



Asbestos Management Program

2021

Safety Resources



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GLOSSARY

Term	Definition
ACGIH	American Conference of Governmental Industrial Hygienists
Amended Water	Water with wetting agent added for purpose of reducing surface tension to allow thorough wetting of ACM.
Asbestos-Containing Material(s) (ACM)	<p>A material that contains asbestos as measured by U.S. Environmental Protection Agency Test Method EPA/600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials, June, 1993.</p> <p>In Saskatchewan, asbestos-containing materials are defined as materials containing >1% asbestos by weight for non-friable materials, or >0.5% for friable materials or any amount if vermiculite.</p>
Asbestos	Any of the following fibrous silicates: Actinolite; Amosite; Anthophyllite; Chrysotile; Crocidolite; Tremolite.
Asbestos Process	<p>Any activity that may release asbestos dust, and includes:</p> <ul style="list-style-type: none">• the sawing, cutting or sanding of asbestos-containing materials,• the repair, maintenance, replacement, or removal of asbestos surfaces,• the cleaning or disposal of asbestos materials, the mixing, or application of asbestos shorts, cements, grouts, putties, or similar compounds,• the storing or conveyance of materials containing asbestos,• the demolition of structures containing asbestos.
Asbestos Work Area	Area where work is being performed which will or may disturb ACM including overspray and fallen material or settled dust that may contain asbestos.
Asbestos Worker	A worker who is regularly employed in an asbestos process.
Competent Worker	<p>In relation to specific work, means a worker who,</p> <ul style="list-style-type: none">• is qualified because of knowledge, training and experience to perform the work,• is familiar with the Act and with the provisions of the regulations that apply to the work, and• has knowledge of all potential or actual danger to health or safety in the work.
Encapsulation	The application of a liquid sealant to asbestos-containing materials; the sealant may penetrate and harden the material (penetrants) or cover the surface with a protective coating (bridging sealants). Also called encasement. This is generally not advisable.



Enclosure	Enclosure of ACM means the construction of solid enclosure (walls, ceiling, bulkhead etc.) around ACM; or an Enclosure means the site isolation including hoarding walls, polyethylene sheeting and seals that isolates an Asbestos Work Area.
Friable Material	Material that: when dry, can be crumbled, pulverized or powdered by hand pressure or is crumbled, pulverized or powdered.
Glove Bag Removal	A method of removing friable insulation from a piping system using a prefabricated bag which isolates the section of insulation being removed. This is a Moderate Risk Procedure.
HEPA Filter	High Efficiency Particulate Aerosol filter that is at least 99.97 percent efficient in collecting a 0.3 micrometre aerosol.
HEPA Filtered Negative Pressure Unit:	Portable air handling unit which extracts air directly from the Asbestos Work Area and discharges the air to the exterior of the building after passing through a HEPA filter.
Low Risk, Moderate and High Risk Processes	Classifications of asbestos removal defined under provincial regulations. The specific operations and their classification are described under the Classification of Work Section.
Phase Contrast Microscopy (PCM)	A method which uses an optical microscope to determine airborne fibres, normally in an occupational setting. Particles are observed for shape and size. Results are presented as a number of fibres per cubic centimetre or millilitre of air (f/mL). The method of analysis in Ontario is based on the US National Institute for Occupational Safety and Health (NIOSH) Manual of Analytical Methods, Method 7400, issue 2, Asbestos and Other Fibres by PCM (August 15, 1994).
Restricted Area	An area of a worksite where there is reasonable chance of the concentration of airborne asbestos exceeding the eight-hour Occupational Exposure Limit (TLV in Saskatchewan).
Threshold Limit Value (TLV) for asbestos	The ACGIH defines a threshold limit value of 0.1 f/cc for exposure to asbestos fibres in air.
US EPA	United States Environmental Protection Agency.



1 PURPOSE AND SCOPE

The Asbestos Management Program (AMP) provides information and procedures for asbestos management for all buildings at the University of Saskatchewan (USask). The AMP applies to all University owned buildings, all faculty and staff, as well as all service providers and contractors performing work in USask Facilities.

The AMP is a management program facilitated by the Asbestos Management Program Coordinator within the Safety Resources department. The program supports USask departments by providing Awareness Training and procedural support around asbestos containing materials (ACM) during demolition, renovation, alteration, maintenance, repair or other activities. The AMP maintains the asbestos inventory of all USask buildings and the Asbestos Identification Program which includes an asbestos labeling system. Refer to Appendix A.

The AMP incorporates the following elements:


- Asbestos audits and reassessments. These documents are part of the AMP and can be found by contacting Asbestos Management Program Coordinator with Safety Resources.
- Regulatory requirements and USask policies.
- Roles and responsibilities.
- Notifications.
- Training requirements.
- Emergency reaction and procedures.
- Work practices (low risk, moderate risk (including glove bag work, and high risk).
- Record keeping.
- Contractor requirements.

2 REGULATORY REQUIREMENTS AND USASK POLICIES

2.1 Regulatory Requirements and Guidelines

The USask AMP was implemented in response to the following legislation;

- Occupational Health and Safety Regulations, Saskatchewan (2020).
- Environmental Management and Protection Act, Saskatchewan Environment (2010).
- WorkSafe Saskatchewan Asbestos Guidelines for Managing Asbestos in Buildings.

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- Saskatchewan Asbestos Abatement Manual – Guidelines for Asbestos Processes in Building Demolition and Renovation.

2.2 USask Policies Related to Asbestos

USask has established guidelines and procedures that meet or exceed the minimum requirements of provincial regulations as follows:

- Due to future management issues and additional costs incurred over the life of the material, USask will not utilize any ACM in new construction or installations.
- When remedial action is undertaken on friable sprayed ACM, the USask will generally opt for removal of the ACM. Encapsulation or encasement will not be undertaken unless removal is not practicable in specific locations.
- When remedial action is undertaken on friable mechanical insulation both removal and repair (re-jacketing or encapsulation of mechanical insulation) will be considered depending on the extent of work required.
- USask staff will not undertake any asbestos operations as defined as moderate risk or high risk other than as required by an emergency situation.
- All moderate risk and high risk asbestos operations will be undertaken by an approved asbestos abatement contractor.
- Low risk work may be undertaken by either USask staff (if they have staff with appropriate training on site) or an approved asbestos abatement contractor.

3 BACKGROUND INFORMATION AND HEALTH EFFECTS

Refer to Appendix B for information on Asbestos Containing Materials.
Refer to Appendix C for information on the Health Effects of Asbestos Exposure.

4 SUMMARY OF ASBESTOS

The following is a brief summary of the materials present in USask buildings:

- Transite pipe and board
- Fireproofing insulation
- Vinyl floor tile
- Sheet flooring
- Textured/stipple ceiling
- Pipe insulation

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- Plaster
 - Drywall mud compound
 - Fire stop material
 - Roof/ceiling tile
 - MCC panel chutes

For a complete list refer to Appendix B.

Refer to the asbestos database documents by contacting Asbestos Management Program Coordinator with Safety Resources.

5 ROLES AND RESPONSIBILITIES

The following USask staff have responsibilities for establishing and maintaining the AMP.

5.1 Safety Resources

The Asbestos Management Program Coordinator (AMPC) or delegate will:

- Facilitate compliance with the AMP and supporting procedures.
- Arrange for the reassessment of ACM at regular intervals and ensure asbestos inventory information is updated or as new information is obtained as ACM is removed or its condition changes.
- The AMPC will maintain the asbestos inventory for all Facilities constructed or occupied prior to 1987. Where such an audit has not been performed in pre-1987 Facilities, the AMPC will arrange for a room-by-room audit of the facility and make the asbestos audit available.
- Notify USask staff, contractors or service providers who may work around or may disturb the ACM and provide record of its presence and location (issue Contractor Notification and Acknowledgement Form as appropriate – Appendix D).
- Arrange for the abatement of deteriorated ACM which has been reported or identified while using the appropriate procedures (Low Risk, Moderate Risk or High Risk procedures).
- Provide necessary information to all Project Managers, Planners, Assistant Managers/Supervisors and others arranging for or planning work on or in proximity to ACM that is known in the identified areas, rooms and/or buildings. The AMPC will communicate the requirements for destructive asbestos audits for friable and non-friable ACM and other hazardous



materials prior to any renovation, alteration or demolition. Such assessments will include destructive investigation where necessary.

- Coordinate with Project Managers, Planners, and Assistant Managers/Supervisors to provide the building occupants advanced notice of asbestos projects, specifically ones in which will require moderate risk or high risk procedures.
- Arrange for and/or provide Asbestos Awareness Training for all USask faculty, staff and building occupants as required to respond to concerns over the presence of asbestos or planned asbestos work when required (refer to **7 Training Requirements** section).
- Ensure that procedures are in place to respond to emergencies involving asbestos by using USask staff or an approved asbestos abatement contractor.
- Maintain all documentation required by this program, including but not limited to:
 - AMP
 - Asbestos audit reports and assessments
 - Occupant notification letters, contractor notification forms
 - Asbestos project work records
 - Training certificates and respirator protection fit testing documents.
- Upon unexpected discovery of suspect ACM, or upon an uncontrolled asbestos disturbance, follow the Reactive Response Guidelines in Appendix E.
- Arrange for the inspection and air monitoring of asbestos work as required.
- At the completion of the work, to allow updating of the asbestos database to reflect altered location and condition of ACM, complete the Asbestos Project Work Record in Appendix F for each project during which asbestos is removed that is managed by the Asbestos Management Program Coordinator with Safety Resources.
- Determine what large scale asbestos abatement projects will be undertaken each year.
- Approve of the procedures and practices presented in this AMP.

5.2 Facility Assistant Managers/Supervisors

- Ensure compliance with the AMP and associated regulations.
- Ensure that asbestos information is presented to USask employees during maintenance work, during tenders and to outside contractors when working in USask buildings.

5.3 Project Manager (Internal & External), Planners

Project Managers (may also include various college facilities managers) who plan, arrange for, or oversee work in USask buildings will:

- Contact Safety Resources and the Asbestos Management Program Coordinator to review the scope of work.



- Ensure that a destructive asbestos audit for friable and non-friable ACM is performed prior to any renovation, alteration or demolition and that the information is provided to contractors and or consultants completing work during the project.
- Based on the results of the destructive asbestos audit, provide or arrange for the provision of appropriate specifications (Low Risk, Moderate or High Risk process) to the Contractor to remove ACM from the work area.
- Ensure all moderate and high risk asbestos work is performed by consultants and approved asbestos abatement contractors who specialize in asbestos work and who have appropriate experience, equipment and insurance.
- Arrange for the required inspection and air monitoring of asbestos work areas as noted by the consultant specifications in the facility when contracted by Project Manager.
- Notify the Asbestos Management Program Coordinator of work requiring any asbestos processes and Moderate or High Risk precautions a minimum of 2 weeks in advance of work.
- Ensure all necessary notifications to the Ministry Labor Relations and Workplace Safety for High Risk Projects have been submitted by the contractor prior to start of work and that all necessary forms are posted on site. (usually done by the contractor/consultant performing the abatement)
- At the completion of the work provide information to the Asbestos Management Program Coordinator to allow updating of the asbestos inventory to reflect altered locations and condition of ACM. Complete Asbestos Project Work Record in Appendix F for each project during which asbestos is removed or disturbed and submit to it the Asbestos Management Program Coordinator.
- Ensure workers have appropriate training when using a contractor.

5.4 Workers

- Are responsible for their own safety and the safety of those around them.
- Look for and be alert for hazards.
- Correct or report hazards to their supervisor
- Complete daily inspections on tools, equipment, machinery and work spaces.
- To understand, use, maintain and inspect all PPE according to Hazard Identification Risk Assessment (H.I.R.A) they complete before each job.
- Assist in establishing and developing of the safe work practices and procedures.
- Good working knowledge of the safe work practices and procedures.
- Use the Safety Resources Department for the identification/awareness, education, and development of the safety program and to support safe work practices.



6 ASBESTOS AUDIT AND REASSESSMENT

6.1 Asbestos Audits and Assessments for Management Purposes

All USask Facilities constructed prior to 1987 will have an asbestos inventory that includes friable and non-friable ACM. The audit will be conducted on a room by room basis and will indicate the location, condition, friability, accessibility and type of asbestos present in the facility as outlined below.

As the audit will be typically performed for maintenance purposes it will not usually include destructive sampling that may destroy the material or damage the building. Typical materials that will not be part of the assessment include:


- Owner or occupant articles (e.g. stored items, furniture, appliances, etc.);
- Underground materials or equipment (e.g. vessels, drums, underground storage tanks, pipes, etc.);
- Building envelope, structural components, inaccessible or concealed materials or other items where sampling may cause consequential damage to the property;
- Energized systems (e.g. internal boiler components, elevators, mechanical or electrical components);
- Controlled products (e.g. stored chemicals, operational or process-related substances); and
- Materials not typically associated with construction (e.g. settled dust, spills, residual contamination from prior spills, etc.).

The audit must include the information gathered on a room-by-room basis together with recommendations for asbestos management, control or removal for each material detected in each location. The location of materials suspected to contain asbestos but shown by analysis to be non-asbestos will be reported. When available, original laboratory report of all analyses will be maintained as part of the inventory.

6.2 Bulk Sample Collection Procedures

Bulk samples collected for testing will be collected following the procedures provided in Appendix G. Following these procedures, samples can be collected by USask staff, or by an asbestos consultant, under the direction of the Asbestos Management Program Coordinator, Project Manager, Assistant Manager or Supervisor.

6.3 Bulk Analysis



Bulk samples will be analyzed for asbestos in accordance with USEPA/600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials, July 1993 using Polarized Light Microscopy (PLM) . All analyses will be performed to ISO/IEC 17025/2017 accredited by the US National Voluntary Laboratory Accreditation Program (NVLAP Lab Code 101270-0).

6.4 Inspection of ACM and Update of Inventory Database

The Asbestos Management Program Coordinator will arrange for a reassessment of all accessible areas identified by the audit to contain ACM. The reassessment will be performed on an ongoing basis and with a focus on friable materials, in accessible areas. If a space is subject to any change of use, frequent maintenance which may disturb the material, or if any report of damaged or deteriorated ACM is brought to the attention of the Asbestos Management Program Coordinator, the inspection/assessment (assessing condition) of materials in the space will be performed on a more frequent basis. Re-inspection/assessment will always be performed of specific materials when damage or deterioration is reported.

6.5 Distribution of Assessment Records and Reassessment

The Asbestos Management Program Coordinator is responsible to maintain a copy of records, assessment reports and reassessment reports on site. In addition, the Asbestos Management Program Coordinator will ensure the following are provided with access (not additional copies) to the information within these reports:

- Facilities Managers and Supervisors,
- Project Managers and Planners performing work in USask Buildings.

6.6 Pre-Construction Asbestos Survey

Prior to the commencement of any renovation, construction or demolition project, including buildings built prior to 1990, the project manager will present the inspection reports and all information concerning knowledge of ACM to Construction Management during time of tender and/or before construction begins. This will include specific areas of the building which are to be affected by the work, which through the survey have been assessed for friable and non-friable ACM. The survey has been performed by a specialized hazardous materials consultant and has included destructive or intrusive testing of enclosed areas which will be affected by the work.



Before work is to begin all contractors working at or in the USask grounds will be given a Group Hazard Identification Risk Assessment (G.H.I.R.A) which will include a pre-construction survey that includes but is not limited to other hazardous materials such as lead, mercury, silica, PCBs and mould. The G.H.I.R.A will be provided by Safety Resources.

Upon completion of the G.H.I.R.A, if asbestos or other hazardous materials are present in the area, specifications for removal will be prepared and provided to the Constructor or Contractor in the work specifications. All areas in buildings older than 1990 will be suspect of containing non-accessible asbestos material and before demolition begins the areas will be investigated as to whether ACM may be present.

7 NOTIFICATION

7.1 Notification of Contractors

All contractors and USask staff who perform work at Facilities where ACM is present will be notified of the presence of the ACM if their work may bring them into contact or close proximity to the ACM and they may disturb it. This notification may include janitorial, security, telephone, computer cabling suppliers, mechanical maintenance contractors, etc. This notification will be performed by Safety Resources during orientation, the G.H.I.R.A or by the Project Manager.

All contractors and USask staff who perform work at USask Facilities, where asbestos-containing sprayed fireproofing is present above ceilings, including telephone, computer cabling suppliers, electrical and mechanical contractors, etc., are to be notified that Moderate Risk Procedures are required for any entry to, or work within the ceiling space (visual inspection excepted, Low Risk Work). This notification will be performed/provided by Safety Resources or the Project Manager.

7.2 Notification of Facilities Personnel

Asbestos Awareness training is provided to Facilities Personnel that identifies the presence of asbestos in buildings and explains the Asbestos Management Program to ensure they are safe when conducting work. Access to the asbestos inventory is available through Safety Resources, Asbestos Management Program Coordinator.



7.3 Notification of Asbestos Abatement

Contractors are to:

- Notify in writing, an inspector at the office of the Saskatchewan Occupational Health and Safety nearest the project site (Notice of Project) if conducting high risk asbestos procedures.
- Notify Sanitary Landfill.
- Building occupants to be notified when abatement is occurring that is not in conjunction within an ongoing construction project.
- Inform all sub trades of the presence of ACM identified in the contract documents.
- Notify the Project Manager if suspect ACM not identified in the contract documents are discovered during the course of the work.

The Project Manager is to notify the Asbestos Management Program Coordinator regarding any testing or sampling that is proceeding.

8 TRAINING REQUIREMENTS

USask staff will not undertake asbestos work other than for Low Risk asbestos work with appropriate training. The following groups will require training.

- Facilities staff and supervisors will receive training in asbestos including identification of ACM, uses and hazards of asbestos, regulations applying to asbestos work and Low Risk work practices and safety procedures.
- Identified Facilities staff will receive training in asbestos management and Low Risk Processes and the AMP of sufficient content to allow them to implement the policies outlined in the AMP.
- All external contractors performing Moderate and High Risk abatement work are to have attended a recognized course regarding asbestos worker training.

USask requires all service providers, contractors, etc. to provide appropriate training to all workers who perform any asbestos work in USask Facilities.

USask requires all service providers, contractors, etc. to provide appropriate training and PPE regarding respiratory protection to all workers who engage in activity where asbestos may be present.



9 MEDICAL SURVEILLANCE PROGRAM

9.1 Purpose

The USask supports detection of asbestos related illnesses through a medical surveillance program that falls in line with the *Occupational Health and Safety (OH&S) Regulations 2020, Part 23 Asbestos, 23-16 Medical Examinations*.

9.6 Program Elements

When a worker has been exposed to Asbestos, the following steps must occur.

1. Report incident to Ministry of Labour Relations and Workplace Safety (MLRWS)
2. Conduct an Incident Investigation and submit final report to MLRWS
3. Issue all affected employees:
 - a. Employee Consent Form – Medical Surveillance,
 - b. Worker's exposure letter as per the requirement of *OH&S Regs 2020, Part 21 Chemical and Biological Substances, 21-10 Report of worker's exposure*.
 - c. Asbestos Referral Letter (physician)
 - d. Asbestos Screening Fact Sheet.
4. Letter provided as hard copy in an in-person meeting with the individual and supervisor and HR if needed. HR can facilitate the coordination of scheduling a meeting.
5. Provide a copy of all issued report of worker's exposure letters to Ministry of Labour Relations and Workplace Safety.
6. File all documentation provided along with a copy of the Dangerous Occurrence Report in one file.

Refer to Appendix H for Medical Surveillance Documents.

8 REACTIVE RESPONSE AND CONTACTS

10.1 Fallen Debris or Damaged ACM

USask staff may encounter fallen material that is suspected to contain asbestos. This may occur in locations where asbestos has been documented or in areas not included in the assessment due to limited accessibility, etc. Facilities, Contractors or Responding Personnel will follow the Reactive Response Guidelines outlined in Appendix E.

Emergency Contacts:

Asbestos Management Program Coordinator: (306) 220-3860

Safety Resources: (306) 966-4675



10.2 Disturbance of Previously Unidentified Friable Material

Previously unidentified friable materials may also be uncovered during demolition of finishes, walls etc. during construction. Facilities staff, the Project Manager, Planner and/or contractor will follow the Reactive Response Guidelines outlined in Appendix E.

If the material is an ACM, Facilities staff, the Project Manager and/or contractor is to notify first Safety Resources and then the Ministry of Labor Relations and Workplace Safety Office of the discovery in accordance with regulatory requirements.

9 ASBESTOS WORK PRACTICES

The following sections briefly describe the standard operating procedures adopted for asbestos-related work which meet or exceed the requirements of provincial regulatory requirements.

These procedures are provided as a minimum standard for all asbestos work in USask Facilities. No Moderate Risk or High Risk asbestos work will be undertaken by USask staff.

11.1 Classification of Scheduled Work

Provincial regulations classify asbestos work into Low, Moderate and High Risk Processes, depending on the type of disturbance, the material being disturbed, and the extent of work.

9.11 Low Risk Work


Low Risk asbestos processes are defined as the following:

- The installation or removal of manufactured asbestos-containing products where sanding, cutting, or similar disturbance is not required.
- The use of hand tools to cut, shape, drill, or remove a manufactured asbestos-containing product.
- The removal of drywall material where asbestos joint filling compound has been used.
- The use of personal protective equipment made of asbestos-containing textiles.
- The transporting or handling of asbestos-containing materials in sealed containers.
- The cleaning or disposing of minor amounts of asbestos debris that has come loose or fallen from a friable surface.
- The removal of small samples of asbestos-containing material for the purpose of identification.

The procedures for Low Risk work are provided in Appendix I.

9.12 Moderate Risk Work

Moderate Risk asbestos processes are defined as the following:

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- The use of a power tool equipped with HEPA filtration to cut, shape, or grind any asbestos-containing surface or product.
 - The removal of a false ceiling or part of a false ceiling where friable asbestos-containing material is, or is likely to be lying on the surface of the false ceiling.
 - The removal, encapsulation, enclosure, or the disturbance of minor amounts of friable asbestos-containing material during the repair, alteration, maintenance, demolition, or dismantling of a structure, machine, or equipment or part of a structure, machine, or equipment.

The procedures for Moderate Risk work can be found in Appendix K.

9.13 Glove Bag Work

The use of glove bags to remove insulation from a pipe duct or similar structure is classified as Moderate Risk.

The procedures for Glove Bag work are provided in Appendix J.

9.14 High Risk Work

High Risk asbestos processes are defined as the following:

- 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 materials.
- The use of power tools not equipped with HEPA filtration to grind, cut, or abrade and asbestos-containing surface or product.

The procedures for High Risk work are provided in Appendix L.

10 INSPECTION AND AIR MONITORING OF ASBESTOS WORK

12.1 Visual Inspection

The procedures provided in Appendices E, F, G, and H are suitable for the performance of most work on friable and non-friable ACM. The Asbestos Management Program Coordinator, Project Manager or assigned representative (Consultant) will be responsible for ensuring these procedures are followed. The primary method of ensuring compliance for Low Risk, Moderate Risk, High Risk and Glove Bag use is



visual inspection of the site and work practices by a competent worker or hazardous materials consultant. The procedures outlined in the Appendices are to be enforced by those supervising the work.

12.2 Air Monitoring During Asbestos Work

When required as defined in the scope of work or specifications written in conjunction with a consultant, air monitoring and analysis during active asbestos removal will be performed using the NIOSH 7400 Method for Sampling and Evaluating Airborne Asbestos Dust / Asbestos Fibre Counting using NIOSH-582E and using Phase Contrast Microscopy (PCM). Occupational Health and Safety of the Province of Saskatchewan regulations state that where an asbestos process have been completed, the air monitoring must verify that airborne fibre concentrations are less than 0.01 fibres per cubic centimeter of air.

Accurate determination of a lower concentration may be affected by the presence of low levels of non-asbestos fibrous dust in office or building environments.

12.3 Low Risk Inspection and Air Monitoring

12.3.1 Inspection

The Asbestos Management Program Coordinator, the Project Manager or an assigned competent worker, will inspect Low Risk work upon completion of work to ensure all ACM has been removed and the area adequate cleaned of dust and debris.

12.3.2 Air Monitoring

. Air monitoring is not required during or after Low Risk work

12.4 Moderate Risk and Glove Bag- Inspection and Air Monitoring

12.4.1 Inspection

An outside hazardous materials consultant will inspect some Moderate Risk Processes. Upon completion of inspection and air monitoring by the consultant, the enclosure will be dismantled. The Project Manager, consultant or an assigned competent worker may inspect for final cleanliness prior to the enclosure being dismantled. Daily inspection and air monitoring are required during some Moderate Risk Processes and all High Risk Processes.

12.4.2 Air Monitoring



PCM air monitoring will be conducted daily during some Moderate Risk Processes. Air monitoring will be conducted at the discretion of the Asbestos Management Program Coordinator, the abatement contractor, Project Manager or Planner (e.g. when a breach in containment is found). Air monitoring will be conducted in occupied areas adjacent to the Asbestos Work Area when recommended.

PCM air monitoring will be used for air clearance within the Asbestos Work Areas. A clearance level of less than 0.01 f/cc must be achieved prior to dismantling the enclosure.

12.5 High Risk- Inspection and Air Monitoring

12.5.1 Inspection

An external hazardous materials consultant will inspect High Risk Process work. It is USask policy to ensure on-site daily inspection and air sampling is performed.

12.5.2 Air Monitoring

PCM air monitoring will be conducted on a daily basis during High Risk work. Air monitoring will be conducted at the perimeter of the Asbestos Work Area (in occupied areas adjacent to the High Risk Work Area) to ensure no leakage from the enclosure. Air monitoring will be performed within the enclosure to ensure that respirator protection factors are not exceeded.

Clearance air monitoring must be performed within High Risk Asbestos Work Areas. The air sample will be relied upon to allow clean access to the site for the Teardown Inspection. Clearance levels of less than 0.01 f/cc must be achieved prior to dismantling the enclosure.

Once the clearance air testing is satisfactory and within 24 hours after the clearance air testing results are received,

The owner and the employer will post a copy of the results in a conspicuous place or places,

- At the workplace, and
- If the building contains other workplaces, in a common area of the building; and
- The Asbestos Management Program Coordinator and/or Project Manager will keep a copy of the clearance air testing results for at least one year after receiving them.

11 RECORD KEEPING AND DOCUMENTATION OF AMP

The following records are to be kept by the Asbestos Management Program Coordinator for all sites with ACM:

- Asbestos assessment reports.



- Reassessment reports.
- Occupant notification letters.
- Contractor notification and acknowledgement forms.
- Asbestos project work records.
- Inspection reports during abatement from hazardous materials consultants.
- Bulk sample analytical results from any sampling.
- Abatement or emergency response project records.
- Air monitoring reports. Note, clearance air monitoring reports must be retained for a minimum of one year.

This AMP is to be re-evaluated each time there is a substantial change to Asbestos Regulations.

12 CONTRACTOR REQUIREMENTS

Contractors hired by the USask are to meet the following minimum requirements:




- Must maintain a Comprehensive General Liability Policy, provided on an “occurrence” basis, for a minimum of \$5,000,000 in coverage.
- Must maintain an Asbestos Liability or Pollution Liability Policy, or Environment Impairment liability, provided on an “occurrence” basis, for a minimum of \$5,000,000 in coverage.
- Must maintain an Automobile or Fleet Policy, and Non-owned Automobile Policy for a minimum of \$2,000,000 in coverage.
- Maintain a valid Workplace Safety and Insurance Board Clearance Certificate.
- All supervisors and workers performing High Risk work are to have attended recognized course regarding asbestos.
- All workers are to be fit tested for respirators and trained in respirator care.
- For large projects, the Project Manager may wish to ask for references for 5 previous projects of similar scope and cost.



13 Appendices

Appendix A: Asbestos Identification Program

The University of Saskatchewan Safety Resource division, in conjunction with Facilities, will work towards educating personnel regarding asbestos and its presence on campus. Specifically in the Asbestos Identification Program used in USask buildings. The education on usage and distribution of reference cards regarding door labelling during Asbestos Awareness Training, Contractor Orientation is presented during general orientation for all staff. This provides all USask workers direct information on the hazards concerning asbestos as well as the ability to identify the presence of asbestos. Safety resources will coordinate Low Risk Asbestos Processes training to designated Facilities personnel as requested by Facilities.

<p>Asbestos Identification Program</p> <p> ENTRY APPROVAL REQUIRED</p> <p> REVIEW SCOPE OF WORK WITH SAFETY RESOURCES</p> <p>Identification Numbering System</p> <ol style="list-style-type: none"> 1 Asbestos in ceiling spaces (incl. fireproofing, piping) 2 Asbestos on ceiling surfaces (incl. ceiling tile) 3 Asbestos on wall surfaces and/or windows 4 Asbestos below the flooring material (incl. mastic, floor leveling compound) 5 Asbestos on visible piping and or ducting (incl. mastic) 6 Asbestos in flooring material (incl. floor tile, sheet flooring) 7 Asbestos fire doors 8 Asbestos transite board (incl. fume hoods, benches etc.) 9 Asbestos in duct damper/air diffuser 10 Asbestos in heat shield (incl. lights, radiators, etc.) 11 Residual and/or enclosed asbestos material (fireproofing, ceiling texture, floor tile etc.) 12 Vermiculite (loose) 13 Asbestos in penetrations (ceiling, wall and/or floor) 14 Asbestos insulation (mechanical, boiler, tank etc.) 15 Miscellaneous (contact Safety Resources for details) 	<p>ASBESTOS IDENTIFICATION PROGRAM</p> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> </div> <div style="display: flex; justify-content: space-around; width: 100%; margin-top: 20px;"> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> </div> <p>FOR INFORMATION CONTACT 306-966-4675</p> 	<p>U OF S ASBESTOS IDENTIFICATION PROGRAM</p>  <div style="display: flex; justify-content: space-around; width: 100%; margin-top: 20px;"> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> </div> <div style="display: flex; justify-content: space-around; width: 100%; margin-top: 20px;"> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> </div> <p>For information contact Safety Resources 306-966-4675</p>
<p>Asbestos Identification Program Reference Card</p>	<p>Asbestos Identification Program Door Frame Label</p>	<p>Asbestos Identification Program Old Door Frame Label</p>

Asbestos Identification Program Reference Card

Asbestos Identification Program Reference wallet cards are given at time of Asbestos Awareness Training and Contractor Orientation to all Facilities staff and contractors and are freely offered to USask personnel upon request. These cards explain the labeling system which is used constantly throughout all areas with known or suspected ACM.



Door Labels

These door labels work in conjunction with the reference wallet cards as part of the Asbestos Identification Program. The Asbestos Identification Program is reviewed during all orientations and training sessions regarding asbestos. The door labels are found in the inside jamb of every area that has known or suspected ACM

In conjunction with both the wallet cards and the door labels, USask has labelled physical pieces of asbestos in accessible areas that has been identified through several past audits and ongoing findings during construction. Below are images of the red labelling that is used in USask buildings.

Asbestos Pipe Marking



Asbestos Markings



Asbestos Marking



Asbestos Markings







Appendix B: Asbestos Containing Materials

Asbestos is not one mineral but a generic term used to describe a family of naturally occurring fibrous hydrated silicates. These are divided on the basis of mineralogical features into two groups; serpentines and amphiboles. The important property of asbestos as compared to non-asbestiform varieties of silicates is the presence of long, thin fibres that can be easily separated. According to some definitions, there are as many as thirty varieties of asbestos, but only six are of commercial importance. Chrysotile, which is by far the most abundant, is the only type that belongs to the serpentine group. Crocidolite and amosite, the two other most commonly used fibres, together with anthophyllite, tremolite, and actinolite belong to the amphibole group.

Asbestos has been widely used in buildings and several uses continue today. The uses of asbestos are generally classed into two groups for purposes of hazard assessment; friable and non-friable products. A friable material is a material that when dry can be crumbled, pulverized or powdered by hand pressure. The use of friable materials in construction is banned today but due to the widespread use of friable materials in the past, these materials still are present in many buildings. In order to establish an asbestos management program, the possible uses of asbestos must be known. These are discussed below in the categories of non-friable, potentially friable and friable products.

Non-Friable Asbestos Materials

Asbestos-cement Products (Transite)

The largest use of asbestos, in terms of the tonnage of fibres employed, is as a reinforcing agent in cement products. Asbestos-reinforced cement is strong, durable, rigid and resistant to both fire and weather. Portland cement, water and asbestos are mixed to form a slurry from which end-products can be fabricated by a process similar to that used in paper making. Products include sheets, pipes and a wide variety of other shapes. The asbestos fibre content of asbestos cement products is usually about 15 percent.



Asbestos-cement sheet is produced in four basic forms: flat sheet, corrugated sheet, siding shingles and roofing shingles. The main use of asbestos cement sheet is for the roofing and cladding of buildings. Other uses are ceiling tiles, decorative panelling, electrical insulation, fume hood liners and laboratory tabletops. Asbestos-cement pipe is used for water supply, sewage, irrigation, drainage applications, the transport of corrosive chemical fluids, and electric and telephone conduits. Asbestos cement products are still in production. Non-asbestos substitute cement products are available for some though not all asbestos products.

Gaskets and Packings



Transite Drain Pipe



Corrugated Transite Siding/Roofing



Laboratory Bench Countertop



Transite Blocks in Elevator Switchgear

The combination of long asbestos fibres and high temperature rubbers has provided some of the best gasket materials. The asbestos, in bulk fibre, woven, or plaited form, provides strength and temperature resistance, while the rubber or synthetic compound acts as binder and sealing material. Asbestos yarns have been commonly used in the manufacture of braided and woven packing materials. Many of these uses, particularly in sheet forms are still in production and use.



Coatings and Sealants



Rope gasket

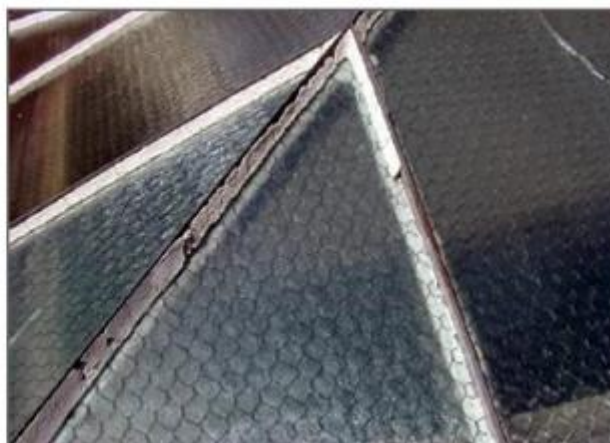


Rope gasket at boiler plate

Asbestos has been used in roof coatings and cement and, to a lesser extent, in sealants and caulks. Roof coatings consist of asphalt liquefied with solvents and asbestos fibre filler. Roof cements are similar, but are formulated to a thicker consistency so that they can be used to seal openings through which a liquid coating would flow. Some of these are still in production.



Asbestos Roof Cement



Caulking at Glazing

Paper Products

Asbestos paper products have been used in a wide variety of applications. Among the most important in construction are roofing felt, gaskets, pipe wrap, as building paper under roof tiles and wood flooring, tape at joints on ducts and duct insulation, as a finishing layer over fibreglass pipe insulation, as heat shields in incandescent light fixtures, as an underpad beneath vinyl sheet flooring, millboard and



electrical insulation. Some of these applications are discussed under the headings "Insulation" and "Gaskets and Packings".



Paper heat shield on incandescent fixture



Paper on seams of duct



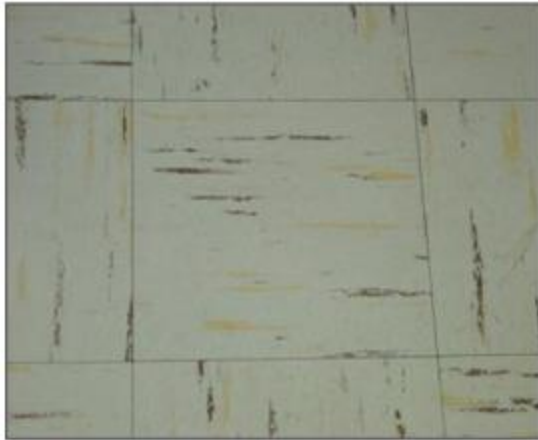
Vinyl sheet flooring with paper underneath



Building paper under roof tiles

Plastics

Asbestos has been used as a reinforcing agent in a wide range of asbestos/polymer composites. Applications include, floor tiles, engine housings, bins and containers, and a variety of coatings, adhesives, caulks, sealants, and patching compounds. Two areas dominated asbestos use in plastics: phenolic moulding compounds and vinyl-asbestos tile. Few of these products remain in production.



Vinyl asbestos tile

Asbestos Textiles

Asbestos textile materials are manufactured from chrysotile fibres. Two types of yarn are produced: plain, possibly braced with organic fibres, and reinforced, which incorporates either wire or another yarn such as nylon, cotton or polyester. Major uses for asbestos textiles are gaskets, packings, vibration damper/duct connectors, friction materials, thermal and electrical insulation, and fire resistant applications, e.g. welding curtains, protective clothing, theatre curtains, hot conveyor belts and ironing board covers. These products may be considered or become friable in use. Asbestos textiles are no longer in widespread production.



Textile Vibration Damper/Duct Connector



High Voltage cable insulation



Friction Materials

Asbestos has been used in the manufacture of brake and clutch linings and pads. The asbestos fibres may be embedded in a phenolic resin with various mixtures of fillers or a woven asbestos cloth may be impregnated with the resin. Friction products are primarily used in vehicles but may be used in any rotating machinery, for example elevators or printing presses. They are still produced and used although not widely.

Drywall Joint Compound

Drywall joint compound also contained asbestos until the early 1980's. The concentration is quite low (near or less than 5%; always chrysotile). The product in place is quite hard and is normally treated as non-friable.



Compound on drywall



Drywall joint compound 1963-1965



Plaster

Asbestos was used in random fashion in the brown coat and surface coat of smooth plaster finishes. This has been used at a low level (less than 5% in most cases). In many instances the asbestos content is less than 1% or even less than 0.5%. This is often due to the presence of vermiculite in plaster.



Plaster on wood lath



Plaster on speed tile

Vermiculite frequently contains actinolite or chrysotile as an impurity which contributes to the asbestos content. Only Chrysotile was ever intentionally added to plaster.



Friable Asbestos Materials

Friable asbestos products are the main concern of the public and the asbestos management program due to the ease of fibre release. None of the products are still in production in North America or Europe.

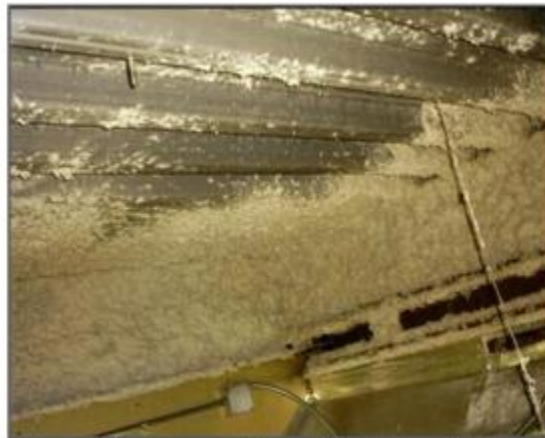
Fireproofing or Sprayed Insulation

Several types of fireproofing or insulation were applied by spraying or trowel application in the period from the mid-1930s to 1974. Fibrous products were spray applied after being blown as a dry mix through an application gun. These products may contain up to 90% asbestos and any of the three major types (chrysotile, amosite or crocidolite). Cementitious products were trowelled or sprayed as a wet slurry. These were harder products that did not contain more than 25% asbestos. Only chrysotile asbestos was used in the cementitious type materials.

Texture or Acoustic Plasters



Fibrous sprayed fireproofing



Fibrous sprayed fireproofing (beam only)

The use of asbestos was widespread in trowelled or sprayed texture coats, stipple coats and acoustic plasters from the 1950s to the late 1970s (at least as late as 1980). These products always contain less than 25% chrysotile. Some of the harder stipple coats may be considered non-friable in place and only become friable when disturbed by construction or demolition. Other products in this group can be very soft and extremely friable.



Sprayed limpet texture ceiling on lath



Texture coat ceiling



Mechanical Insulation

This is the most widespread use of friable asbestos in buildings. The use dates from the late 1800s to the late 1970s. The material can have a number of appearances and asbestos contents. The more prevalent types of asbestos mechanical insulations are:

- White, brown, pink or grey block (Magnesia block, Caposite)
- White or grey corrugated paper (Aircell).
- White, grey or brown layered paper (sweatwrap).
- Grey trowelled or hand applied material (with the appearance of hard or granular, grey, dry mud) (Parging cement).

It is possible to find all asbestos types in mechanical insulation although chrysotile is predominant and amosite the next most common.



Aircell insulation (corrugated paper)



Caposite block insulation



Parging cement on pipe fitting



Parging cement on sweatwrap and Aircell



Acoustic Ceiling Tiles

Some types of mineral wool type acoustic ceiling tiles were formulated with asbestos from the early 1960s. The use of asbestos in ceiling tiles was discontinued in the early 1980s. Analytical testing is required to distinguish the asbestos and non-asbestos ceiling tiles. From field experience at Pinchin West Ltd., the fire-rated tiles are more likely to contain asbestos. Amosite was the predominant fibre type used.

Vermiculite



Glued on (laminated) ceiling tiles



Lay-in ceiling tile



Vermiculite attic insulation



Libby vermiculite

Vermiculite, a mineral mined around the world, is used in a variety of commercial and consumer products. After crushing and processing, the raw ore was shipped to many plants in Canada for exfoliation or expanding. At these plants, the ore was heated to about 1000°C causing it to expand like popcorn into a lightweight granular material that is fire-resistant, absorbent, light weight and a good insulator. Vermiculite has been and continues to be used in a variety of building materials. It was made into a variety of insulation products, was used as a loose fill insulation inside masonry block walls (the largest volume use), stove pipe and stack insulation, fire separations, cold rooms and in walls and attics of buildings, mostly homes. It is important to understand not all vermiculite contains asbestos.



Appendix C: Health Effects of Asbestos Exposure

Health Effects of Asbestos

For many years asbestos has been recognized as a health hazard for workers employed in asbestos mining, processing and installing of asbestos products. The distinction between asbestos types is important due to the different degrees of severity of asbestos related disease with different asbestos types. Of the three commercially important types (chrysotile, amosite and crocidolite), chrysotile is considered the least hazardous. In general, Canadian regulations reflect this variation of health effects. Several serious, debilitating diseases that often end in death have been linked to the inhalation of fine asbestos fibres. It is not clear how asbestos fibres cause disease after they enter the lung. For each disease there is a period of latency, usually more than ten years, between first exposure to asbestos and the appearance of the disease. The diseases linked to asbestos exposure are described below.

Asbestosis

Asbestosis is a fibrosis (scarring) of the lung tissue, which makes breathing difficult. The most prominent symptom is breathlessness. Detection of asbestosis is by physical examination, X-ray examination and lung function testing. The disease is irreversible and may continue to progress even after exposure is stopped. Rarely a cause of death itself, asbestosis results in an appreciable reduction in life expectancy due to deaths from related illnesses. Asbestosis will develop only with chronic (long term) exposure to high levels of airborne asbestos.

Mesothelioma

This is a rare cancer of the cells of the pleura (lining of the chest cavity and lungs) and the peritoneum (lining of the abdominal cavity). The development of mesothelioma is characterized by a long latency period, usually at least 15 years and sometimes more than 40. There is no effective treatment for mesothelioma. Large proportions of mesothelioma patients die within a year of diagnosis; few survive longer than five years. The amphibole asbestos materials are considered more important than chrysotile in the causation of mesothelioma. Although asbestos was once thought to be responsible for all mesothelioma, other causes have now been identified. Still, the chance of getting mesothelioma in the absence of asbestos exposure is considered to be extremely remote. Mesothelioma is a very rare cancer in the general population.

Lung Cancer

Unlike asbestosis and mesothelioma, lung cancer is not associated only with asbestos exposure. Cigarette smoking has been and continues to be the major cause of lung cancer. Furthermore, there is no basic difference between lung cancer caused by asbestos and that due to other causes. In general, the risk of getting lung cancer increases with the extent of asbestos exposure, in terms of both intensity and duration. This risk is also greatly enhanced by smoking; most asbestos workers who develop lung cancer



are smokers. There is no difference in the risk for lung cancer between chrysotile and the amphibole asbestos minerals.

Other Asbestos-Related Cancers

The relationship between asbestos exposure and asbestosis, mesothelioma and lung cancer has been clearly established and is beyond argument. Several other cancers have also been associated with inhalation of asbestos. Although the evidence is not as good as for the diseases discussed above, these cancers should be noted. They are gastrointestinal cancer affecting all sites in the gastrointestinal tract (oesophagus, stomach, colon and rectum) and cancer of the larynx. The elevated risks of these diseases in the most heavily exposed asbestos workers have always been much less than the elevated risk for lung cancer and mesothelioma. If asbestos exposures are controlled to prevent any increase in lung cancer or mesothelioma risk, the other potential cancer risks should also be well controlled.

Other Asbestos-Related Conditions

A number of less serious effects have been associated with asbestos exposure, namely pleural plaques and asbestos warts. Pleural plaques are areas of scarring of the pleural surfaces. In general, they are not associated with any functional abnormality and are merely an indicator of asbestos exposure. Asbestos warts are harmless skin growths that occur when asbestos fibres penetrate the skin. These will usually retract when exposure ceases.



Appendix D: Contractor Notification and Acknowledgement Form

Contractor Notification and Acknowledgement Form

The Asbestos Management Program Coordinator has identified the presence of various friable and non-friable asbestos-containing materials in USask buildings. An asbestos inventory showing the locations and amounts of these materials is available for viewing from the Asbestos Management Program Coordinator.

Asbestos Processes as defined in the OH&S Regulations are only to be undertaken by and abatement contractor or by trained professionals that maintain the appropriate insurance coverage and meet the requirements set out in the Asbestos Management Program AMP. The following activities may disturb asbestos materials. The Asbestos Management Program Coordinator must be notified prior to performing the following:

- Removal or repair of asbestos mechanical insulation or sprayed asbestos.
- Ceiling entry which may disturb sprayed fireproofing or pipe insulation.
- Any other operation which may generate airborne asbestos from friable asbestos.
- Any removal, cutting or other disturbance of non-friable asbestos material.
- Do not disturb any material excluded from the survey.

Declaration by Contractor

The Contractor and their sub-contractors will follow the work procedures as specified in the USask Asbestos Management Program (AMP) and will not disturb ACM without using proper procedures. We agree that our staff will not disturb asbestos-containing materials without prior notification to the Asbestos Management Program Coordinator. This firm and our staff will follow all procedures specified by the USask Asbestos Management Program. All asbestos waste will be packaged and disposed of in accordance with Ministry of the Environment requirements.

Notification of Asbestos Abatement

All contractors and USask staff who perform work in buildings where ACM is present should be notified of the presence of the ACM if their work may bring them into contact or close proximity to the ACM and they may disturb it. This notification may include janitorial, security, telephone, computer cabling suppliers, mechanical maintenance contractors, etc. This notification will be performed by the Asbestos Management Program Coordinator, appointed Safety Resources Personnel or a Project Manager.

Contractors are to:



- Not later than 14 days before beginning the process, give notice of High Risk processes in accordance with the Saskatchewan Occupational Health and Safety Regulations (1996).
- Notify Sanitary Landfill site.
- Inform all sub trades of the presence of ACM identified in the contract documents.
- Notify the Project Manager if asbestos materials not identified in the contract documents are discovered during the course of the work.

Contractor: _____

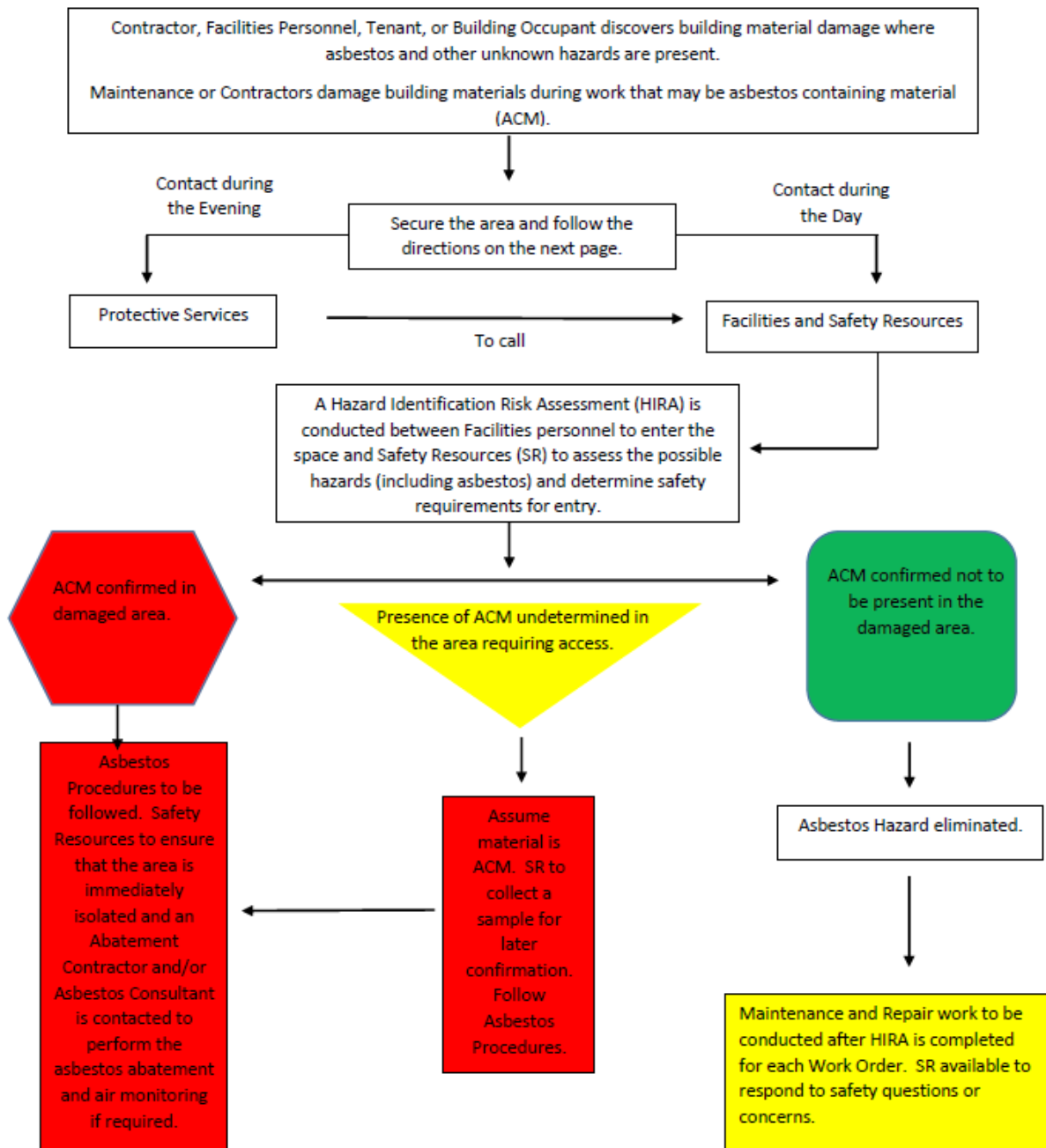
Name & Title: _____

Signature: _____

Date: _____



Appendix E: Reactive Response Guidelines





Reactive response guidelines if asbestos containing materials or suspect materials have been damaged, follow these directions:

- Do not clean-up, cover, move or contact ACM or suspect material.
- Responding personnel will ask all occupants to leave the area.
- Isolate that area using hazard tape or by means available to the responding personnel.
- Facilities will contact controls to isolate the ventilation systems in the area of damaged asbestos including supply, return and exhaust.
- Responding personnel will contact the building SBA's to get notification to building occupants and collect information on potential hazards in the area based on building use.
 - In the case of a flood or major pipe leak, do not enter the area. Facilities will isolate the leak by turning off the source of water outside of the immediate damaged area.
- Responding personnel will contact the Asbestos Management Program Coordinator (AMPC) with Safety Resources.
- Prior to re-entry to assess the building conditions, a Hazard Identification Risk Assessment (HIRA) will be conducted with responding personnel and a Supervisor to identify all possible hazards and implement controls.
- Contact Safety Resources for support in hazard control management.
- **Must don PPE including Fit Tested Half Mask respirator with P100 cartridge, Tyvek coveralls and boot covers, safety glasses and disposable gloves before re-entering the hazard area.**
- AMPC will assess the damaged area to determine if ACM is present. If it cannot be determined if ACM is damaged, sampling and analysis of suspect material will be conducted.
- The AMPC may decide to retain a hazardous materials consultant to perform air monitoring and consulting, prior to and/or after clean-up to determine if building personnel were exposed to airborne asbestos and to ensure airborne fibre levels are within acceptable limits to reoccupy the space.
- The AMPC will coordinate an abatement contractor to perform asbestos processes.
- If Low Risk Asbestos Processes are required (ie. clean-up), trained Facilities personnel will review the control plan with the AMPC prior to starting.
- Moderate and/or high risk asbestos processes will be performed by an abatement contractor.
- The AMPC will review the abatement control plan and safe work procedures with abatement contractors prior to starting.



Appendix F: Asbestos Project Work Record

ASBESTOS PROJECT WORK RECORD

Building: _____
(Building Address or Name)

Date: _____
(Today's Date)

Project Number: _____
(U of S Project Number or Purchase Order Number)

Project Type: Emergency Low Risk Moderate Risk
 Planned Project Glove Bag High Risk

Area of Work: _____
(Room Name, Number, Floor etc.)

Description: _____
(Brief description of abatement, material, system, etc.)

Department : _____
(Department or group)

Project Start Date: _____
(Mobilization date)

Project End Date: _____
(After dismantling/clean-up)

Contractor: _____
(Contracting firm or staff)

Telephone: _____
(Contractor or staff telephone)

Consultant: _____
(Name of consulting firm/contact if any)

Telephone: _____
(Consultant telephone)

Pre-Construction Survey for ACM performed and report provided to Contractor?

Yes No (Explain) _____

Air Sampling during abatement?

Yes No



Clearance Air Monitoring performed (Regulated requirement after High Risk abatement)?

Yes No

Air Monitoring results to Joint Occupational Health and Safety Committee?

Yes No

Asbestos Survey Updated to Reflect Changes in ACM Inventory?

Yes No changes to ACM inventory resulted.

Asbestos waste removed from site and disposed of?

Yes Dump tickets attached. No. ACM waste not generated.

No ACM waste remains on site for later disposal.

Append the following information relating to asbestos abatement to this work record, if applicable, and file Asbestos Work Record and attachments with Asbestos Management Program. Check where attached.

Submittals including Insurance Yes No

Dump tickets, waybills, etc. for waste. Yes No

Specifications, Drawings. Yes No

Consultant Inspection Reports. Yes No

Air Monitoring Results. Yes No

Analytical Certificates. Yes No

Correspondence as required. Yes No



Appendix G: Bulk Sample Collection Procedures

Objectives

To obtain a sample for analysis to determine if asbestos is present within a material. To determine the type of asbestos and the quantity of asbestos of each type. Sampling of vermiculite is specially excluded from these procedures.

Equipment and Supplies

- Pen and Sharpie marker.
- Retractable knife (with extra blades).
- Hook knife.
- Flashlight and batteries.
- Screwdriver(s) with multiple bits.
- Small hammer.
- Sample bags.
- Insulation tape or duct tape.
- Spray bottle.
- Wipes for cleaning tools so as to not contaminate subsequent samples.
- NIOSH approved half-face respirator with P100 filters.

Sample Collection

- Only those persons needed for sampling should be present in the immediate area. Where necessary, provide a drop sheet below sample location if debris or dust may be generated by sampling operation (e.g. below a ceiling tile if sprayed fireproofing is above).
- Use cleaned/new tools, or clean the tool to be used with a sanitizing wipe prior to sample collection. Wipe or wash again prior to each subsequent sample.
- Spray the material with a light mist of water if necessary to prevent fibre release during sampling. Do not disturb the material any more than necessary. Note that using water may delay the receipt of sample results as samples cannot be analyzed if wet.
- Each homogeneous material should be sampled separately.
- Collect the sample by penetrating the entire depth of the material to the underlying substrate since it may have more than one layer. Examples of materials with more than one layer include plaster, sweatwrap with tar paper, and parging cement over other insulations, etc. The following points are exceptions to this rule.



- When collecting drywall joint compound samples, do not sample the paper on the drywall or the drywall itself. To ensure that the drywall joint compound itself is sampled, collect the sample at previously damaged outside corners or above ceiling where unpainted.
 - When sampling texture coat that is applied in a thin layer to drywall, try to ensure that you only collect a sample of the texture coat and not any drywall compound beneath that may skew the sample result. Try to sample at an area that is 1' x 1' away from a corner (and likely away from drywall joint compound), or sample overspray above ceiling. Do not sample too deep, trying only to remove the texture coat itself.
 - When collecting samples try to minimize damage to finishes. A piece as big as your thumbnail is all that is required.
 - When sampling floor tile, try to obtain a sample of the mastic whenever possible. If the survey is for pre-construction, the mastic must be analyzed. Add this note to the transmittal.
- If pieces of material break off and fall during sampling, remove the debris by wet wiping and place wipe in sample bag for disposal.
 - Scrape directly into, or place sample into a Ziploc bag and seal closure strip. Write the following information on the sample bag:
 - Sample Number. Ensure that samples of the same homogenous material are numbered the same number but with a different letter to signify it is a different sample of the same homogeneous material (e.g. 001A, 001B, and 001C for three samples of the same type of ceiling tile).
 - Date (year/month/day).
 - Collected by.
 - Company name.
 - Material.
 - Location: Include building name, room name, location number, type of system etc.
 - Temporarily seal any openings created to collect the sample, for example, with metal foil tape or duct tape wrapped completely around pipe insulation where the jacket was cut.

Personal Safety

- The use of a respirator is required for all sampling of materials.



- Wash your hands after sampling, and you must wash your hands prior to eating, drinking, or smoking.

Sample Submission

- Samples must be analyzed at only NVLAP or AIHA certified laboratories.
- Samples will be submitted to an acceptable laboratory capable of analyzing the samples.
- Complete the Bulk Sample Transmittal. On the transmittal ensure that you instruct the lab to use the Stop Positive approach.

Sample Handling and Shipping

- Include the Bulk Sample Transmittal. Bulk samples do not require special handling temperature, pressure, etc.).

Analysis

- The analytical method follows the U.S. EPA Method 600/R-93/116 dated July 1993.

Interpretation of Bulk Sample Results

- Any material determined to be asbestos-containing must have a specific amount of asbestos content. The threshold in Saskatchewan is as follows:

Saskatchewan

>0.5% Friable, >1% Non-friable or any amount if vermiculite



Appendix M: Medical Surveillance Documents

EE Consent Form – Medical Surveillance

Medical Surveillance for Asbestos Workers

Saskatchewan Occupational Health and Safety legislation requires that employers offer to arrange for medical surveillance of affected workers, once every two years, during normal working hours, for the purpose of medical surveillance related to potential workplace exposure to asbestos. The medical assessment must include medical history, lung assessment, lung function testing (also called pulmonary function or spirometry testing), and any further medical tests/procedures as necessary for the diagnosis and/or treatment of asbestos-related diseases. The purpose of the health assessment is to provide an employee with a baseline health evaluation, providing an opportunity to detect early changes to the lungs. Periodic health assessments serve as a means of documenting changes that, compared to the baseline evaluation, may have occurred over time. This allows your doctor to detect changes and provides an opportunity to investigate the cause of the changes.

Medical surveillance regarding workplace asbestos exposure is and remains private between an employee and his/her physician. The University of Saskatchewan will not receive any medical documentation and/or information regarding the medical surveillance process, other than an invoice to cover the cost of the medical surveillance appointment once every 2 years. However, should the results of the medical surveillance ultimately require any reasonable workplace medical accommodations be provided to the employee, that employee, his/her physician, the University of Saskatchewan and/or the appropriate third party stakeholder (e.g. WCB, Sun Life) would discuss and complete the medical accommodation process. As such, the university typically has no expectation to receive any private medical information from your doctor resulting from medical surveillance.

Please indicate your choice to either accept or decline the offer to engage in medical surveillance, as described above, which includes following your doctor's recommendations for treatment or testing, if applicable.

I accept the offer to engage in medical surveillance as stated above

I decline to accept the offer to engage in medical surveillance as stated above

Employee Signature

Date



UNIVERSITY OF SASKATCHEWAN

Report of Worker's Exposure

date

Prepared by Safety Resources



Name of worker:

Description of incident:

Substance:

Exposure duration and route of entry:

Incident cause:

Corrective action:



Safety Resources

Research Annex Building, 105 Maintenance Road
Saskatoon SK S7N 5C5 Canada
Telephone: (306) 966-4675
Facsimile: (306) 966-8394

Dear Physician,

Your patient is a University of Saskatchewan employee, whose duties may have the potential for exposure to asbestos while participating in an asbestos process. As per Saskatchewan Occupational Health and Safety legislation, your patient has been fit-tested for an approved respiratory protection device by qualified workplace personnel. Your patient has also completed a two-day Asbestos Worker training certificate course, provided by the University of Saskatchewan, regarding the safety procedures and protocols he/she must follow when working in an area with potential for asbestos exposure.

Please refer your patient for relevant medical investigation, testing or treatment you deem appropriate for obtaining a baseline health assessment and/or diagnosis regarding risk for asbestos-related disease.





Safety Resources

Research Annex Building, 105 Maintenance Road
Saskatoon SK S7N 5C5 Canada
Telephone: (306) 966-4675
Facsimile: (306) 966-8394

FACT SHEET

MEDICAL SCREENING FOR ASBESTOS WORKERS

As per Section 345 of the Saskatchewan Occupational Health and Safety regulations, the employer is responsible for offering to arrange medical surveillance for asbestos workers who are regularly involved in an asbestos process. If you are trained as an Asbestos Worker, ensure you undertake any relevant medical testing as prescribed by your family physician or health care professional.

Roles and Responsibilities for Medical Screening for Asbestos Exposure

Employee is responsible to:

1. **Record** – Complete an incident report at safetyresources.usask.ca indicating potential exposure to asbestos and the details of the incident.
2. **Referral** – Contact Safety Resources to obtain medical screening referral information. This includes instructions for use by your medical professional.
3. **Document** – Ensure you and/or your medical professional retain all medical information.
4. **Submit:**
 - Submit copies of all relevant test results to Safety Resources
 - Submit any medical fees to your supervisor for reimbursement
 - Submit the job profile related to the position at the time of the potential exposure to Safety Resources

Safety Resources is responsible to

1. **Record** – Maintain records of incident reports and any relevant test results.
2. **Referral** – Make available the medical screening referral information.

Medical Examination Requirements for Medical Screening for Asbestos Exposure

As per OHS Legislation, a medical examination must include:



- Comprehensive medical history and physical examination with special attention to the respiratory system;
- Lung function tests including forced vital capacity and forced expiratory volume at one second also known as pulmonary function test; and
- Any further medical investigations that are necessary for the diagnosis of an asbestos related disease.





Appendix I: Low Risk Asbestos Work Procedures

These procedures are to be followed by workers and contractors performing the following work at USask buildings.

- The installation or removal of manufactured asbestos-containing products where sanding, cutting, or similar disturbance is not required.
- The use of hand tools to cut, shape, drill, or remove a manufactured asbestos-containing product.
- The removal of drywall material where asbestos joint filling compound has been used.
- The use of personal protective equipment made of asbestos-containing textiles.
- The transporting or handling of asbestos-containing materials in sealed containers.
- The cleaning or disposing of minor amounts of asbestos debris that has come loose or fallen from a friable surface.
- The removal of small samples of asbestos containing material for the purpose of identification.
- These Low Risk Asbestos Procedures assume the non-friable material can be removed with relatively little loose dry dust released. Generation of debris is permissible as long as the debris can be well wetted before being removed. If the work will release more than a trivial amount of dry loose dust, do not proceed further with work.

Equipment

All equipment must be on site before proceeding.

HEPA Vacuum

Use of a vacuum is optional. Wet cleaning methods may be used in place of a HEPA vacuum. If a vacuum is used, it must be certified and equipped with a high efficiency particulate aerosol (HEPA) filter. The vacuum must only be opened to be cleaned or dislodging of blocked objects in an enclosure following Moderate Risk procedures. The vacuum exterior should be carefully wet cleaned after each use or after each emptying.

Respirators

A half face respirator is required for all Low Risk Processes. The employer will supply at the workers' request a half face respirator with P100 (HEPA) filters, with training on use and quantitative fit testing. Respirators must be used according to written use procedures provided to worker as per training procedures. Filters must be changed after 16 hours of wear or sooner if breathing resistance increases as



filters become damp. No person using a respirator will have facial hair that affects the seal between respirator and face.

Protective Clothing

All workers will wear disposable Tyvek coveralls (or equivalent) with attached elasticized hood. Coveralls should be worn with the hood in place at all times. Suit and head cover will remain in place until worker leaves the work area. Boot covers are required.

Other Equipment

The following equipment will also be required to perform the work.

- 6 mil polyethylene to serve as a drop sheet.
- Pump sprayer with misting nozzle or alternative method to wet material.
- Labelled yellow asbestos waste bags (6 mil) - for all asbestos waste, disposable equipment, plastic, etc.
- Tape to seal asbestos waste bags.
- Small tools and cleaning supplies - e.g. scouring pads, sponges, brushes, buckets, etc.

Other Protective Measures

- Do not eat, drink or smoke in the work area.
- Upon leaving the work area, proceed to the washroom or wash station and wash all exposed skin on hands and face.

Scheduling of Work

- Schedule work when occupants are absent. If persons are present, do not start work.
- If work is required on an emergency basis and the area is occupied, an assigned representative is to advise occupants to vacate area until work is complete and clearance is given to return.

Preparation

- Before disturbing non-friable asbestos materials, cover floor (vinyl tile excepted) and surfaces below work with polyethylene sheeting as appropriate to catch debris.
- Wherever dust on a surface is likely to be disturbed, pre-clean and remove using a HEPA vacuum or damp cloth.

Execution

Removal of Vinyl Asbestos Floor Tile

- Do not use electric powered scrapers.
- Wet material with amended water.



- Start removal by wedging a heavy-duty scraper in seam of two adjoining tiles and gradually force edge of one tile up and away from floor. Do not break off pieces of tile, but continue to force balance of tile up.
- Continue removal of tiles using hand tools, removing tiles intact wherever possible. When adhesive is spread heavily or is quite hard, it may prove easier to force scraper through tightly adhered areas by striking scraper handle with a hammer using blows of moderate force while maintaining scraper at 25° to 30° angle to floor. When even this technique cannot loosen tile, removal can be simplified by heating tile thoroughly with a hot air gun until heat penetrates through tile and softens the adhesive.
- When tiles are removed, place into asbestos waste receptor. Do not break into smaller pieces.
- After removal, scrape up adhesive remaining on floor with a hand scraper until only a thin smooth film remains. Where deposits are heavy or difficult to scrape, a hot air gun may be used. Deposit scrapings in the asbestos waste disposal bag. Do not dry scrape surface of adhering pieces of tile. Do not use powered electric scrapers.
- On completion of removal, vacuum clean floor with HEPA vacuum or wet mop.
- Dispose of the mop head as contaminated waste. Alternatively, store this and other materials that cannot be cleaned in asbestos waste bags until next use (open only inside work area).
-

Installing, Cutting, or Drilling Non-Friable Asbestos Materials

- Work using power tools or power equipment must not be performed as Low Risk work.
- Where possible wet all materials to be disturbed. If wetting is not possible use Moderate Risk procedures.
- Immediately place waste in asbestos waste container. Clean area frequently during work with HEPA vacuum or by wet methods.
- At completion of work, clean drop sheets and dispose of as asbestos waste.

Removal of Other Non-Friable Asbestos Materials

- The Low Risk procedures apply only to materials that can be removed intact, or in sections, without producing a pulverized or powdered waste. This method is most applicable to transite and small quantities of lay-in ceiling tiles.
- Wet all material to be disturbed with amended water.
- Undo fasteners necessary to remove material. Whenever possible remove asbestos cement panels intact. Break only if unavoidable. If broken, wet freshly exposed edges.
- Where sections are adhered to the substrate, wet material and use hand scraping to remove adhering material.



- Place removed material into asbestos waste receptor. Clean surrounding surfaces and asbestos work area frequently with HEPA vacuum or with wet methods (i.e. damp cloth disposed of as asbestos waste after cleaning).
- Drop sheets will be cleaned and disposed of as asbestos waste.

Waste Transport and Disposal

- Place waste into asbestos labelled disposal bag, seal with tape, clean the exterior of the bag with a clean cloth, and place into a second clean bag, also to be sealed with tape.
- Provide storage area for holding minor amounts of asbestos waste in sealed containers. Garbage containers will be labelled and assigned exclusively for asbestos waste.
- Asbestos waste will be disposed of in the designated asbestos waste bin located in the grounds parking lot on USask campus.
- When waste is removed from site, collect the completed waste waybills from the disposal firm. For work performed by a contractor, the contractor will complete and provide to the Asbestos Management Program Coordinator copies of a waste manifest.



Appendix J: Glove Bag Asbestos Work Procedures

These procedures are to be followed by maintenance staff and contract persons performing the removal of asbestos-containing pipe insulation using glove bag procedures work at USask buildings.

NOTE: The Asbestos Management Program Coordinator is to be notified if any amount of insulation is to be removed.

Equipment

All equipment must be on site before proceeding with the work.

Single Use Glove Bag

A pre-fabricated plastic bag with air-tight sleeves and gloves permanently sealed to the bag to allow access to pipe insulation. Bag will be equipped with valves or openings for vacuum hose and nozzle of water sprayer, a tool pound with a drain, a seamless bottom and a means of sealing off the lower portion of the bag.

HEPA Vacuum

An asbestos-approved vacuum (HEPA filtered) equipped with brushes, fittings, etc. A vacuum can be opened to empty only by fully protected worker within a Moderate Risk enclosure.

Respirators


Workers using glove bag must wear approved respiratory protection. Respirators and filters must be provided by the employer, and individually assigned to workers. Respiratory protection will be a half-face piece respirator with high efficiency (P100) filters. Respirators must be kept in position from the time the worker attaches bag to pipe until final cleaning of the pipe and bagging of waste is completed. Filters will be changed after 24 hours of wear or sooner if breathing resistance increases. No person using respirator will have facial hair which affects the seal between respirator and face.

Protective Clothing

Workers will wear disposable Tyvek coveralls (or equivalent) with attached elasticized hood. Coveralls and hood will remain in place until worker completes cleaning of pipe. Overalls must be disposed of as asbestos waste.

Other Equipment

- Labelled asbestos waste bags (6 mil) - for all asbestos waste in glove bag, disposable suit, cleaning materials, etc.
- Asbestos warning signs.
- Wire saw - saw with flexible serrated wire blade and handles to allow use inside glove bag.

- 
- Knife with fully retractable blade or carpet (hook) knife for use inside glove bag.
 - Securing Straps - Reusable nylon straps at least 1" wide with metal buckle for sealing ends of Moveable Glove Bag around pipe and/or insulation.
 - Water Sprayer -Garden reservoir type, low velocity, capable of producing mist or fine spray with water containing wetting agent. Wetting agent will be diluted 2 oz. per gallon of water.
 - Plastic sheet (2 mil polyethylene) to cover exposed or damaged sections of pipe prior to attaching glove bag.
 - Plastic drop sheet (6 mil polyethylene) to protect furnishings, flooring or equipment in the event of a spill.
 - Sealer or encapsulate suitable for service temperature of pipe applied by brush, cloth or hand sprayer.
 - Miscellaneous tools and cleaning supplies, wire cutters, snips, scouring pads, sponges, brushes, buckets, tape, etc.

Other Protective Measures


- Do not eat, drink or smoke in the work area.
- On completing clean-up of work area, use HEPA vacuum or wet cloth to clean hands, face, respirator and boots. Remove protective equipment and proceed to nearest washroom or wash station to wash all exposed skin on hands and face.

Scheduling of Work

- Schedule work when occupants are absent. If persons are present, do not start work.
- If work is required on an emergency basis and the area is occupied, Safety Resources or an assigned representative is to advise occupants to vacate area until work is complete and clearance is given to return.

Preparation

- Where practical, clear area below pipe of moveable furnishing or equipment. Provide scaffold as required to reach pipe.
- Install plastic drop sheet over furnishings, flooring or equipment for protection in the event of a spill. Drop sheet will be sufficient size to capture any material dislodged from the pipe.
- Post an asbestos warning sign at all entrances to room in which the procedure is being used. If necessary use rope or tape barriers to separate work area.
- Disable ventilation system in area of Glove Bag operation. Seal voids and openings in the proximity of the Glove Bag operation, including ventilation ducts.
- Don protective clothing and respirator prior to disturbing any asbestos-containing material by any work.

- 
- Pre-clean with HEPA vacuum or wet methods any loose material on surface of pipe or any material on the floor. If asbestos-containing material is on floor, Moderate Risk procedures may be required for clean-up. (See Moderate Risk Procedures.)
 - Check condition of pipe insulation where removal will be performed. If the insulation has minor damage, mist surface and patch with tape. If damage is more extensive, wrap pipe with 2 mil plastic and "candy stripe" with duct tape first. If pipe insulation is severely damaged and cannot be simply repaired, glove bag is not appropriate. (Use Moderate Risk or High Risk Procedures.)

Execution

- Follow manufacturer's instructions for Glove Bag being used.
- Place tools necessary to remove insulation in tool pouch. Fasten bag onto pipe and seal all openings to pipe with cloth securing straps or tape.
- Place hands into gloves and use necessary tools to remove insulation. Arrange insulation in bag to obtain full capacity of bag. Do not use glove bag method on insulation jacketing made of aluminum of thickness greater than 0.51 mm (24 gauge) or steel.
- Insert nozzle of spray pump into bag through valve and wash down pipe and interior of bag thoroughly. Use one hand to aid washing process. Wet surface of insulation in lower section of bag and exposed end of asbestos insulation remaining on pipe by spraying with water prior to moving bag.
- If Glove Bag is ripped, cut or opened in any way, cease work and repair with tape before continuing work. If damage is not readily repaired, discontinue use of Glove Bag, thoroughly wet contents, extract the air from the Glove Bag with a HEPA Vacuum and place Glove Bag in an asbestos waste container.
- To remove bag once filled, wash top section and tools thoroughly. Place tools in 1 hand (glove), pull hand out inverted, twist to create separate pouch, double tape to seal. Cut between tape and place pouch with tools in next glove bag; or into water bucket, open pouch underwater, clean tools and allow to dry.
- Extract air from the Glove Bag with a HEPA vacuum and pull asbestos waste container over Glove Bag before removing the pipe. Remove securing straps or tape. Remove Bag from pipe directly into asbestos waste container.
- After removal of bag ensure pipe is clean of residue and clean surfaces of pipe or wipe with wet cloth.
- Before completion of shift, apply sealer to all surfaces of freshly-exposed pipe. Apply heavy coat of sealer or end cap to exposed ends of asbestos insulation to remain.
- Once Glove Bag is filled dispose of as contaminated waste. Do not reuse bag.
- Clean work area with HEPA vacuum or by damp wiping.



Waste Transport and Disposal

- Provide storage area for holding minor amounts of asbestos waste in sealed containers. Containers will be labelled and assigned exclusively for asbestos waste.
- When waste is removed from site, collect the completed waste waybills from the disposal firm. For work performed by a contractor, the contractor will complete and transfer copies of the waste manifest, on behalf of the owner. Waste generated by Maintenance staff will be stored at a secure location until sufficient accumulates for a waste pick-up.



Appendix K: Moderate Risk Asbestos Work Procedures

These procedures are to be followed by all maintenance personnel and contractors performing the following work at USask buildings.

- The use of a power tool equipped with HEPA filtration to cut, shape, or grind any asbestos-containing surface or product.
- The removal of a false ceiling or part of a false ceiling where friable asbestos-containing material is, or is likely to be lying on the surface of the false ceiling.
- The removal, encapsulation, enclosure, or the disturbance of minor amounts of friable asbestos-containing material during the repair, alteration, maintenance, demolition, or dismantling of a structure, machine, or equipment or part of a structure, machine, or equipment.

Equipment

Equipment required for the work must be on site before proceeding.

HEPA Vacuum

An asbestos-approved vacuum (HEPA filtered) equipped with brushes, fittings, etc. A vacuum can be opened to empty only by a fully protected worker within a Moderate Risk enclosure.

Respirators

Workers within the work area must wear an approved respirator. Respirators and filters will be provided by the employer, and individually assigned to workers. Respirator will be a half-face piece respirator with high efficiency (P100) filters, for all classifications of Moderate Risk work, except as follows: Full face piece air purifying respiratory or powered air purifying respirator with high efficiency (P100 or HEPA filters) will be used for ceiling access with ACM debris on ceiling or for use of power tools equipped with HEPA filtered dust collector to cut, grind or abrade non-friable ACM. Respirators must be kept in position on the face during the entire time the worker is in the Moderate Risk Work Area. This is the period from the first removal of the ceiling tile, opening of hatches or the first disturbance of the asbestos material until the final cleaning of the area and the bagging of waste is completed. Change filters after 24 hours of wear or sooner if breathing resistance increases as filters become damp. No person wearing a respirator will wear facial hair which affects seal between respirator and face.

Protective Clothing

All workers will wear disposable Tyvek coveralls (or equivalent) with attached elasticized hood. Coveralls



should be worn with the hood in place at all times. Suit and head cover will remain in place until worker leaves the Moderate Risk enclosure or work area. Boot covers are required.

Other Equipment

- Polyethylene (6 mil polyethylene)- to erect a total enclosure or to serve or as drop sheet. Wood framing or clips to support polyethylene sheeting, as appropriate to work area.
- Duct tape to fasten plastic enclosure to ceiling, walls, or to tape drop sheet to floor; 3/4" double-sided tape recommended for attaching polyethylene to T-bar ceiling.
- Labelled asbestos waste bag (6 mil) - for all asbestos waste, disposable suit, plastic for disposal, etc.
- Pump sprayer containing water with wetting agent to wet asbestos as necessary; dilute wetting agent 2 oz. per gallon of water.
- Asbestos warning signs.
- Cleaning supplies - e.g. scouring pads, sponges, brushes, buckets, etc.
- Insulation repair supplies (lagging compound, cloth, PVC covers).
- Encapsulating sealer, for brush or airless spray application.

Other Protective Measures

- Do not eat, drink or smoke in the work area.
- On completing clean-up of work area, use vacuum or wet cloth to clean hands, face, respirator and boots.
- Remove protective equipment and proceed to nearest washroom or wash station to wash exposed skin on hands and face.

Scheduling of Work

- Schedule work when occupants are absent. If persons are present, do not start work.
- If work is required on an emergency basis and the area is occupied, the FACILITES Safety Division or an assigned representative is to advise occupants to vacate area until work is complete and clearance is given to return.

Preparation

- Shut down ventilation systems to and from the work area. Seal over all ventilation openings, diffusers, grilles, etc. with plastic and tape.
- Where practical, clear areas of movable furnishings or equipment. This should include anything which occupants may wish to use during work period. Any furnishings or equipment not removed will be adequately covered and sealed using 6-mil polyethylene and tape.



- Post signs or barrier tape to indicate asbestos hazard and requirement for protective clothing for anyone entering the space.
- Note that a full enclosure is only required for ceiling entry and for removal of friable materials. All other operations may have dust protection appropriate for the work.
- For small rooms, cover walls with plastic such that the complete room becomes the work area. For larger rooms, erect enclosure of 6-mil polyethylene of suitable dimensions to enclose the work area. If a suspended ceiling is present, the enclosure will extend to the ceiling line. The enclosure will be as airtight as conditions permit including the provision of a double overlapping flap at the entrance. The floor of the work area will be a layer of minimum 6-mil polyethylene sealed to the plastic walls of the enclosure.
- Use a HEPA vacuum or appropriately sized air unit equipped with HEPA filter to induce negative pressure inside work area. Vacuum should be outside the enclosure with hose inserted inside enclosure to extract air from enclosure.
- Don protective clothing and respirator prior to disturbing any asbestos-containing materials in Moderate Risk enclosure.

Execution

To provide access into ceiling spaces where asbestos-containing debris is present perform the following:

- Erect site isolation and don protective clothing as per Preparation Section 4.0.
- Carefully remove one tile or small portion of ceiling and clean top of removed section with HEPA vacuum.
- Vacuum top of remaining ceiling while still in place.
- Do not break tile or allow tiles to drop to floor.
- Perform all work above ceiling inside Moderate Risk enclosure.

To repair pipe insulation, perform the following:

- Don protective equipment as per Preparation Section 4.0.
- Use drop sheet under area of work to aid clean-up of any dislodged material. Plastic enclosure is not required.
- Mist any exposed insulation to wet surface and apply lagging paint and canvas or PVC jacketing as required.

To remove ceiling tiles and drywall perform the following:

- Erect site isolation and don protective clothing as per Preparation Section 4.0.
- Wet tiles or drywall and remove intact as much as possible and place immediately in disposal bag.



- After all large pieces have been removed, saturate debris and clean all exposed surfaces and support structure with abrasive pads, sponges, cloths, etc.
- Frequently, and at regular intervals during the work, clean up dust and waste in the work area by wet mopping, placing in disposal bags, or by HEPA vacuuming.
- After completion of removal, seal exposed ends of mechanical insulation with heavy layer of encapsulating sealer.
- Apply post removal sealer and coat surfaces from which asbestos material was removed.
- At completion of work, decontaminate equipment, tools and materials used in the work area by wet cleaning or HEPA vacuum.
- Dispose of drop sheets and enclosures by wetting the polyethylene, then folding into disposal bags. Do not reuse drop sheets or enclosures.
- Before leaving work area, decontaminate shoes and protective clothing by using HEPA vacuum or damp wiping. When protective clothing is to be disposed of, it will be decontaminated as above and placed in labelled disposal bags. Workers will vacuum all exposed skin, suit and respirator, and proceed to nearest washroom or wash station to wash hands and face.

Waste Transport and Disposal

- Place waste into asbestos labelled yellow disposal bag, seal with tape, clean the bag, and place into a second clean bag. Seal outer bag with tape.
- Provide storage area for holding minor amounts of asbestos waste in sealed containers. Containers will be labelled and assigned exclusively for asbestos waste.
- When waste is removed from site, collect copies of the waste waybills from the disposal firm. For work performed by a contractor, the contractor will complete and provide to the FACILITES Safety Division copies of a waste manifest. Waste generated by personnel will be stored in a secure location until sufficient accumulates for a waste pick-up.



Appendix L: High Risk Asbestos Work Procedures

These procedures are to be followed by all contractors performing the following work at U of S buildings.

- 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 materials.
- The use of power tools not equipped with HEPA filtration to grind, cut, or abrade and asbestos-containing surface or product.

The Notice of Project forms will be submitted to Occupational Health and Safety a minimum 14 days prior to scheduled high risk abatement work.

NOTE: The FACILITES Safety office is to be notified if any high risk process is to be conducted.

Equipment

All equipment must be on site before proceeding with the work.

HEPA Vacuum & Negative Air Unit

An asbestos-approved vacuum (HEPA filtered) equipped with brushes, fittings and a negative air unit that has been DOP tested.

Respirators

Workers using glove bag must wear approved respiratory protection. Respirators and filters must be provided by the employer, and individually assigned to workers. Respiratory protection will be a powered air purifying respirator (PAPR) with high efficiency (P100) filters. Respirators must be kept in position from the time the worker attaches bag to pipe until final cleaning of the pipe and bagging of waste is completed. Filters will be changed after 24 hours of wear or sooner if breathing resistance increases. No person using respirator will wear facial hair which affects the seal between respirator and face.

Protective Clothing

Workers will wear disposable Tyvek coveralls (or equivalent) with attached elasticized hood. Coveralls and hood will remain in place until worker completes cleaning of pipe. Overalls must be disposed of as



asbestos waste. All street clothing must be left in the Clean Room prior to entering the asbestos work area.

Other Equipment

- Labelled asbestos waste bags (6 mil) - for all asbestos waste in glove bag, disposable suit, cleaning materials, etc.
- Asbestos warning signs.
- HEPA filtered Negative Air Units, DOP Tested
- Shower Unit
- Knife with fully retractable blade or carpet (hook) knife.
- Water Sprayer -Garden reservoir type, low velocity, capable of producing mist or fine spray with water containing wetting agent. Wetting agent will be diluted 2 oz. per gallon of water.
- Plastic sheet (2 mil polyethylene) to cover exposed or damaged sections of pipe prior to attaching glove bag.
- Plastic drop sheet (6 mil polyethylene) to protect furnishings, flooring or equipment in the event of a spill. Sealer or encapsulant suitable for service temperature of pipe applied by brush, cloth or hand sprayer.
- Miscellaneous tools and cleaning supplies, wire cutters, snips, scouring pads, sponges, brushes, buckets, tape, etc.

Other Protective Measures

- Do not eat, drink or smoke in the work area.
- On completing clean-up of work area, use HEPA vacuum or wet cloth to clean hands, face, respirator and boots. Remove protective equipment and proceed to nearest washroom or wash station to wash all exposed skin on hands and face.

Scheduling of Work

- Schedule work when occupants are absent. If persons are present, do not start work.
- If work is required on an emergency basis and the area is occupied, the FACILITES Safety Division or an assigned representative is to advise occupants to vacate area until work is complete and clearance is given to return.

Preparation

- Pre-cleaning: Pre-cleaning will be performed using HEPA vacuums where there is a risk of disturbing asbestos fibres during erection of the containment.
- A full polyethylene enclosure will be constructed with upper and lower seals, full walls and floor.



- A three chamber decontamination facility consisting of a Clean Room, Shower Room, and Personnel Transfer Room will be constructed.
- A two chamber waste corridor will be constructed consisting of a Waste Transfer Room and an Equipment Holding Room.
- Asbestos warning tape will be placed around the exterior of the enclosure
- Asbestos warning signs will be placed at all entrances to the enclosure
- HEPA filtered, DOP tested negative air units will be used to keep the enclosure under 0.2" water column negative pressure. Negative air units are to be exhausted outside the building.
- Disable all HVAC systems supplying or running through the work area for the duration of the work and seal all air diffusers and air returns within the work area with poly and tape.
- All electrical equipment to be used within the work area will be equipped with GFCI.
- All electrical equipment not in use for the abatement will be locked out and tagged out. All electrical work will be performed by a qualified electrician.
- Disable ventilation system in area operation. Seal voids and openings in the proximity of the operation, including ventilation ducts.
- Don protective clothing and respirator prior to disturbing any asbestos-containing material by any work.

Execution

- Material to be removed will be wetted with amended water
- No compressed air will be used within the work area
- No dry sweeping is allowed
- Upon of shift, apply sealer to all surfaces of the containment
- Upon completion of final visual inspection and receipt of successful air clearance sampling results, the enclosure is to be removed under moderate risk conditions
- Dispose of all materials as asbestos waste (poly, tape, rags, etc.)
- Tools and equipment are to be decontaminated by wet washing techniques

Worker Decontamination

- Workers must shower out when leaving the enclosure, unless there is an emergency evacuation.
- Workers will removal all contaminated clothing in the Personnel Transfer Room, leaving respirator on. All contaminated clothing will be double-bagged as asbestos waste.
- Workers will proceed to shower using soap and shampoo while wearing respirator. Workers will wash respirator with soap.
- Workers will exit the Shower Room and remove respirator in the Clean Room.

Waste Transport and Disposal



- Provide storage area for holding minor amounts of asbestos waste in sealed containers. Containers will be labelled and assigned exclusively for asbestos waste.
- When waste is removed from site, collect the completed waste waybills from the disposal firm. For work performed by a contractor, the contractor will complete and transfer copies of the waste manifest, on behalf of the owner. Waste generated by Maintenance staff will be stored at a secure location until sufficient accumulates for a waste pick-up.



Appendix M: Respirator Safety Program

Respiratory Safety Program

2019



UNIVERSITY OF
SASKATCHEWAN



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1 Definitions

Aerosol: a particulate suspended in a gaseous medium

Air-purifying respirator: a respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element

Assigned protection factor (APF): the anticipated level of respiratory protection that would be provided by a properly functioning respirator or class of respirators to properly fitted and trained users

Bioaerosol: a liquid droplet (generated, for example, by coughing, sneezing, or a medical procedure such as bronchoscopy) or a solid particle (generated, for example, by sweeping or shoveling) suspended in the air and that is living or originates from living organisms. Bioaerosols include living or dead micro-organisms, fragments, toxins, and particulate waste products from all varieties of living things. They are capable of causing infection or adverse or allergic response

Demonstration of Competency: written or demonstrated performance of the necessary practices and procedures required as part of the respiratory protection program

Doffing: The process of taking off protective equipment or clothing

Donning: The process of putting on protective equipment or clothing

Dust: Solid mechanically produced particles or fibers.

Fit factor: a quantitative measure of the fit of a particular respirator to a particular individual.

Fumes: Solid particles generated by condensation from the gaseous state, generally after volatilization from melted substances (eg. welding) and often accompanied by a chemical reaction, such as oxidation.

Gas: A substance that is in the gaseous state at ambient temperature and pressure

Health care professional: an individual who is licensed by a provincial licensing authority or equivalent to practice medicine or nursing and who possesses experience and knowledge in the field of occupational health and safety.

High-efficiency particulate air (HEPA) filter: a filter that has been tested to ensure efficiency equal to or exceeding 99.97% for removal of particles having a mean aerodynamic diameter of 0.3 μm from the air. HEPA filters are equivalent to N100, R100, P100, and HE for filtration efficiency only.

Mist: A liquid particle in a gaseous medium

Particulate: any liquid or solid airborne contaminant, other than a gas or vapour, but including dusts, fumes, mists, fibers, fog, pollen, smoke, spores, and bioaerosols

Qualitative fitting test (QLFT): a pass/fail test method that relies on the subject's sensory response to detect a challenge agent in order to assess the adequacy of respirator fit.

Quantitative fitting test (QNFT): test method that uses an instrument to assess the amount of leakage into the respirator in order to assess the adequacy of respirator fit.

Respirator: a device that is tested and certified by procedures established by testing and certification agencies recognized by the authority having jurisdiction and is used to protect the user from inhaling a hazardous atmosphere.

Series N particulate filter: a NIOSH classification for particulate filters effective against particulate aerosols free of oil. Time-use restrictions can apply to these filters.



Note: Three filter efficiency levels are tested and certified: 99.97%, 99%, and 95%, referred to as classes N100, N99, and N95 respectively.

Series P particulate filter: a NIOSH classification for particulate filters effective against all particulate aerosols.

Notes :(1) Three filter efficiency levels are tested and certified: 99.97%, 99%, and 95%, referred to as classes P100, P99, and P95 respectively. (2) Manufacturer's time-use restrictions can apply to these filters.

Series R particulate filter: a NIOSH classification for particulate filters effective against all particulate aerosols. Time-use restrictions can apply to these filters.

Note: Three filter efficiency levels are tested and certified: 99.97%, 99%, and 95%, referred to as classes R100, R99, and R95 respectively.

Tight-fitting respirator: a respirator that is designed to form a complete seal with the face or neck. Tight-fitting respirators include half-face piece, both elastomeric and filtering-face piece respirators, full-face piece, and certain hoods equipped with a tight-fitting seal.

Vapour: The gaseous state of a substance that is solid or liquid at ambient temperature and pressure.



2 Purpose

The purpose of this document is to provide the respiratory protection guidelines and align the activities and work where respiratory protection is required with the Saskatchewan Occupational Health and Safety Regulations, the CSA (Canadian Standards Association) Z94.4 Standard and the NIOSH (National Institute for Occupational Safety and Health) 2005 149 Guidelines.

3 Scope

All University of Saskatchewan employees must wear appropriate Personal Protective Equipment (PPE) as determined by the hazard identification risk assessment process and after applying the hierarchy of controls. When the application of the controls in the hierarchy - elimination, substitution, engineering, using safer work systems, administration or combination of controls cannot prevent (in this case) the respiratory hazards contacting the worker, PPE shall be used and is considered to be the last line of defense.

Respiratory protection is a type of personal protective equipment and a part of the overall safety management system during those activities where respiratory hazards are present. Proper selection, use, care, storing and inspection of PPE including respiratory protective devices is critical to ensure workers are protected when all other means of controls are not reasonably practicable. Training, retraining, fit testing and review of your respiratory protection program on a regular basis will ensure its effectiveness.

Respiratory protection shall be used to protect a user from inhaling a hazardous atmosphere when engineering or administrative control measures are not practicable or not adequate, while such controls are being instituted, or during shut down for maintenance, repair, or emergency.

The Respiratory Safety Program Document details the requirements for the selection, use, and care of respirators and for the administration of an effective respiratory protection program in the workplace. The University of Saskatchewan (employer), supervisors, managers, Safety Resources, respiratory users and in some cases health care professionals all have responsibilities in order to meet the requirements of provincial occupational health and safety legislation and federal standards.

4 Roles and Responsibilities


3.1 Safety Resources

Safety Resources shall provide the Respiratory Safety Program guidelines and expertise, in consultation with supervisors and respiratory users, to assist workplaces with the implementation of a comprehensive respiratory safety program.

This respiratory safety program includes the roles and responsibilities, hazard assessment, screening, respirator selection, training, fit testing, use, cleaning, inspection, maintenance and storage of respiratory devices. This program also provides guidelines for establishing and maintaining a respiratory protection program where required in the workplace.

Safety Resources (SR) shall be responsible for the provision and administration of the respiratory safety program in accordance with the requirements of this document and shall ensure that:

- Only qualified personnel have been assigned roles defined in this document
- Assessments of respiratory hazards are conducted by persons knowledgeable of the activities in the work areas

- 
- A list of respirators selected for use in the workplace is maintained for each respiratory hazard
 - Procedures are established for respirator user screening and medical assessment where required
 - The program is reviewed at least annually to assess its effectiveness
 - Procedures for emergency and rescue operations are developed in accordance with applicable standard and regulations

Records, method and type of respirators selected are managed in accordance with Records and Health Information Protection Act

3.2 Respirator Users

Respirator users shall use and care for respirators in accordance with the manufacturer's specifications, instructions and training.

Respiratory users shall:

- report to their supervisor when there is any condition that can impair their ability to safely use a respirator
- maintain their respirator seal and refrain from having any object or material on their person that would interfere with the seal or operation of the respirator
- that the respirator is clean and in good operating condition prior to each use and at intervals that will ensure that it continues to operate effectively
- perform user seal checks after each donning of a tight-fitting respirator
- remove from service any respirator that they determine to be defective and report it to their supervisor or other responsible person
- report to their supervisor and Safety Resources when there is any condition or change that could impact their ability to safely use the selected respirator

3.3 Supervisors

The supervisor shall monitor respirator use in relation to workplace conditions to ensure that respiratory safety program requirements are being met and shall ensure that:

- Where respiratory hazards could exist for the individuals under their control and direction, they adhere to the guidelines contained in this document and consult Safety Resources
- Once trained, users demonstrate proper application in use of the respirator
- Respirators are cleaned, sanitized, inspected, maintained, repaired and stored in accordance with manufacturers specifications and all written instructions
- The respirator is used in accordance with the instructions, training received and the safe work procedures for the workplace
- Provide details of the anticipated working conditions to the health care professional conducting the medical assessment of respirator use if required
- Notify the Program Administrator of incident investigation reports where use of a respirator could not have prevented or contributed to an accident or injury

5 Processes of Respiratory Program

4.1 Hazard Identification Risk Assessment

Where elimination and engineering controls are not practicable and a worker is likely to be exposed to dust, fumes, gas, mist, aerosol, vapour or any airborne contaminant present in any amount the supervisor shall complete the respiratory hazard assessment form in this document to determine the respiratory hazard(s) present and to assist in the selection of an appropriate respirator where required. A person knowledgeable of the Bio-Safety Plan and Animal Use Protocols shall determine whether a known or suspected bioaerosol presents a risk associated with transmissibility, infectivity, and adverse health effects.

4.2 Respirator Selection

Respirators shall be selected based on the following criteria:

- Health of the worker and ability to wear a respirator;
- Completion and review of the respiratory hazard assessment;
- Existing legislation and standards;
- Work requirements and conditions;
- Duration of exposure;
- Characteristics and limitations of respirators;
- Respirator assigned protection factors

For the purpose of selection, respirators shall be grouped into either:


- **Atmosphere supplying respirators** - self-contained breathing apparatus, airline and/or multi-functional,
- **Air purifying respirators** – non-powered (ARP) and powered (PAPR), gas and vapour removing, particulate removing, gas, vapour and particulate removing and multi-functional
- **Combination respirator**- combination of atmosphere supplying and air purifying
- **Escape only respirators**- atmosphere supplying or air purifying

An approved respiratory protective device must give suitable protection, is the proper size and makes an effective seal to the facial skin of the worker where a tight fit is essential to ensure the worker is not exposed to airborne contaminants that pose a risk of harm. Workers shall be issued only those respirators for which they have been fit tested and approved to wear.

6 Training

All workers whose work requires the use of a respirator shall receive appropriate training and education. The workers shall receive training prior to the initial use of the respirator. Training shall be provided by SR. Training in the care and practical use of respirators consists of instruction, facilitator demonstration, participant practice and demonstration of competency in:

- Donning, doffing and re-donning of respiratory device;
- User seal checks;
- Care;

- 
- Cleaning;
 - Inspection;
 - Changing of filters;
 - Identification of problems;
 - Storage
 - Recognition of medical signs and symptoms that may prevent effective use of a respirator

Refresher training and fit testing shall be provided every two years according to the CSA Z94.4 -11 standard.

5.1 Use, cleaning, maintenance and storage

Workers with facial hair that may interfere with the face piece seal or valve function on tight-fitting respirators cannot use a tight-fitting respirator. Other personal protective devices or equipment shall not interfere with the seal of the face piece to the face of the worker.

Side arms on eyeglasses or any other material such as hair, cloth, tissue, straps and jewelry shall not pass between the face and the sealing surface of the face piece or interfere with the seal of the tight-fitting face piece to the face or with the operation of the respirator. Workers who must have corrective eyewear, where the eyewear interferes with the respirator seal, shall be provided with respirator spectacle kits by their department.

The employer shall provide each worker requiring a respirator with a respirator that is clean, sanitary and in good working order.

Each worker issued a respirator shall properly maintain his/her respirator to retain its original effectiveness. The maintenance shall include:

- Cleaning and sanitizing
- Inspection and testing
- Proper storage

The worker shall check the seal of the face piece immediately after putting on the respirator. The worker should never break the respirator face-to-face piece seal to communicate. The respirator shall not be altered in any manner. All cartridges, replacement parts, etc., shall be from the same manufacturer as the respirator (e.g., use only NORTH cartridges and parts for a NORTH respirator). The worker shall inspect his/her respirator before and after each use. The worker shall report defective or non-functioning respirators to his/her supervisor. Any respirator and cylinder repairs, and subsequent tests and checks shall be performed by the unit manufacturer or by a qualified external contractor. Defective or non-functioning half mask face pieces shall not be repaired but will be disposed and replaced instead. Respirators shall be tagged and removed from service by the supervisor until repaired or replaced.

The worker shall store their respirators in a clean and sanitary location, in boxes or in plastic bags, marked with each worker's name. The respirators shall be stored in a manner that will protect them from dust, ozone, sunlight, heat, extreme cold, excessive moisture, vermin, damaging chemicals, oils, greases, or any other potential hazard that may have a detrimental effect on the respirator. When packed or stored, each respirator should be positioned to retain its natural configuration. Used cartridges/filters to be reused shall be stored in a manner to prevent contamination of the respirator face piece.

Always follow the manufacturer's specifications and instruction manual for inspection, maintenance and



cleaning guidelines. Use the following as a guide for regular inspections of respiratory devices.

- Check condition of the face piece, look for cracks, cuts, tears, holes and distortion of face piece
- Check head straps to ensure they are properly attached and have elasticity
- Check head straps for broken buckles and breaks and tears
- Check inhalation and exhalation valves to ensure that they are in place and are not damaged
- Check all rubber or flexible parts for cracks and pliability
- Check cartridges, canisters, and filters to ensure that they are not spent
- Check for cracks or damage to cartridge, filter, or canister
- Check the tightness of connections between cartridges, filters and the respirator face piece

7 Documentation, Health Information and Privacy Act

Supervisors shall maintain records of the following:

- Training for workers under their supervision
- Respirator selection
- Inspection, maintenance and storage

Safety Resource shall maintain the records of the following:

- Fit testing
- Hazard assessment
- Respirator selection
- Program evaluation

The fit testing records shall consist of the

- name and identification of the worker tested
- type of test performed
- make, model and size of the respirator fitted
- date of the fit test
- result of the fit test
- name of the person conducting the fit test

No medical records or information shall be stored by SR or supervisor. Only the worker and the health care professional shall have access to personal medical information for the purposes of obtaining respiratory protection.

6.1 Medical surveillance

Prior to fit testing and respirator use, it shall be confirmed that the worker is free from any physiological or psychological condition that may prevent him or her from being assigned the use of the selected



respirator. This shall be achieved through the use of the Respirator Screening Form. The worker and his/her supervisor shall complete their respective parts of the Respirator Fit Test Screening Form and bring or send the form to Safety Resource prior to fit testing. Where, based on the Respirator Screening Form, Safety Resource is concerned that a physiological or psychological condition exists that may preclude the use of a respirator, SR shall refer the worker to Health Care Professional (HCP) for a medical evaluation. The medical evaluation shall consist of a primary assessment conducted by the Occupational Health Nurse and if deemed necessary a further assessment conducted by the Occupational Health Physician. The worker and his or her supervisor shall provide the Occupational Health Nurse and/or the Occupational Health Physician with information regarding the conditions of the respirator use and the type of respirator(s) required.

After the medical evaluation, the Occupational Health Physician shall provide SR with a written opinion regarding the employee's ability to use a respirator. The opinion shall indicate one of the following:

- User meets medical requirements to use the selected respirator;
- User meets medical requirements to use the selected respirator with limitations;
- User does not meet medical requirements to use the selected respirator.

8 Program Review, Continuous Improvement

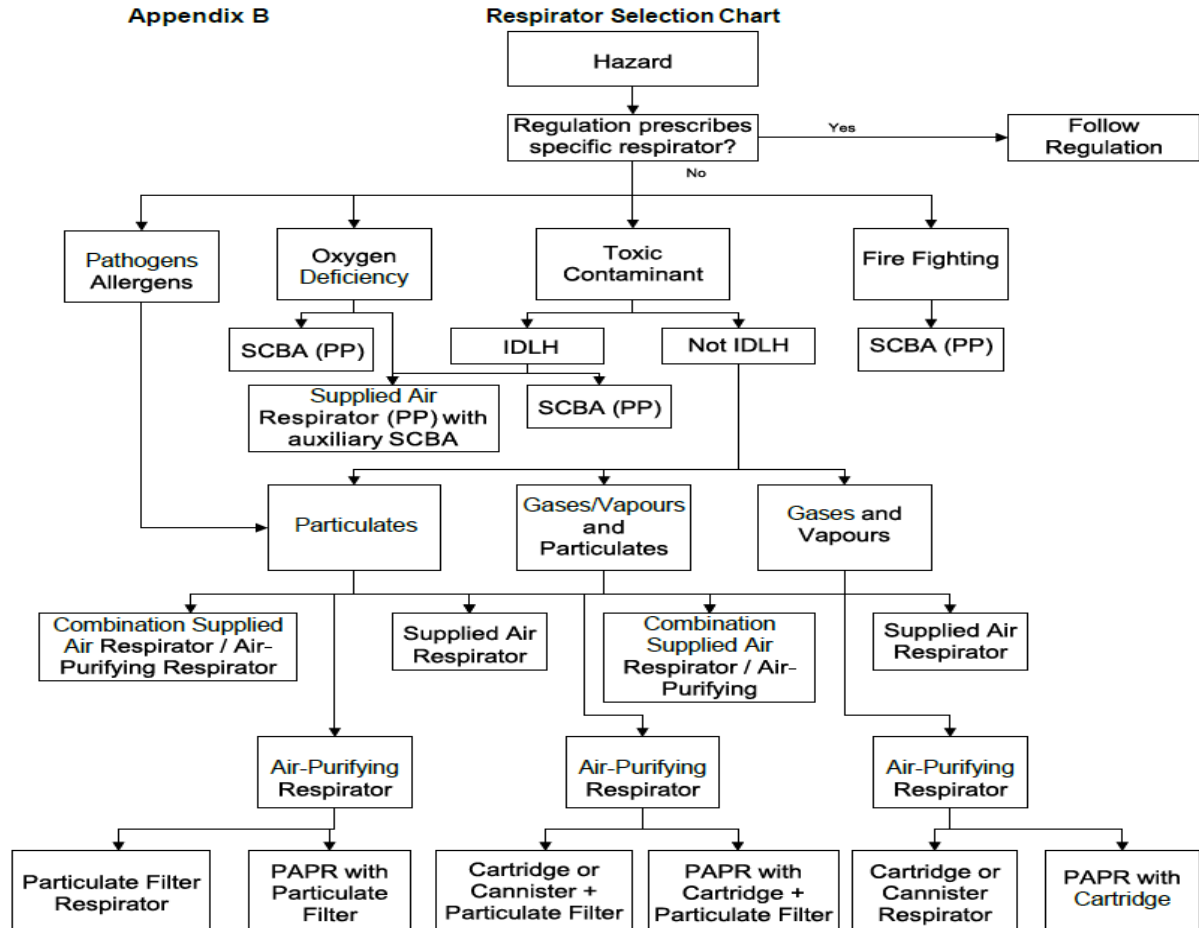
The Respiratory Protection Program shall be reviewed annually by Safety Resources. The review of the program shall include:

- A review of program elements against regulatory requirements;
- A review of definitions of roles and responsibilities;
- A review of documented program procedures;
- Examination of records to verify that documented procedures are being followed;
- Confirmation that workplace practices comply with program requirements;

- Documentation of performance problems and subsequent resolution or corrective action plans;
- Stakeholder input to verify worker acceptance (comfort, ease of breathing, fatigue, vision, mobility, job interference, utility);
- Proper selection and use of respirators;
- Effective training of all stakeholders;
- Proper inspection of respirators; and
- Proper storage and maintenance of respirators

9 Appendices

Appendix B: Respirator Selection Chart



Particulate filters for non-powered respirators are available in three minimum efficiencies and three series, series N, series R, and series P, as follows:

- a) N100, R100, and P100 filters shall demonstrate a minimum efficiency level of 99.97%.
- b) N99, R99, and P99 filters shall demonstrate a minimum efficiency level of 99%.
- c) N95, R95, and P95 filters shall demonstrate a minimum efficiency level of 95%.

Series N filters are suitable for any non-oil based particulates.

Series R and P filters are suitable for any particulate, including oil-based particulates.



Appendix C: Medical Assessment for respiratory protection

Respirator User's Health Conditions: For your confidentiality medical information is NOT to be offered on this form check **Yes** or **No** box only.

Some conditions can seriously affect your ability to safely use a respirator. Do you have or do you experience any of the following, or another condition that may affect respirator use? **Yes** **No**

Shortness of Breath/Fainting Spells/Heart Problems/Pacemaker/Breathing Difficulties/Claustrophobia/Fear of Heights/Asthma/Pregnancy/Lung Disease/Color Blindness/Diabetes/Skin Conditions/Panic Attacks/Reduced Sense of Smell or Taste/Seizures

Any yes answer indicates further assessment by a health care professional is required prior to respirator use. Note: Medical information is NOT to be offered on this form. See Medical Assessment

Health Care Professional Primary Assessment

Assessment date: _____

Respirator use permitted YES NO

Referred to medical assessment YES NO

Comments:

Name of Health Care Professional: _____ Title: _____

Signature of HCP: _____

Assessment Date: _____

Class 1 No Restrictions

Class 2 The following restrictions apply to respirator selection/use: _____

 Class 3 Respirator use is NOT Permitted



Appendix D: Medical Assessment for respiratory protection for Health Care Professionals

Health Care Professional – This patient has answered yes to one or more of the following conditions that he/she feels affects respirator selection and/or use.

Shortness of Breath/Fainting Spells/Heart Problems/Pacemaker/Breathing Difficulties/Claustrophobia/Fear of Heights/Asthma/Pregnancy/Lung Disease/Color Blindness/Diabetes/Skin Conditions/Panic Attacks/Reduced Sense of Smell or Taste/Seizures

Any yes answer indicates further assessment by a Health Care Professional (HCP) is required prior to respirator use.

Note: Medical information is NOT to be offered on this form.

Please indicate if respirator use is permitted, if further medical assessment is required and/or which class of restrictions (if any)

Health Care Professional Primary Assessment

Assessment date: _____

Respirator use permitted YES NO

Referred to medical assessment YES NO

Comments:

Name of Health Care Professional: _____ Title: _____

Signature of HCP: _____

Assessment Date: _____

Class 1 No Restrictions

Class 2 The following restrictions apply to respirator selection/use: _____

Class 3 Respirator use is NOT Permitted



Appendix E: Respirator Fit Test Screening Form

Part 1

Employee: _____ Date: _____

Email: _____ NSID: _____

Supervisor: _____ Examiner: _____

Email: _____

Part 2 Respiratory Hazard Assessment completed by:

Position _____ Print _____ Sign _____

Identify respiratory contaminants	Physical State	Oxygen Deficient	Length of exposure to contaminant per day
-	<input type="checkbox"/> Gas	<input type="checkbox"/> Yes <input type="checkbox"/> No	-
-	<input type="checkbox"/> Vapor		-
-	<input type="checkbox"/> Particulates	Is there oil present?	-
-	<input type="checkbox"/> Other	<input type="checkbox"/> Yes <input type="checkbox"/> No	-
-	Will there be skin or eye irritation?		
-	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Fit test examiner comments:			

Respirator selection (completed by Safety Resources)

Respirator _____ Size: S M L S/M M/L U

Model _____ Type _____ Cartridges _____

Part 3 Medical Assessment for respiratory protection

Respirator User's Health Conditions: For your confidentiality medical information is NOT to be offered on this form check Yes or No box only.

Some conditions can seriously affect your ability to safely use a respirator. Do you have or do you experience any of the following, or another condition that may affect respirator use? Yes No

Shortness of Breath /Fainting Spells/Heart Problems/Pacemaker/Breathing Difficulties/ Claustrophobia/ Fear of Heights/Asthma/Pregnancy/ Lung Disease/Color Blindness/Diabetes/Skin Conditions/Panic Attacks/Reduced Sense of Smell or Taste/Seizures. Any yes answer indicates further assessment by a health care professional is required prior to respirator use. See Medical Assessment for respiratory protection form.



Part 4 Training and Competency

Each of the following training elements will be demonstrated and explained by the trainer. The respiratory user will then demonstrate all of the elements to the trainer. You must be able to demonstrate all of the elements in order to pass.

- Inspection of respiratory device – all components and adjustments**
- Review of manufacturer’s specification – owner’s manual**
- Cleaning, care and identification of problems**
- Changing of filters – type, end of life indicators (if equipped), hours of use**
- Donning of respiratory device**
- Doffing of respiratory device**
- Redonning of respiratory device**
- Storage – contamination free environment**

Questions

All questions must be answered or demonstrated correctly in order to pass.

1. What is the proper method to store your respiratory device? **tight fitting respirator** **N95/P95.**

Answer _____

2. If using an N95 or tight-fitting respiratory device, describe 2 factors that will affect the level of protection. **Answer** 1. _____ 2. _____

3. In your own words describe why it is important to inspect a respiratory device before using it.
_____.

4. Name 2 situations that will cause a respiratory user to do a re-test before the required 2 year interval? **Answer** 1. _____ 2. _____

5. Name 2 ways a respiratory user ensures a tight seal against the face? 1. _____
2. _____

Part 5 Fit Test

Respiratory user is clean shaven prior to fit test. Yes No Test Method: Qualitative fitting test (QLFT)

Quantitative fitting test (QNFT) Test Results: PASS FAIL

Employee Acknowledgement:

I hereby acknowledge that I have received training in the safe care, use, storage and limitations of this respirator.

Respiratory User Signature

Date