

## Introduction

Asbestos is a naturally occurring mineral which has commonly been used in a variety of building materials due to its strength and unique fire and chemical resistant properties.

Intact and undisturbed asbestos presents no direct health hazard but does present a potential exposure hazard should asbestos be released and taken into the body. Asbestos fibres have been proven to cause disease when inhaled or ingested. The risk of injury to health caused by the inhalation of asbestos is increased by smoking.

## Purpose

The University's Asbestos Management Procedures will:

- provide a platform to manage all asbestos-containing materials in University facilities, infrastructure and all activities which may disturb asbestos-containing materials, including maintenance, alteration and repair operations.
- clearly define and stipulate the responsibilities of all workplace parties involved in the development, administration and implementation of the procedures.
- communicate all relevant information about asbestos and the University's asbestos management plan to all persons within the University community who may be concerned.

## Legislation

The University of Regina's Asbestos Management Procedures exists under the authority of the University of Regina's Health and Safety Policy.

The Ministry of Advanced Education, Employment and Labour (AEEL), *Occupational Health and Safety Regulations* require that the University of Regina comply with the regulations set out in Part XXIII – Asbestos. The regulations require that the University of Regina:

- identify all areas containing asbestos.
- perform annual inspections.
- repair asbestos surfaces.
- provide notification of any asbestos removal processes.
- educate employees at risk of encountering asbestos.
- report any exposure or potential exposure to asbestos.
- maintain records.

## Definitions

**Asbestos** is the fibrous form of crocidolite, amosite, chrysotile, anthophyllite, actinolite, tremolite or a mixture containing any of those minerals.

**Asbestos Control Plan** is a written plan required by section 337 of The Occupational Health and Safety Regulations, 1996 that protects against the dispersal of asbestos dust into the atmosphere, and includes:

- a) the emergency procedures to be used in case of an uncontrolled release of asbestos, including:
  - (i) the means to protect exposed employees;

- (ii) the methods to confine and control the release of asbestos; and
  - (iii) the decontamination procedures to be used;
- b) the asbestos processes that employees may undertake;
- c) the training of employees in any asbestos process the employees may be required or permitted to undertake;
- d) the methods to control the release of asbestos dust;
- e) the personal protective equipment that employees may be required to use;
- f) the decontamination procedures for:
  - (i) the worksite; and
  - (ii) the employees who undertake any asbestos process; and
- g) the inspection and maintenance schedule for all asbestos-containing materials.

**Asbestos dust** is dust that consists of or contains asbestos fibres that are likely to become airborne.

**Asbestos process** is any activity that may release asbestos dust fibres.

**Asbestos surface** is the surface of an object that contains asbestos.

**Competent** means possessing knowledge, experience and training to perform a specific duty.

**High risk asbestos process** includes:

- the removal, encapsulation, enclosure or disturbance of anything but minor amounts of friable asbestos-containing material during the repair, alteration, maintenance, demolition, or dismantling of any part of a plant.
- the cleaning, maintenance or removal of air-handling equipment in buildings where sprayed fireproofing asbestos-containing materials have been applied to the airways or ventilation ducts.
- the dismantling or the major alteration or repair of a boiler, furnace, kiln or similar device, or part of a boiler, furnace, kiln or similar device, that is made of asbestos-containing material.
- the use of power tools not equipped with high efficiency particulate absorbing (HEPA) filtration to grind, cut or abrade any asbestos-containing surface or product.

**Friable** is material that, when dry, is or can be crumbled, pulverized or powdered by hand pressure.

**Project Manager** is an individual assigned by the University's Facilities Management Department to administer a construction or renovation project.

## Responsibilities

1. Vice-President (Administration) will:
  - 1.1 ensure that adequate resources are available to implement appropriate measures.
  - 1.2 require that the procedure is communicated to employees.
  - 1.3 require compliance with the procedures.
2. Associate Vice-President (Facilities Management) will:
  - 2.1 ensure that the procedures are communicated to employees.
  - 2.2 maintain current maps of the locations of asbestos containing material.

- 2.3 ensure appropriate training is provided and maintain training records.
  - 2.4 ensure that annual inspections are conducted and maintain inspection records.
3. Director Maintenance, Facilities Management will:
    - 3.1 require that annual inspections are conducted.
    - 3.2 distribute and maintain records resulting from the annual inspection reports.
    - 3.3 ensure that only competent persons are required to inspect possible asbestos containing areas.
    - 3.4 require that all identified problems are repaired as soon as possible.
    - 3.5 identify employees who are at the greatest risk of encountering asbestos and require they attend training, determined through consultation with Health, Safety & Environment (HSE).
  4. Supervisors and Project Managers will:
    - 4.1 inform employees when processes may lead to asbestos exposure.
    - 4.2 report any conditions that could lead to the release of, or exposure to, asbestos dust to HSE.
    - 4.3 consult with HSE on the competence of asbestos abatement contractors prior to award of any contract.
    - 4.4 obtain a copy of the asbestos abatement contractor's asbestos control plan and consult with HSE on the adequacy of the plan.
    - 4.5 engage an independent environmental monitoring consultant to take air samples that confirm acceptable fibre levels are maintained prior to, during and after asbestos abatement work.
    - 4.6 require that contractors comply with University policies and programs, and as a condition of the contract, require the asbestos abatement contractor to:
      - 4.6.1 give written notice to the AEEL, Occupational Health and Safety (OHS) of a high risk asbestos process at least 14 days prior to the work commencing as required by section 7(2) of the OHS regulations.
      - 4.6.2 develop a written asbestos control plan for the project that meets the requirements of section 337 of the OHS regulations.
      - 4.6.3 comply with all other requirements of Part XXIII (*Asbestos*) of the OHS regulations.
    - 4.7 require compliance with the Asbestos Management Procedures.
    - 4.8 identify employees who are at the greatest risk of encountering asbestos and ensure they receive adequate training.
    - 4.9 monitor for compliance with the asbestos control plan. If non-compliance with the plan is observed, stop the work and notify HSE for further direction.
    - 4.10 require that appropriate documentation is produced for all actual or suspected occupational exposures to asbestos containing materials.
  5. Employees will:
    - 5.1 comply with the procedures.
    - 5.2 where required, attend training sessions on hazards of asbestos exposure.
    - 5.3 report any conditions that could lead to the release of, or exposure to, asbestos dust to their supervisor.
    - 5.4 complete an Incident Report for actual or suspected occupational exposures to asbestos containing materials.

6. University Health and Safety Committee will:
  - 6.1 support and promote implementation of the procedures and related education and training.
  - 6.2 monitor the adequacy and effectiveness of the procedures.
7. HSE will:
  - 7.1 provide expertise and advice to all levels of management, employees and students on matters pertaining to asbestos.
  - 7.2 receive, review and investigate all incidents related to asbestos exposure and provide recommendations for corrective action.
  - 7.3 maintain an accurate record of all possible asbestos exposures.
  - 7.4 provide training or training information to employees or Departments/Faculties participating on the Asbestos Management Procedures.
  - 7.5 annually arrange for the disposal of the stored waste asbestos containing material and maintain records.
  - 7.6 ensure the procedures are kept current.
8. Contractors and their employees will:
  - 8.1 comply with the University Construction Contractor Health and Safety Policy.
  - 8.2 comply with the University Asbestos Management Procedures.
  - 8.3 comply with all Occupational Health and Safety Acts and Regulations regarding asbestos.
  - 8.4 give written notice to the AEEL, OHS of a high risk asbestos process at least 14 days prior to the work commencing.
  - 8.5 develop a written asbestos control plan for the project.

## **Asbestos Management Procedures**

### **Location and Mapping of Asbestos**

In order to meet the requirements of *The Occupational Health and Safety Regulations* (OHS regulations), the location of all asbestos on the University and College Avenue campuses has been mapped. It is the responsibility of the *Associate Vice President, Facilities Management* to ensure that the maps are kept up to date as asbestos is removed.

### **Annual Inspections**

Pursuant to the OHS regulations, all friable asbestos containing material and all sprayed-on asbestos surfaces must be inspected annually by a competent person, to confirm that the material is not releasing, and is not likely to release, asbestos dust into the atmosphere.

A written record of the inspections is to be kept by the Director, Maintenance, Facilities Management, pursuant to the OHS regulations. A copy of the inspection record is to be provided to HSE as soon as possible after the inspection, to be shared with the Occupational Health Committee.

It is the responsibility of the Director, Maintenance, Facilities Management to ensure inspections are conducted by a competent person and a record kept and distributed as required.

## Renovation

Prior to any renovation or alteration of a University facility that has the potential of releasing asbestos containing fibres, the asbestos containing material will be removed before any renovation work is commenced.

Where a renovation or alteration of a University facility takes place in a location adjacent to an area containing asbestos, the Project Manager shall inform the contractor or other persons performing the renovation or alteration of the asbestos containing material. The contractor or other persons can then plan their work to avoid any activity that may disturb the asbestos containing material. The notification of work will be maintained on the project files.

## Standards for Repair and/or Removal of Asbestos Containing Material

When any surface has been identified as being in poor condition or at risk of breaking off or releasing asbestos containing material or dust, the University will ensure that all repairs and sealing necessary to prevent release are completed immediately.

It is the responsibility of the Director, Maintenance, Facilities Management to ensure all repairs are completed as soon as possible in accordance with the procedure standards.

When a surface at risk of breaking off asbestos or releasing asbestos dust is being repaired, the work shall be completed in accordance with the following standards:

- Prior to any repair work commencing, a written hazard assessment shall be completed and used that sets out the following:
  - the repair method to prevent asbestos disturbance;
  - appropriate Personal Protective Equipment;
  - safe debris removal;
  - safe use of equipment or supplies (e.g. ladder safety); and,
  - other related hazards (e.g. electrical).
- The Project Manager or Supervisor will retain the assessment and forward a copy to HSE, prior to the commencement of work.
- When the repair cannot be affected without breaking off or releasing asbestos dust, the surface will be wetted throughout the entire surface before any repair work is commenced.
- Only competent persons shall engage in the repair of an asbestos surface.

**Low risk** activities, such as HEPA vacuuming of asbestos containing spraytex material, can be conducted by trained/authorized U of R personnel. See the appendix for methods and work procedures for low risk activities.

**Emergency, moderate risk** activities such as glove bag or enclosure and removal of pipe elbows will be conducted by trained/authorized U of R personnel. See the appendix for methods and work procedures for moderate risk activities, such as “glove-bag” removal.

All **high risk** asbestos removal work will be performed by a competent asbestos abatement contractor. All asbestos removal work shall be performed in accordance with existing regulatory standards, this procedure and such other approved or best practice standards that best protects the health and safety of the University community.

All high risk asbestos projects are to be monitored by an independent monitoring consultant for quality assurance.

No persons shall be required or permitted to enter an area where a high risk asbestos removal has taken place until a competent person has determined that

- there are no visible signs of debris, and
- air monitoring verifies that airborne asbestos fibre concentrations are less than 0.01 fibres per cubic centimetre of air.

Copies of all reports are to be forwarded to HSE.

### **Notification of Asbestos Removal**

#### **1. External Notification**

Written notification must be given to the AEEL, OHS at least 14 days prior to the commencement of any high risk asbestos removal process.

The responsibility to give notice is by law shared by the contractor and the University. The University requires the contractor to give the notice and to provide the University with a copy of that notice to assure compliance.

#### **2. Internal Notification**

Employees and building occupants must be notified about asbestos removal activities in their work area in a timely manner. The Project Manager will contact and work with External Relations and HSE to develop an appropriate communication plan.

### **Employee Training and Awareness**

Employees who are at greatest risk of encountering asbestos on a day-to-day basis shall be trained in the following matters:

- the risks associated with working near asbestos,
- work practices and equipment that reduce the risk of working near asbestos,
- identifying asbestos surfaces that are at risk of breaking off or releasing dust into the atmosphere, and
- procedures for low risk removal of asbestos containing materials, for example HEPA vacuuming of Spraytex, and procedures for emergency removal of asbestos containing material using moderate risk techniques, such as glove bag.

The *Director, Maintenance, Facilities Management* shall identify employees who are at the greatest risk of encountering asbestos and ensure they receive adequate training in consultation with HSE.

HSE in consultation with the *Associate Vice-President, Facilities Management*, will ensure appropriate training is provided and maintain training records.

### **Notification of Potential Asbestos Exposure**

In accordance with the OHS Regulations, HSE will, in consultation with the University Health and Safety Committee, report potential worker exposures to the AEEL, OHS.

## **Asbestos Waste**

In accordance with the OHS Regulations, the Construction Contractor, Project Manager, or Supervisor will ensure that asbestos waste or dust produced are cleaned away promptly with appropriate HEPA vacuum cleaning equipment that is inspected, maintained and certified.

When asbestos waste cannot be immediately removed from University property it will be logged and stored in the designated location within the FM cold storage area of the GGTC. The waste will be double bagged and identified as asbestos containing waste material. The University will conduct asbestos waste disposals annually. FM will contact HSE once a year, or as required, who will ensure the Labour Crew has valid TGE Certification and arrange with the City of Regina Landfill for disposal.

## **On-site Evaluation of Potential Asbestos Containing Material**

Upon request HSE will evaluate possible asbestos containing materials and determine if they contain asbestiform fibres.

Upon identification of material that may contain asbestos, the employee and/or supervisor will:

- not disturb area.
- secure the area.
- call HSE at 585-5487.

HSE will:

- attempt to determine the source of the material.
- collect and evaluate the samples.
- notify the employee and the Project Manager or Work Control at Facilities Management of the results.
- ensure the area is safe prior to allowing re-entry.

## LOW AND MODERATE RISK ASBESTOS REMOVAL PROCEDURES

The methods and work processes described below must only be performed by University authorized employees who have received appropriate training.

The following information is from the **Alberta Asbestos Abatement Manual**, Government of Alberta.

### Introduction

Asbestos abatement procedures vary depending on the type, amount and location of the asbestos. In general, the procedures can be divided into three categories — low risk, moderate risk and high risk — according to their potential for generating airborne asbestos fibres.

All procedures follow the same four principles:

- (1) isolate the work area;
- (2) protect workers;
- (3) minimize the release of asbestos fibres; and
- (4) ensure adequate clean-up and decontamination.

This section presents procedures for low, moderate and high risk abatement activities. The information provided should only be used as a guide since actual risk levels may vary and, depending on work conditions, the project risk level can change. Site or work conditions may require modification of procedures. In these cases, alternate work procedures must provide “equal or greater” protection to workers. Despite the examples provided in this section, in any work area that may become a “restricted area”, high risk procedures must be followed.

### Low risk abatement activities

#### Description of projects

Operations classified as “low risk” have a minimal risk of releasing asbestos fibres into the air. The precautions to adequately protect workers are relatively simple to follow.

Low risk activities include:

- installing or removing non-friable products (that are in good condition) manufactured from asbestos containing materials without cutting, breaking, sanding or vibrating the materials. This includes handling products such as gaskets (30 cm diameter and greater), vinyl asbestos floor tile, asbestos cement products, millboard (transite) and asbestos cement piping.
- work done in proximity to friable asbestos that does not require contacting the asbestos.
- using non-powered hand tools designed to cut, drill or abrade a non-friable manufactured product containing asbestos, as long as water is used to control fibre release and waste products are controlled.
- the transportation or handling of asbestos containing materials in sealed containers.



## Equipment

Required equipment should include the following:

- vacuum cleaner fitted with a HEPA filter;
- polyethylene drop sheets having a minimum 6 mil thickness;
- 6 mil thick labeled asbestos disposal bags;
- spray bottle or hand pump garden sprayer to wet asbestos;
- barriers and warning signs;
- hand powered tools for abatement work;
- mops and/or rags and water for clean-up;
- fire extinguisher; and
- appropriate first aid kit.

## Personal protective equipment

Workers who may be exposed to asbestos fibres should wear:

- a NIOSH-approved half mask air purifying respirator equipped with a P100 (oil Proof), R100 (Resistant to oil) or N100 (Not resistant to oil) particulate filter;
- disposable coveralls over work clothing to prevent contamination of the worker's clothing; and
- personal protective equipment appropriate to the other hazards present at the work site.

## Pre-job planning

- (1) Establish the work plan to be followed and assemble the equipment required to perform the job.
- (2) Ensure workers are adequately trained in the hazards and proper methods of working with asbestos.
- (3) Procedures to deal with emergencies such as fire or injury must be developed and in place prior to work starting.

## Site preparation

Barriers and warning signs should be positioned in areas where access needs to be restricted until the work is completed.

## Work procedures

- (1) Dry removal of asbestos containing material is not permitted. Localized wetting of the material must be done to minimize fibre release.
- (2) Remove all visible dust on work surfaces with a damp cloth or a vacuum cleaner fitted with a HEPA filter.
- (3) Where necessary, use plastic drop sheets or similar materials to prevent the spread of asbestos dust to other work areas.
- (4) When hand tools are used to cut, shape or drill a non-friable manufactured product containing asbestos, the product should be wetted whenever possible to minimize the release of airborne fibres. If the material cannot be wetted, the work must be classified as moderate risk and moderate risk abatement procedures followed.
- (5) No person may eat, drink, smoke, or chew gum or tobacco at the work site except in a designated clean area. Workers must remove protective equipment and clothing and clean their hands and faces prior to any of these activities.

## Decontamination

- (1) During and immediately upon completing the work:
  - clean up dust and waste by vacuuming with a vacuum cleaner fitted with a HEPA filter, by wet sweeping or by damp mopping; and
  - drop sheets must be wetted, folded in on themselves to contain dust, properly bagged and disposed of as asbestos waste.
- (2) Compressed air must not be used to clean up or remove dust from work surfaces or clothing. Cleaning must be done with a vacuum cleaner fitted with a HEPA filter, by wet sweeping or by damp mopping.
- (3) Non-disposable coveralls or other clothing contaminated with asbestos must be laundered following proper procedures. Footwear should be properly decontaminated.

## Disposal

Asbestos waste, including contaminated disposable clothing, must be placed in sealable containers that are labeled as containing asbestos waste. Containers of asbestos waste must be sealed and external surfaces cleaned by wiping with a damp cloth that is also to be disposed of as asbestos waste, or by using a vacuum cleaner fitted with a HEPA filter. The cleaned containers must then be removed from the work area.

## Site inspection

Upon completion of the work, the work area must be visually inspected to ensure that all visible asbestos containing debris has been properly cleaned up. Waste bags should be properly labeled.

## Vinyl floor tiles

Asbestos fibres in floor tiles are bound within a vinyl matrix, contain relatively little asbestos (approximately 10 percent by weight) and present little risk of being released into the environment during removal as long as proper procedures are followed.

Only hand tools such as ice scrapers are to be used during floor tile removal. Low risk procedures are adequate if no power tools or abrasive methods such as sanding are used during the removal. Pre-wetting or flooding of the tiles in advance of removal will greatly aid in their release from the floor.

Mastic used to glue tiles to the floor also may contain asbestos fibres. This mastic should be removed using work procedures similar to those used for the removal of floor tiles. Floor tiles need not be removed before demolition unless they have an asbestos backing or asbestos containing leveling compound or adhesives are present under the tiles.

## Moderate risk abatement activities

### Description of projects

Activities where there is a moderate risk of exposure to airborne asbestos fibres include:

- Using non-powered hand tools to cut, shape, drill or remove a non-friable manufactured product containing asbestos if water is not used to control fibre release.
- Using a mechanical or electrically powered tool, fitted with a HEPA filter dust collector, to cut, shape or grind non-friable manufactured products containing asbestos.

- Removing all or part of a false ceiling to gain access to a work area and where friable asbestos containing materials are, or are likely to be, lying on the surface of the false ceiling.
- Removing, encapsulating, enclosing or disturbing minor areas (less than 0.09 m<sup>2</sup> or 1 ft<sup>2</sup>) of friable asbestos containing material during the repair, alteration, maintenance, demolition or dismantling of a building, structure, machine, tool or equipment, or parts of it.
- Performing glovebag operations (see below for detailed information).
- Dry buffing and stripping of vinyl asbestos tile.
- Renovation or hand demolition involving drywall joint compound, block mortar, stucco, or brick mortar products containing asbestos.
- Removal of 9.3 m<sup>2</sup> (100 ft<sup>2</sup>) or less of contiguous ceiling tile containing asbestos or sheet vinyl flooring/vinyl floor tiles having an asbestos backing.
- Dry removal of non-friable asbestos material where the material may be cut, broken, or otherwise damaged during removal.

### **Equipment**

Required equipment should include the following:

- vacuum cleaner fitted with a HEPA filter;
- polyethylene drop sheets having a minimum 6 mil thickness;
- 6 mil thick labelled asbestos disposal bags;
- spray bottles or hand pump garden sprayers to wet asbestos;
- barriers and warning signs;
- appropriate tools;
- mops, rags, brushes, water and other supplies for clean- up;
- fire extinguisher; and
- appropriate first aid kit.

### **Personal protective equipment**

- Workers exposed to asbestos fibres should wear protective clothing that:
  - is made of material such as Tyvek™ that resists penetration by asbestos fibres;
  - covers the body and fits snugly at the neck, wrists, and ankles;
  - covers the head and feet (laceless rubber boots are recommended); and
  - is immediately repaired or replaced if torn.
- The wearing of disposable coveralls is recommended. Street clothes should not be worn under disposable coveralls if work is conducted inside containment.
- A NIOSH approved respirator equipped with a P100 (oil Proof), R100 (Resistant to oil) or N100 (Not resistant to oil) particulate filter must be worn. Disposable, single use respirators must not be used. The respirator selected must have a sufficient protection factor to provide adequate protection for the fibre levels encountered during the project.
- Personal protective equipment such as safety boots, hard hats, etc. appropriate to the other hazards present at the work site must be used. If other airborne contaminants are also present, respiratory protective equipment appropriate to those hazards is necessary.

### **Pre-job planning**

- (1) Establish the work plan to be followed and assemble the equipment required to perform the job.
- (2) Ensure all equipment fitted with HEPA filters has been tested before the job commences.
- (3) Ensure workers are adequately trained in the hazards and proper methods of working with asbestos.

- (4) Ensure that building occupants, tradespeople, etc. are notified, in advance, of the location, duration and type of work to be performed.
- (5) Procedures to deal with emergencies such as a fire or injury must be developed and in place prior to work starting.

### **Site preparation**

- (1) Barriers and warning signs should be posted in areas where access to unauthorized persons needs to be restricted until the work is completed. The signs should read as follows and include the name of a contact person on-site.

**Caution - Asbestos Dust Hazard**  
**Avoid Breathing Dust - Wear Protective Equipment**  
**Breathing Asbestos Dust May Cause Cancer**  
**Entry is Prohibited Except to Authorized Persons**  
**Eating, Drinking and Smoking are Prohibited in this Area**

- (2) Clearly mark the boundary of the work area by placing barricades, fencing or similar structures around it.
- (3) Prior to starting any work that is likely to disturb friable asbestos containing materials, the materials must be cleaned by damp wiping or vacuuming with a vacuum cleaner fitted with a HEPA filter.
- (4) All air handling and ventilation systems that could cause asbestos fibres to be distributed, disturbed or become airborne as a result of the work should be shut down before work begins.
- (5) Lock-out and isolate all electrical and mechanical equipment within the work area.
- (6) Electrical power for abatement work should be supplied through a ground fault circuit interrupter (GFCI).
- (7) If a containment is required the University will utilize external Asbestos Abatement contractors for moderate risk activities that require a containment.

### **Work procedures**

- Wet material thoroughly before and during the work unless such wetting creates a hazard to workers. Material should be wet but not saturated, as this may cause delamination or disintegration of the material.
- Do not use compressed air to clean up or remove dust or materials from work surfaces or clothing. Techniques which generate excessive fibre levels should be avoided. Clean-up techniques should include vacuuming with a vacuum cleaner fitted with a HEPA filter, wet sweeping or damp mopping.
- Use plastic drop sheets and barriers to prevent the spread of asbestos-containing dust to other work areas.
- Do not allow asbestos waste to accumulate or dry out before final bagging.
- Once abatement work is complete, seal all rough edges or surfaces containing asbestos-containing material at the edges of the work area with an encapsulant.

### **Decontamination**

- Immediately upon completing the work:
  - clean up dust and waste by vacuuming with a vacuum cleaner fitted with a HEPA filter, by wet sweeping or by damp mopping; and
  - drop sheets must be wetted, folded in on themselves to contain dust, properly bagged and disposed of as asbestos waste.

- Before leaving the work area:
  - clean protective equipment and clothing before removing it from the work area.
  - use a vacuum cleaner fitted with a HEPA filter or wipe the equipment and clothing with a damp cloth;
  - leave all disposable protective clothing used during abatement in the work area;
  - place protective clothing, if it will not be laundered and re-used, in a sealable container and dispose of it as asbestos waste. Clothing and protective equipment that is to be reused must be laundered and cleaned using proper procedures; and
  - wash all exposed skin surfaces prior to removing respirators. All persons in the work area must properly decontaminate themselves prior to leaving the work area. This is to be done under all circumstances, including prior to drinking, eating, using a bathroom, etc.

### **Disposal**

- (1) Place asbestos waste into a sealable container labelled as containing asbestos waste.
- (2) Clean the external surfaces of sealed containers of asbestos waste by wiping with a damp cloth that is also to be disposed of as asbestos waste, or by using a vacuum cleaner fitted with a HEPA filter.
- (3) Remove containers from the work area.

### **Site inspection**

Upon completion of the work, the work area must be visually inspected to ensure that all visible asbestos containing debris has been properly cleaned up and removed.

## **Glovebag Removal Procedures**

A glovebag allows the removal of asbestos containing materials from mechanical components such as piping, valves, fittings and small dimension duct work without constructing an elaborate containment. This becomes cost effective where small quantities of material are removed from within a large area, eliminating the need to completely hoard the area. Glovebag removal of asbestos containing materials is considered a moderate risk project.

Glovebags come in a variety of types and styles. Some are multi-use, meaning they can be moved along a pipe as removal progresses. Other glovebags are taped in place and used only in that one location before being discarded.

Other equipment required for glovebag removal includes:

- (a) vacuum cleaner fitted with a HEPA filter;
- (b) polyethylene drop sheets having a minimum 6 mil thickness;
- (c) 6 mil thick labeled asbestos disposal bags;
- (d) spray bottle or hand pump garden sprayer to wet asbestos;
- (e) water and wetting agent;
- (f) duct tape or tape having similar or better strength;
- (g) utility knife with retractable blade;
- (h) wire cutters; and
- (i) flexible wire saw.

Determine the type, style and quantity of bags appropriate for the job. If possible, work should be performed when building occupants or other workers are not present in the immediate

vicinity of the work area. In any event, the work area should be cordoned off using banner tape and warning signs.

Glovebags must only be used on pipe insulation that is covered with a wrap such as Caposite. Without a wrap, fibres can be released during installation of the glovebag and when it is moved along the pipe.

### **Work Procedures**

Before working with a particular type of glovebag, workers should read and understand the manufacturer's instructions for use. In general:

- (1) Place a polyethylene drop sheet beneath the area in which the glovebag is to be installed.
- (2) Prior to applying the bag, seal any loose insulation by wrapping it with polyethylene.
- (3) Prior to starting the removal, clean up any loose asbestos debris on or around the pipe with a vacuum cleaner fitted with a HEPA filter.
- (4) Assemble all the required tools and equipment.
- (5) Place the tools in the bag and seal the bag to the pipe. Insert the nozzle of the garden sprayer into the bag and seal the opening. Similarly, insert the nozzle of the vacuum cleaner fitted with a HEPA filter into the bag and seal the hole. Ensure that the weight of the hose does not pull the bag off of the pipe.
- (6) Place hands into the gloves and using the tools, cut and remove any jacketing. Wet exposed insulation to reduce fibre release.
- (7) Remove the insulation, wetting it and arranging it in the bottom of the bag.
- (8) Using a wire brush, abrasive pad or scraper, clean asbestos residue off of the pipe or fittings.
- (9) Wet and seal the exposed ends of the insulation. The sealant should also be applied to the inside upper section of the bag prior to removal of the bag.
- (10) Place tools in the glove and pull the glove out of the bag so the tools are inside the glove. Twist and double tape the glove to create a pouch that can be cut off. The tools may now be placed into the next glovebag or into a pail of water for cleaning. For cleaning, open the pouch under water and clean the tools thoroughly.
- (11) Suck the air out of the glovebag using the vacuum cleaner. Twist the lower section of the bag containing the waste and seal it with tape. Slowly remove the tape connecting the bag to the pipe. Place the bag into an asbestos waste disposal bag and seal. Disposable clothing and drop sheets must also be disposed of as asbestos waste.
- (12) All work equipment, including work clothing, should be cleaned by damp wiping or with a vacuum cleaner fitted with a HEPA filter.
- (13) Workers should wash their hands and face before leaving the work area.

Glovebags are to be used once and then disposed of. They must not be cleaned and reused. Standard glovebags must not be used on piping at temperatures exceeding 65°C. Check with the glovebag manufacturer for the recommended range of temperatures in which the bag can be used.

The surfaces from which asbestos has been removed should be visually inspected after removal of the glovebag to ensure that there is no remaining asbestos residue.

**Alberta Asbestos Abatement Manual** Prepared by Employment and Immigration – Government of Alberta July 2009 [http://employment.alberta.ca/documents/WHS/WHS-PUB\\_asbestos\\_manual.pdf](http://employment.alberta.ca/documents/WHS/WHS-PUB_asbestos_manual.pdf)