a latency period.

An indicator that harmful asbestos exposure has occurred is the development of **pleural plaques**. The affected worker may not experience any symptoms, but this scarring within the lining of the lungs can be visible through x-rays and CT scans.

Asbestosis is caused when fibres lodge in the lungs and result in

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scarring and inflammation. Symptoms can include shortness of breath, coughing, excess phlegm and fatigue. This disease is progressive in terms of reduced lung function. It is irreversible and can prove fatal. It can also contribute to other related fatal illnesses.

Exposure to asbestos fibres has been found to increase the risk of developing **lung cancer**.

Mesothelioma is a rare and deadly cancer of the lining of the lung or the abdominal cavity almost exclusively caused by asbestos. The latency period from initial exposure is often more than 20 years.

Studies have also found evidence linking asbestos exposure with various other cancers including **larynx and laryngeal cancers,** along with **stomach, ovary, gastrointestinal and colorectal cancers**.

Is there any safe level of exposure?

The World Health Organization (WHO), a body of the United Nations, says unequivocally there is **no safe level of exposure to asbestos**.

The United States government's Occupational Safety and Health Administration (OSHA) is among many other organizations and individuals who offer this same conclusion for all forms of asbestos including chrysotile — the most common form to which workers here in Canada can be exposed.

Closer to home, Health Canada offers that "Asbestos, if inhaled, can cause cancer and other diseases."

Nonetheless, Ontario occupational health and safety law still allows workers to be exposed.

What to do if asbestos exposure is suspected?

If you work in a building or structure built prior to 1990 — assume ACM is present.

Speak to a supervisor or employer along with the joint health and safety committee (JHSC) or worker representative. Assumptions must be confirmed or denied. All workers in Ontario have the right to know if asbestos is present in the workplace.

Before undertaking any building remediation, insist on proper tests for the presence of asbestos, or access to records of past tests.

All workers in Ontario also have the right to refuse work they believe is likely to endanger their immediate or long term health or that of another worker (some workers do have restrictions on this right).

How is asbestos/ACM regulated?

In general, the federal government regulates the importation, advertising or sale of asbestos products.

In Ontario, among many general duties, the *Occupational Health & Safety Act (the Act)* requires employers and supervisors to identify workplace hazards and take every precaution reasonable in the circumstances for the protection of a worker.

More specifically, asbestos and ACM is regulated under *the Act* through two regulations: Regulation 490/09 — Designated Substances and Regulation 278/05 — Asbestos on Construction Projects and in Buildings and Repair Operations.

Regulation 490/09 calls on employers to take all necessary measures and procedures by means of engineering controls, work practices and hygiene facilities and practices to ensure that a worker's airborne exposure to asbestos is reduced to the lowest practical level and does not exceed 0.1 fibres per cubic centimeter of air (f/cc). (Of concern to many is the fact studies show even this allowable exposure level will lead to a lifetime toll of five excess lung cancer deaths and two asbestosis deaths per 1,000 exposed workers.) The employer must accomplish this without requiring workers to wear and use respiratory equipment, except during emergency or other special circumstances. Where this is necessary the employer must provide the worker with training on the care and use of the equipment.

Regulation 278/05 is applicable to construction projects along with existing buildings and structures. It does not address allowable exposure limits. Instead, it deals with asbestos detection, work procedures, control measures and protective equipment required for work involving potential exposure to ACM in buildings and construction projects. The regulation requires the classification of work involving ACM (or suspected ACM) according to risk of exposure for workers and others nearby. Each classification triggers specific obligations for owners/occupants/constructors/employers. These classifications include:

- Type 1 represents low risk in terms of scale and potential airborne fibres
- Type 2 represents medium risk which might possibly exceed allowable exposure levels
- Type 3 represents larger scale operations and significant risk for airborne fibres beyond allowable exposure levels

These obligations can include documenting and reporting (to the Ministry of Labour) those workers involved in this work (Type 2 and 3) along with instruction and training for workers carrying out asbestos operations. This training must be delivered by a "competent person" as defined by *the Act*. There are additional training requirements for workers or supervisors working in a Type 3 operation.

Building owners have additional duties including preparing and maintaining an "ongoing asbestos management plan" (O. Regulation 278/05). Examples of actions required in this plan include:

- preparing a record clearly outlining the location of all friable and non-friable ACMs,
- updating this record at least once in every 12-month period or when new information becomes available, and
- sharing these records with building occupants, employees and those performing work onsite.

What else can be done?

While many developed countries have asbestos-disease registries, Canada does not.

A national disease registry could be an important tool to help further guide awareness and just compensation for those affected by asbestos. It could also serve to help further the development of workplace and public health policies and practices aimed at exposure prevention.

Further still, in terms of national action needed to help protect Canadian workers and the public from the deadly risk posed by asbestos, many are still calling for an outright ban on its use, import and sale. More than 50 countries, including Japan, Australia and Britain have banned the import and export of asbestos and asbestos-containing products. To date, the Canadian government however, has not followed suit.

Note: Given space limitations this document provides only summary information. To help workplace parties better understand this deadly workplace hazard, related health and safety laws, necessary controls and additional exposure oversight tools, the WHSC offers an Asbestos hazard awareness program. For more details call 1.888.869.7950 and ask to speak to a training service representative.

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