What is Asbestos?

The generic name for 6 different naturally-occurring fibrous minerals

What are the different types of asbestos?

**Serpentine**
- Curved fibres
- Includes chrysotile
- Mined in Quebec

**Amphibole**
- Straight fibres
- Includes Amosite
- Considered “somewhat more toxic”¹
Why was asbestos used?

- Good heat insulator
- Non-flammable
- Non-conductive
- Resistant to oxidation
- Chemically stable
- Strengthens materials

Asbestos Production & Use

- Plaster
- Jointing
- Ceiling tiles
- Fume hoods liners
- Floor tiles
- Adhesives
- Insulation of pipes & elbows
- Boilers, etc.
- Pipes
- Gaskets, brake linings
- Fireproofing

Asbestos: Production & Use

Asbestos: Health Effects

- Long latency period – 15 to 35 years
- Fibers must be respirable (>5µ, aspect ratio 3:1)
- Co-factor = smoking
- Exposure dependent
- Certain Groups at risk

Asbestos: Who is at risk?

1. Unprotected workers who made, installed, or removed products containing asbestos.
2. People who worked near 1)
3. Family members of exposed workers.
4. People who living near large (disturbed) deposits in the soil.

Source: National Institutes of Health: http://www.nhlbi.nih.gov/health/topics/asb/
Definition of Asbestos-Containing Materials:

- **US OSHA Code of Federal Regulations:**
  
  Asbestos-containing material means any material containing more than 1% asbestos.

- **Province of Quebec Safety Code for the Construction Industry:**
  
  Any material and product containing asbestos where the asbestos concentration is at least 0.1%.

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Friable material: material that can be crumbled, pulverized or powdered by hand pressure. 

"Asbestos poses health risks only when fibres are present in the air you breathe. There are no significant health risks if asbestos fibres stay enclosed or tightly bound in a product." 

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[1] Regulation Respecting Occupational Health and Safety, Québec

### Asbestos: Air Exposure Limits

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Asbestos Type</th>
<th>8-hour Time-Weighted Average (TWA) (Fibres/cc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quebec</td>
<td>Chrysotile, Tremolite, Anthophylite, Actinolite</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Crocidolite*, Amosite*</td>
<td>0.2</td>
</tr>
<tr>
<td>Ont., BC, Alta, OSHA (USA)</td>
<td>All forms</td>
<td>0.1</td>
</tr>
<tr>
<td>McGill U.</td>
<td>All forms</td>
<td>0.1</td>
</tr>
</tbody>
</table>

* Forms of asbestos banned from commercial products

### Asbestos: Risk Management

- **Low risk**
- **Moderate risk**
- **High risk**

At McGill, the management of asbestos entails:
- Inventory of asbestos-containing materials
- Training
- Protective equipment and respirator fit testing for those who deal with asbestos
- Policy and protocols
- Site supervision and air monitoring
- Clearance testing
- Final site inspection*
- Perimeter sampling*

* Actions which go beyond basic legal requirements
### Safety measures

<table>
<thead>
<tr>
<th>Safety measures</th>
<th>QC Legal requirements</th>
<th>McGill practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air tests TWA-TWA (chrysotile)</td>
<td>&lt; 1 fiber/cc</td>
<td>&lt; 0.1 fiber/cc</td>
</tr>
<tr>
<td>Air tests TWA-TWA (amosite)</td>
<td>&lt; 0.2 fiber/cc</td>
<td>&lt; 0.1 fiber/cc</td>
</tr>
<tr>
<td>Daily air tests in the work zone</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Daily air tests in the adjacent occupied zone</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Installation of a window in high risk enclosure</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Zero tolerance policy (could lead to expulsion)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Supervision by external consultants during high risk abatement</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Supervision by McGill construction safety professionals on all risk levels</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Internal response protocol for incidents that may involve asbestos</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

### Stewart Building: Additional Measures

- Regular air testing (4 times/year)
- Work order to verify all ceiling tiles
- Weekly inspections by EHS
- Increased surveillance by Security
- Sampling and investigation of settled dusts
- Broadcast [Asbestos Incident Response Protocol](#)
- Weekly meetings of Work Group
Asbestos Response Protocol

RESPONSE PROTOCOL

Air Quality Test Results December 2013

- 65 tests (51 area and 14 personal)
- All results well within legal limits and McGill action level
- Nearly all below limits of detection
- To be repeated 4x per year

Stewart Building Work Group

- Robert Stanley, (Chair), FOD
- Dean Martin Grant, Faculty of Science
- Robert Couvrette, AVP University Services
- Prof. Rudiger Krahe, Building Director
- Prof. David Ostry, Dept. of Psychology
- Prof. Frédérick Guichard, Biology
- Carole Verdon-Smith, Deputy Building Director
- Chuck Adler, Campus and Space Planning
- Doug Sweet, Internal Communication
- Victoria Percival-Hilton, Legal Services
- Luc Roy, Building Operations, FOD
- Barbara Lewis, University Services
- Claude Roy, Roy et Tremblay Inc.
- Carlo Cimo, (Project Manager), FOD
- Daniel Chevance, FOD
- Wayne Wood, EHS