Although asbestos usage has declined since the late 1970s, its previous widespread use in building materials means that workers in construction, maintenance, renovation, and demolition are still at risk of being exposed. Carpenters, insulation workers, plumbers, pipefitters, steamfitters, electricians, mechanics, and boilermakers have a high risk of developing an asbestos-related disease.

Since the 1980s, legislation and awareness have led to better measures for controlling exposure to asbestos. Anyone who could encounter asbestos during the course of their work should first consult Ontario Regulation 278/05: Asbestos on Construction Projects and in Buildings and Repair Operations. This regulation covers:

- Duties of building owners, employers, and workers
- Identification of Type 1, 2, and 3 asbestos operations
- Measures and procedures for controlling exposure
- Requirements for respiratory protection and other PPE
- Requirements for instruction and training.

Many people believe that asbestos-containing material (ACM) is no longer being installed in Ontario. However, Regulation 278/05 only prohibits the spraying of asbestos materials (commonly used for fireproofing) and thermal insulation. Other forms of asbestos may continue to be used.

In Ontario, more workers die from exposure to asbestos than any other cause. For IHSA member firms, asbestos-related diseases were responsible for almost 90% of all fatal occupational disease claims approved by the Workplace Safety and Insurance Board (WSIB) between 2004 and 2013 (Chart 1). The diseases associated with asbestos exposure are mesothelioma, lung cancer, asbestosis, and gastrointestinal cancer. They can develop 15 to 40 years after exposure to asbestos. In many cases, these diseases progress quickly, causing extreme pain, suffering, and eventually death.

**Chart 1: Fatal Occupational Disease Claims by Diagnosis (2004–2013)**

- **Asbestos-Related Diseases**
  - 50% Mesothelioma
  - 29% Lung Cancer
  - 5% Asbestosis
  - 4% Gastrointestinal Cancer

**Abestos-Related Diseases 88%**

Source: WSIB

Are you at risk of exposure?
Identifying asbestos
Many workers are exposed to asbestos without even realizing it. In general, if the following materials were installed prior to the mid-1980s, they should be assumed to contain asbestos. Otherwise, the material should be tested by a lab in accordance with the methods set out in Reg. 278/05.

- Pipe and boiler insulation
- Vermiculite used as attic insulation
- Sprayed-on fireproofing
- Ceiling tiles and popcorn ceiling
- Floor tiles (asphalt, vinyl, or sheet vinyl and the paper underlay and mastic)
- Roofing shingles and felts
- Electrical panel components
- Gaskets
- Cement products such as siding on a home or building or pipe
- Asphalt
- Caulking
- Plaster (textured or smooth)
- Drywall joint compound

Legally, building owners are required to identify any designated substances on a construction site and provide a list and locations to all constructors bidding on the job (OHSA, s. 30). To help owners meet this requirement, IHSA has developed Owner’s Duties: Designated Substances on Construction Projects (W130).

Asbestos operations
There are three types of asbestos operations in Ontario.

Type 1 (low risk)
If proper procedures are followed, it is unlikely that exposure will exceed acceptable limits (e.g., removing vinyl asbestos tiles by hand if the material is wetted).

Type 2 (medium risk)
These operations are likely to create exposure that exceeds acceptable limits (e.g., removing more than 1m² of drywall with asbestos joint compound).

Type 3 (high risk)
These operations involve frequent or prolonged exposure and can release substantial amounts of asbestos dust. This poses serious risks to both workers and others nearby (e.g., using a quick-cut saw to cut asbestos-containing cement pipe).

Asbestos fibres that are contained in mixtures of cement, adhesive, or other binding agents are referred to as non-friable ACM. When non-friable ACM is in good condition, the fibres are not easily crumbled and generally do not become airborne. However, if non-friable ACM is cut, ground, abraded, etc., it can release fibres and cause exposure.

Friable ACM is typically loose and when dry can become crumbled by slight pressure such as with your fingers or air movement. Friable ACM can be quite hazardous because the fibres can be easily released into the air and inhaled.

ACM that was originally installed in a non-friable condition can become friable over time due to
- wear and tear (e.g., friction)
- heat exposure
- weather conditions (e.g., rain, snow, sun)
- chemicals.

Did you know?
Vermiculite attic insulation was installed in some homes under the name “Zonolite”. Much of the vermiculite used in Ontario was mined from Libby, Montana and was contaminated with asbestos. Disturbing vermiculite (running cable, piping, exhausts, etc.) can release very high levels of asbestos fibres into the air. In most cases, vermiculite removal should follow procedures for Type 3 asbestos operations and should be carried out by a contractor who specializes in asbestos removal.
How to use the chart:

- Start in the middle of the chart and work outwards. Your goal is to reach the boxes that will tell you the type of removal (Type 1, 2, or 3) and the respirator you require.
- The outside circle of the chart tells you what kind of respirator you need. We’ve used A, B, C, and D to represent different kinds of respirators. Table 1 explains what each of the letters mean.
- For two categories of operations, the chart asks you to determine the size of the material you’re working with. Once you choose the size (area in m²), you have to stay within the colour of the size. For example, if you’re removing ceiling tiles and the area is greater than 7.5 m², you have to stay within the lavender area of the chart (this includes the striped area). You must not move to the beige area of the chart.

Legend

- ACM means asbestos-containing material.
- HEPA or No HEPA refers to whether your tool is attached to a dust-collecting device equipped with a high-efficiency particulate aerosol (HEPA) filter.
- Wetted or Not wetted refers to the practice of wetting the asbestos-containing material with “amended water” (i.e., a mixture of 1 cup of dishwashing detergent for every 20 litres of water).
Controls

The controls required for each type of asbestos operation are specified in Reg. 278/05. As the type (and risk) of operation increases, more controls are required to protect workers from asbestos exposure.

All workers involved in asbestos operations must be trained on:
1) the health effects of asbestos
2) the personal hygiene and work practices specified by the regulation and specific to the workplace
3) the ways to use, clean, and dispose of respirators and protective clothing.

Every worker and supervisor involved in a Type 3 operation must successfully complete an Asbestos Abatement training program approved by the Ministry of Training, Colleges and Universities.

For more information about controlling asbestos exposure, visit the Asbestos topic page on the IHSA website:

ihsa.ca/topics_hazards.aspx

Asbestos chart

Use this chart to determine the type of asbestos operation and the required respirator or other control measure needed to prevent exposure. Controls for each type of asbestos operation are listed in Regulation 278/05.

To help you understand the regulation’s requirements, refer to IHSA’s Asbestos: Controls for Construction, Renovation, Demolition (DS037). This booklet will clarify any details you find in the chart. You can order a copy online or download it for free at ihsa.ca/Products/DS037

Table 1: Types of Respirators

<table>
<thead>
<tr>
<th>A†</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
</table>
| Air-purifying half-mask respirator with N-100, R-100, or P-100 particulate filter. | Choose any of the following:  
  • Air-purifying full-facepiece respirator with N-100, R-100, or P-100 particulate filter.  
  • Powered air-purifying respirator with a tight-fitting facepiece (either full or half facepiece) and a high-efficiency filter.  
  • Negative pressure (demand) supplied-air respirator with a full facepiece.  
  • Continuous-flow supplied-air respirator with a tight-fitting facepiece (full or half facepiece). | Pressure-demand supplied-air respirator with a half facepiece. | Pressure-demand supplied-air respirator with a full facepiece. |

† For any Type 2 operation in which you will not wet the asbestos-containing material, IHSA recommends that you use a category B respirator.

NOTE: Disposable respirators or dust masks are not recommended for avoiding exposure to asbestos fibres because it’s difficult to perform negative-pressure and positive-pressure seal checks. For more information on seal checks, see Appendix F of IHSA’s Asbestos: Controls for Construction, Renovation, Demolition (DS037).