Simon Fraser University
Asbestos Exposure Control Plan

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1 **Introduction**

At Simon Fraser University, there is a potential for workers, contractors and building occupants to be exposed to asbestos. Therefore, in accordance with WorkSafeBC requirements, SFU has established an Asbestos Exposure Control Plan. This plan addresses not only the effects that asbestos-containing materials will have on the routine maintenance of the building, but also the health and safety of the building occupants, staff and contractors involved with renovation work, general repairs and routine maintenance.

2 **Definitions**

2.1 **Asbestos**

Asbestos is a generic term used to describe a group of naturally occurring fibrous minerals, divided on the basis of their mineralogical properties, into serpentinines (“S” shaped) and amphiboles (“needle like”). The most significant hazard of asbestos is the presence of long, thin fibres that can be easily separated into small respirable fibres.

2.2 **Asbestos-Containing Material**

Asbestos-containing material includes any manufactured article or other material, which contains at least 0.5 % or more asbestos by weight at the time of manufacture or as determined by NIOSH 9000, NIOSH 9002 or by EPA/600/R-93/116 laboratory test methods. Vermiculite insulation with any amount of asbestos is also considered an asbestos-containing material.

2.3 **Clearance Air Sampling**

Clearance air sampling is performed to determine if the air inside a containment or asbestos remediation work area is sufficiently free of asbestos fibre to permit the dismantling of the containment.

2.4 **Containment**

A containment is an isolation system designed to effectively contain asbestos fibre within a designated work area where asbestos-containing material is handled, removed, encapsulated or enclosed, and includes a glove-bag.

2.5 **Designated Work Area**

A designated work area is an area for work with asbestos-containing material which is restricted to access by authorized persons by warning signs and by barricades, enclosures or other means of isolation, with due regard for the level of risk.

2.6 **Friable Material**

Friable material is asbestos-containing material that is crumbled or powdered or can be crumbled or powdered by hand pressure.
2.7 **Low Risk Work Activity**

Low risk work activity includes a work activity that involves or is within proximity to asbestos-containing material, where the material is not disturbed or impacted and there is no significant release of asbestos fibre. Examples include repairing drywall while not impacted the asbestos-containing joint compound, or replacing a single asbestos-containing vinyl floor tile without breaking the tile.

2.8 **Moderate Risk Work Activity**

Moderate risk work activity includes a work activity that involves the handling of asbestos-containing materials or working in proximity to asbestos-containing material, where the material is disturbed or impacted and personal protective equipment or engineering controls are required to prevent worker exposure to airborne asbestos fibres, and where the activity is not otherwise classified as low or high risk activities. Examples include using hand tools to remove asbestos-containing vinyl floor tiles or using a snap cutter chain to snap cut an asbestos-containing transite rain water leader.

2.9 **High Risk Work Activity**

High risk work activity includes a work activity that involve working with or in proximity to asbestos-containing material if a high level of control is necessary to prevent exposure of a worker to airborne asbestos fibre. Examples include removing a large ceiling of friable asbestos-containing texture finish, or the removal and dismantling of a boiler with asbestos-containing refractory material.

2.10 **Notice of Project for Asbestos (NOPA)**

A Notice of Project for Asbestos (NOPA) is a document that must be submitted to WorkSafeBC at least 24 hours before starting any construction work that consists of the removal, encapsulation, or enclosure of friable asbestos materials, or the demolition, dismantling or repair of any part of a building or structure in which materials containing asbestos have been used or in which asbestos products have been manufactured.

2.11 **Qualified person**

A qualified person is defined as an occupational health and safety professional with experience in the practice of occupational hygiene as it relates to asbestos management.

3 **Potential Health Effects and Use of Asbestos**

Asbestos has been recognised as a health hazard for people employed in its production and processing for centuries. However, it was not until the late nineteenth century, with the onset of the Industrial Revolution, that its use became widespread. It was not until the early part of the twentieth century that the relationship between the use of asbestos and a variety of health effects became a source of concern to the medical profession.
Many serious, debilitating and often fatal diseases have been linked to the respiration of asbestos fibres. Although the mechanism of asbestos related diseases is still not fully understood, it is known that there is normally a long waiting (latency) period between the time of exposure and the occurrence of disease. This latency period can typically be between ten to over forty years. Asbestosis, mesothelioma and lung cancer are the diseases most commonly associated with asbestos exposure, although several other diseases have been linked to asbestos exposure.

The Ontario Royal Commission investigating the health risk of asbestos exposure concluded that the risk of contracting an asbestos related disease is negligible for building occupants or tenants but acknowledged that the risk for custodial and maintenance workers is higher. This is because maintenance workers are more likely to come into contact with and disturb asbestos-containing materials in the normal course of their work.

Asbestos is inexpensive to mine and has some very useful physical properties. As a result, it has been used in over 3000 different commercial products worldwide. Some of these physical properties include:

- High temperature resistance
- Tensile strength greater than steel
- Good soundproofing properties
- High chemical resistance
- Good electrical insulating properties
- Good mechanical strength

Asbestos has been widely used in building construction over many years and some uses continue today. Asbestos products are generally classed into two groups: friable and non-friable. Friable materials are those that, when dry, can be crumbled, pulverized or reduced to powder using moderate hand pressure resulting in the release of airborne asbestos fibres. The use of friable materials in construction is banned today but due to its widespread use in the past, these materials are still present in many buildings today. An asbestos-containing material that is considered to be non-friable may still become friable if handled in an aggressive manner such as cutting, drilling or sanding using power tools or if dropped from a height.

4 Asbestos Exposure Control Plan (AECP)

The Asbestos Exposure Control Plan (AECP) is intended to identify, assess and control any potential health hazard caused by the presence of asbestos in buildings on campus. The primary focus of the plan is to prevent harmful exposure of workers, students, contractors, and building occupants and visitors to airborne asbestos fibres.

The Asbestos Exposure Control Plan (AECP) consists of the following elements:

1. Responsibilities and record keeping of the Environmental Health and Safety Department (EHS), Facilities Services, Residence and Housing Facility Managers/Coordinators, Department Managers and Supervisors, Maintenance Contractors, Consultants, and staff and building occupants;
2. Identification and labelling of asbestos-containing materials;
3. Maintenance of an inventory identifying asbestos-containing materials and their locations across the SFU campuses;
4. Development of safe work and decontamination procedures;
5. Air sampling;
6. Employee and Contractor training;
7. Waste management.

4.1 Responsibilities

4.1.1 Environmental Health and Safety Department

Overall responsibility and authority for the administration of the AECP has been assigned to the EHS Department. The EHS Program Manager will administer the AECP and is responsible for the following:

a) Implement and manage the AECP in a conscientious manner and be qualified through training and experience in the safe handling of asbestos, in accordance with WorkSafeBC requirements.

b) Ensure that all related documentation such as Notice Project Asbestos (NOPA), detailed work procedures, site specific risk assessment, etc. are submitted to EHS by Facilities Services prior to any asbestos disturbance activities taking place. Note: The NOPA and detailed site specific work procedures must also be submitted to WorkSafeBC prior to beginning work.

c) Ensure that the location of asbestos-containing materials and presence of suspected asbestos-containing materials are documented in an asbestos inventory. The condition, friability and accessibility of asbestos-containing materials must be assessed to determine the potential for fibre release.

d) Update the asbestos inventory when an adequately detailed clearance letter or completion report is provided to EHS from the qualified asbestos consultant or when a new material is identified.

e) Inform building occupants and maintenance personnel as well as contracted trades about the presence and location of asbestos-containing materials through the identification system, and the hazards of asbestos exposure.

f) Develop and maintain written safe work procedures for all service and maintenance activities involving asbestos-containing materials.

g) Review and update the Asbestos Exposure Control Plan on an annual basis.

h) Respond to reports of asbestos damage by:

- Visiting disturbance site for a visual inspection.
- Contacting Facilities Services to consult on the need to undertake sampling and together reach a consensus on the assessment requirements.
- When necessary, advise area occupants of work activity and organize information meetings.

i) Review any projects requiring the disturbance of asbestos-containing building materials:

- Attend pre-construction meetings.
- Organize an area walk-through with the Project Manager, Contractor and Campus Security to identify potential sources of adverse impact and potential problems.
- Monitor the removal work for compliance with regulatory and SFU Environmental Health and Safety requirements.

j) Maintain documentation, for a period of 10 years, of:
  - Copies of all NOPAs
  - Inventory of asbestos locations
  - Sampling records
  - Work procedures and risk assessments
  - Waste disposal records

4.1.2 Facilities Services

4.1.2.1 Maintenance and Operations
The Facilities Operations Senior Technologist is responsible for the following:

a) Develop, budget for and implement an inspection program to monitor the condition of asbestos-containing materials throughout the buildings on the Burnaby campus and provide status documentation to EHS for follow-up action. This will include a reassessment of the potential hazard, remedial action as required and an update of the identification system. Damaged or deteriorated asbestos-containing materials must be promptly removed, enclosed or encapsulated to prevent the release of airborne asbestos fibres. This emergency work must follow WorkSafeBC regulations and guidelines.

b) Coordinate Facilities Operations removal contracts and emergency sampling with the asbestos consultant and the contractor and ensure that all asbestos-related documents are filed with EHS.

c) Refer all asbestos-related enquiries to EHS.

4.1.2.2 Campus Planning and Development
Project Managers shall include all managers and coordinators/technologists that coordinate renovations, repairs, demolitions or other project related activities that may potentially disturb asbestos. Project Managers are responsible for the following:

a) Be familiar with the presence and location of all the asbestos-containing materials on campus, the AECP and the labelling and identification system.

b) Liaise with EHS to determine if asbestos is present in areas impacted by the project and when asbestos removal is proposed.

c) Coordinate work activities with a qualified asbestos consultant and the contractor. Ensure that a risk assessment and detailed site specific work procedures are filed with EHS and reviewed by a qualified asbestos consultant 48 hours prior to the application of an NOPA. Ensure that the detailed site
specific work procedures and NOPA are sent to WorkSafeBC and EHS 48 hours prior to the start of work.

d) Ensure EHS is provided with a copy of the clearance letters or completion reports for every asbestos abatement project to aid in the ongoing updates and maintenance of the inventory system. Clearance letters and completion reports must be submitted by the qualified asbestos consultant to EHS within two weeks of completing the abatement work.

e) Monitor and review authorized project work performed by contracted trades or maintenance personnel, to ensure that their work activities are not disturbing asbestos-containing materials and that identifying labels are not being inadvertently removed, damaged or painted.

f) Address issues of non-compliance raised by EHS.

4.1.3 Contractors and Facilities Trades Personnel

Contractors and Facilities Trades personnel are responsible for the following:

a) Be made aware of the presence and location of all the asbestos-containing materials, the AECP and the labelling and identification system.

b) Not be permitted to disturb any asbestos-containing materials, unless authorized by EHS.

c) Be trained in the safe handling of asbestos, if required.

d) Ensure that all work activities relating to asbestos-containing materials only proceed after being authorized by EHS.

e) Only carry out renovation, routine maintenance or service work, which is likely to disturb asbestos-containing materials, after the work has been authorized by EHS.

f) During projects involving the disturbance and/or removal of asbestos-containing materials, the abatement contractor must establish necessary engineering controls to reduce the airborne asbestos fibres as low as reasonably achievable.

g) During projects involving the disturbance and/or removal of asbestos-containing materials, the abatement contractor must provide a viewing window accessible to EHS for inspections of the enclosure during regular work activities. The viewing window must be adequate for viewing the majority of work activities being conducted.

h) Abatement contractors are responsible for monitoring the health of their staff, such as annual lung function testing and periodic chest X-rays.

i) Immediately inform EHS if damage or disturbance of asbestos-containing materials occurs during the course of their work.

j) Not damage, remove, paint or otherwise interfere with the AECP Identification labels.
4.1.4 Staff and Building Occupants

Staff and other building occupants are responsible for the following:

a) Being familiar with the presence and location of asbestos-containing materials and the AECP, including the labelling and identification system.

b) Not disturbing asbestos-containing materials. This will prevent any asbestos fibres from being released.

c) Not damaging, removing or painting over any of the AECP identification labels.

d) Immediately informing EHS if any asbestos-containing materials are damaged or disturbed.

4.2 Identification and Labelling of Asbestos-Containing Materials

An important part of the AECP is the physical identification of all the asbestos-containing materials on the Burnaby campus. To this end, all asbestos-containing materials must be clearly labelled, where practicable.

The identification system informs building occupants, maintenance workers and contractors about the presence of asbestos-containing materials, not the absence. It is essential that such a system be accompanied by proper training for all contracted workers and maintenance staff.

Stylized “A” for friable materials

The labelling system uses a stylized “A” marked on the friable materials on campus. A sample of the Stylized “A” for friable materials identification labels is located above.

Any labelled material containing asbestos must not be disturbed until the work has been authorized by EHS. Only suitably trained and qualified personnel familiar with current asbestos safety precautions will be permitted to work on the material. Those materials not labelled or identified otherwise, shall be considered asbestos-containing until analysis of the suspect material determines otherwise.
Fire doors on campus are suspect asbestos-containing material. Fire doors that have been tested for asbestos are labelled with either a green or a red sticker on the spine of the door. The green label indicates that the door does not contain asbestos. The red sticker indicates that the door does contain asbestos. If no label is present, the door must be tested to determine whether it contains asbestos prior to any work being conducted on the door. EHS maintains a list of all doors that have been tested for asbestos. A Protocol for Fire Doors Suspected of Containing Asbestos and Visual Inspection and Sampling of Fire Door Cores has been developed and is provided in Appendix B.

No asbestos-containing building materials are labeled on the Vancouver campus.

The labelling system will be updated and converted into an identification system using detailed keyplans for each building. The data for each room will be provided from the asbestos inventory database and a set of marked-up keyplans identifying the locations of known asbestos-containing materials will be stationed within each building.

4.3 Asbestos Survey and Inventory

An extensive non-destructive Asbestos Survey was conducted at Simon Fraser University and a room-by-room hazard analysis was performed to determine the presence and risk, if any, of asbestos on campus. Although no immediate hazard existed, asbestos-containing building materials with a high potential for future disturbance have been removed and a long term Asbestos Management Program was approved by WorkSafeBC.

Another set of extensive non-destructive Asbestos Management Surveys has been conducted at Simon Fraser University. This set of surveys will update the inventory system and provide additional support to maintain a functional Asbestos Management Program.

Asbestos-containing materials (ACM) on the SFU campuses are primarily found in the following building materials:

- Cementitious texture coatings on ceilings and as overspray above ceilings.
- Fumehood linings and ductwork.
- Air handling system duct mastic.
- Window caulking and glazing mastic.
- Old lab counter tops.
- Floor tiles.
- Ceiling tiles.
- Building and underground piping systems.
- Insulation on pipe straights, pipe fittings and boilers.
- Asbestos cement board backing radiators.
- Drywall joint compound.
- Fire door cores.

* Asbestos-containing wall and floor finishes are not labeled as it is impractical to do so.
An asbestos labelling program will revamp all of the labels within all SFU buildings after the current round of asbestos management surveys have been conducted throughout the campuses.

If any worker or contractor is unsure of the material they are dealing with, they should contact the SFU Project Manager, who can review the asbestos inventory database, request additional information from EHS, and engage a qualified consultant to assess the material. The assessment of suspect materials must be conducted before undertaking any work. But it may have previously been assessed which EHS may have a record of.

Due to the various and extensive renovations throughout the campus, the delineation of asbestos-containing drywall joint compound from non-asbestos can be very challenging. All drywall joint compound not previously assessed, must be assumed to be asbestos-containing. The policy is to have all drywall joint compound and any other suspect materials assessed prior to any renovation or disturbance project.

4.3.1 TMA
An inventory of asbestos-containing materials and their locations on campus is maintained in TMA. When a work order is printed for an area/room that contains asbestos, a section regarding the asbestos-containing materials and the procedure to follow prior to commencing work in the area/room will be included. If it is determined that work in the area/room will not impact asbestos-containing materials then workers may perform their task, however they should still be aware of asbestos materials locations in the area/room. If work will impact the asbestos materials, workers must consult with their supervisor and EHS. Based on the work order review, EHS will conduct representative ride-along visits with Facilities Maintenance and Operations personnel to ensure their work is being conducted following appropriate safe work procedures when dealing with asbestos.

To ensure the asbestos inventory in TMA is up-to-date EHS will conduct monthly reviews of representative work orders. This will allow EHS to check if the asbestos-containing materials of specific locations are presented within the work order TMA system.

The inventory system will be updated after the current round of asbestos management surveys have been conducted throughout the campuses.

4.3.2 Internal Assessments
Periodic condition assessments of all asbestos-containing materials are an integral and required part of the AECP. The inspections, conducted on an annual basis, are intended to document the condition of these materials to determine if they are deteriorating or have become damaged since the previous inspection or Management Survey. The inspections will be conducted by SFU staff with the appropriate training.

4.3.3 Re-surveys
SFU will retain a qualified consultant to conduct extensive non-destructive resurveys of the buildings within SFU campuses on an on-going basis. This will be conducted where the most up-to-date Management Survey does not accurately represent the baseline of current conditions within that building or where the Management Survey is out-dated.
4.3.4 Follow-up Concerns

Following an initial building material concern, EHS will review the inventory to determine if the material in question is asbestos-containing, assess the current condition of the material to establish the urgency of any follow-up actions required. If the situation is determined to be an emergency, EHS will close off the area to prevent exposure and coordinate with Facilities Maintenance and Operations to contact a qualified hazardous building materials consultant and contractor to perform emergency clean-up procedures. If the situation is not determined to be an emergency, then a general work order may be submitted to Facilities Maintenance and Operations to address the concern.

4.4 Development of Safe Work Procedures

Facilities Services personnel and contractors may have to work near or actually disturb asbestos-containing materials during the normal course of their work. In order for these workers to proceed in a safe manner, a risk assessment and safe work procedures covering a variety of tasks will be developed and submitted with an NOPA. These procedures will include all work involving:

- Repair of damaged friable asbestos-containing materials.
- Working with asbestos-containing materials.
- Moderate and High Risk work procedures.
- Waste handling.

Contractors and Facilities Services personnel may be required to perform emergency work in areas where asbestos-containing materials are located. In these instances, the nature of the work will not permit compliance with all WorkSafeBC requirements insofar as notification of the work to be done is required. Notification will be done after the fact in these situations. Emergency clean-up procedures are provided in Appendix B. Bulk Sampling Procedures are provided in Appendix C.

The WorkSafeBC publication entitled Safe Work Practices for Handling Asbestos is an excellent resource and provides examples of detailed safe work procedures, including requirements for personal protective equipment, engineering controls and air monitoring. Please refer to the appendices for SFU specific work procedures and forms.

4.5 Air Sampling

The following air sampling is required by SFU for asbestos work activities considered to be moderate risk (or higher):

- Ambient air sampling throughout the duration of the work (outside the enclosure)
- Occupational air sampling, as specified by a qualified asbestos consultant;
- Clearance air sampling, as required, prior to dismantling the enclosure and/or re-occupancy of the space;
- Additional air sampling, as required.

Air sampling results must be made available to the workers involved and SFU within 24 hours upon completing the collection of the samples.
4.6 Employee and Contractor Training

Asbestos Awareness training is a requirement for all Facilities Services staff and any individuals that may come into contact with asbestos-containing materials during the normal course of their work. The training for Facilities Services personnel that may inadvertently disturb asbestos-containing materials will typically be less involved than that of contracted workers, who will be required to show that they have had the relevant training. Facilities Services personnel will be required to recognise any damaged materials or debris that they may encounter and report their findings immediately to their supervisor and EHS. Facilities Services personnel are not to disturb any suspect asbestos-containing damaged materials or debris that they may encounter.

All contract employees working in areas with asbestos-containing materials will be informed of the presence of the material and will be responsible for adequately training their workers to deal correctly with the hazard.

The Asbestos Awareness training campaign at SFU will be carried out by an asbestos specialist with expertise in the area and will include:

- An asbestos awareness campaign, including health effects and elements of risk.
- Legal requirements (WorkSafeBC regulations).
- Roles and responsibilities.
- Training in the use of protective clothing and equipment, work procedures and air monitoring.
- An awareness of the AECP.

Refresher training will be provided by EHS and is mandatory for all Project Managers and employees that may come into contact with ACMs during the course of their work.

4.7 Waste Management

All asbestos-containing materials will be bagged and labelled by the asbestos abatement contractor and will be disposed of in accordance with the current WorkSafeBC regulations and guidelines.

Asbestos waste includes:

- Asbestos-containing materials.
- Asbestos-contaminated debris.
- Disposable coveralls and boots used during asbestos work.
- Sponges and other disposable cleaning materials used during the work.
- Plastic drop sheets used during the work.
- HEPA vacuum bags used during the work.

Asbestos waste must be stored in a sealed, lockable container. It must be transported to the disposal facility by a licensed hazardous waste carrier for the Province of British Columbia in accordance with the requirements of the Ministry of the Environment Hazardous Waste Regulation.

The handling and loading of asbestos waste must be undertaken in accordance with established low risk procedures.
All asbestos waste shall be disposed of in a duly authorized hazardous waste landfill. In order to ship hazardous waste, the contractor must first obtain SFU’s exclusive Special Waste Generator number. This number must accompany all waste generator manifests when material is being shipped for disposal.

The responsibility to complete the waste manifest for transportation is that of the owner (SFU), however this will be assigned to the Contractor conducting the work. EHS will retain one copy of the completed manifest.

5 Reference Material and Applicable Legislation

The following is a list of reference material and applicable regulations for further information:

- SFU Environmental Health and Safety
  - [http://www.sfu.ca/ehs.html](http://www.sfu.ca/ehs.html)

- WorksafeBC OHSR Part 6
  - [http://www2.worksafebc.com/publications/OHSRegulation/Part6.asp#SectionNumber:6.16](http://www2.worksafebc.com/publications/OHSRegulation/Part6.asp#SectionNumber:6.16)

- WorkSafeBC Guidelines Part 6
  - [http://www2.worksafebc.com/publications/OHSRegulation/Part6.asp#SectionNumber:6.16](http://www2.worksafebc.com/publications/OHSRegulation/Part6.asp#SectionNumber:6.16)

- WorkSafeBC: Safe Work Practices for Handling Asbestos

- BC Hazardous Waste Regulation
  - [http://www.bclaws.ca/Recon/document/ID/freeside/63_88_00](http://www.bclaws.ca/Recon/document/ID/freeside/63_88_00)
Appendix A

Protocol for Fire Doors Suspected of Containing Asbestos and Door Visual Inspection and Sampling Procedure
Protocol for Fire Doors – Suspected of Containing Asbestos

Any material containing asbestos must not be disturbed by maintenance or service personnel, contracted trades, residents or building occupants until the work has been reviewed and authorized by EHS. Only suitably trained and qualified personnel familiar with current asbestos safety precautions will be permitted to work on the material. Materials not labelled as containing asbestos, shall be considered asbestos-containing until analysis is completed and results are reviewed.

Suspected Fire Doors containing Asbestos Materials

Fire doors are a suspect asbestos-containing building material. There may be occasion to work on fire doors that could contain asbestos.

Guidance for Door Identification

Fire doors are most likely to be located in the following locations:
- Where a door has an EXIT sign on or around it
- Where a door leads to exit stairwells
- Where a door leads to a hazardous area such as flammable storage
- Where a door leads to a hallway or from one fully enclosed room to another
- Where a door is located at the entrance to a boiler, electrical or mechanical room
- Where a door is located in a fire wall or fire separation

Assessment Prior to Servicing

In the event that a suspect fire door must be serviced in a manner that may disturb the core of the door (e.g. drilling into the core, cutting, abrading, etc.), the following steps should be taken to determine whether asbestos is present:

1. Examine the plate or label on the door spine. The door core material may be listed on this plate. The information on the plate may be used to confirm the presence of asbestos, but the plate alone is not sufficient to determine that asbestos is not present.
2. Contact the manufacturer for information on materials of construction.
3. Contact EHS to verify if any building records exist for previous bulk samples of the location. EHS, if necessary, will arrange for a consultant to sample the door core material for asbestos content.
Visual Inspection and Sampling of Fire Door Cores

The following inspection procedure is to be adhered to prior to any disturbance or other door maintenance activities. This procedure is in addition to any requirements imposed by Simon Fraser University’s Asbestos Exposure Control Program (ECP). The procedures listed in the ECP must be followed at all times when dealing with asbestos or suspected asbestos-containing materials. The following steps are the components of the door inspection and sampling methods to be used to inspect and sample all doors for the possible presence of asbestos prior to disturbance of the door’s core. Inspection and sampling must be conducted by a qualified person, using appropriate Moderate Risk Asbestos precautions as listed below.

Equipment

1. Half-mask respirator with P100 filter,
2. Tyvek suit,
3. Drill bits, of appropriate size to fit inside screw hole,
4. Water spray bottle, wet wipes,
5. Screwdriver (non-powered),
6. Sealable bags, such as Ziplock or other,
7. HEPA-equipped vacuum cleaner, D.O.P. tested at least yearly,
8. Establish a wash up station at the perimeter of the work area comprising a bucket or pail with arm, clean water, sponge, soap, and towels,
9. Disposable plastic drop sheets.

Inspection Procedure

1. Ensure that the area is vacated while inspection or sampling takes place,
2. Install asbestos warning barrier tape at a minimum of 10’ from the door to be inspected or sampled (e.g., attach tape to chairs to block off area),
3. Place drop sheet under door to be inspected,
4. Put on tyvek suit,
5. Don mask, perform pressure check(s),
6. Tape an open re-sealable bag (Zip lock or other) directly below the hinge,
7. Slowly unscrew one of the screws attaching the hinge to the door,
8. Mist the material lightly with water during inspection to prevent fibre release, insert the drill bit into the screw hole, scraping out a portion of the door’s core directly into the plastic bag,
9. If the door’s core is visually identified as wood, repeat the procedure on another screw on the hinge,
10. If only wood core is found in the second hole, the door can be considered wood-core, and work may proceed normally on the door,
11. If a material other than wood is discovered follow the sampling procedures below.
Sampling and Decontamination Procedure

12. Mist the general surface/area to be sampled, and do not disturb the material any more than is required to facilitate sampling (do not saturate the sample),
13. Carefully remove a piece of the material no larger than a thimble for analysis and place in sealed zip lock bag or sampling vial,
14. Wet wipe the sampling drill bit or other sampling tools used. If it cannot be cleaned completely, place it in double sample bags for further cleaning. Sampling equipment must be thoroughly cleaned prior to the next use to avoid cross-contaminating samples,
15. Reinstall the screw(s) in the door hinge,
16. HEPA-vacuum the drop sheet, place in asbestos waste bag for disposal. Double bag this waste,
17. Remove tyvek suit slowly while turning the outer surface inward to prevent cross contamination of clean areas and place in an asbestos waste bag for disposal.
18. Remove mask, wipe it down with wet wipes and seal the filter inlets with duct tape,
19. Wash hands and face and any potentially contaminated area at wash station,
20. Remove asbestos barrier tape once all asbestos-containing and asbestos-contaminated materials and debris have been bagged appropriately and are ready for disposal,
21. The bulk samples collected and asbestos waste generated will be transferred to the designated holding area. The department supervisor and the Environmental Health & Safety Department must be notified after each sample is collected. The samples will be picked up for analysis from this area accompanied by the consultant's chain of custody form with a copy going to the Environmental Health & Safety Department.

Labelling of Samples

Samples should be identified with the following

1. Name of sampler
2. Date
3. Identifying information about the door sample. I.e. North West Door, Room #135, Gymnasium, 1st Floor.
4. Description of sample. I.e. White Powder, from Core of Door
Appendix B

Emergency Clean Up Work Procedures
Emergency Clean Up Procedures

Special precautions will be required in order to minimise the spread of asbestos fibres in the event of an inadvertent disturbance of asbestos-containing materials. In the event of a fibre release episode, the following procedures are to be observed.

a) Nobody is to attempt to clean up the asbestos-containing materials without prior authorization from Environmental Health and Safety.

b) Isolate the area from the rest of the building by closing doors and erecting barriers to restrict access to the area.

c) Post signs at all conceivable entrances to the area to prevent personnel not involved in the clean up operation from inadvertently entering the area.

d) Where practicable all heating, ventilation and air conditioning system (HVAC) components that are present within the area or supply or pass through the area must be shut down and isolated. All intake and exhaust vents in the area will be sealed with polyethylene and tape to prevent air movement and contamination of these systems.

e) EHS must be contacted:

Program Manager, Hazardous Building Materials
Environmental Health & Safety
Tel: 778-782-6558

Director, Occupational Health & Trades Safety
Environmental Health & Safety
Tel: 778-782-4978

EHS and Facilities Operations will arrange for the cleanup to be performed in a manner that ensures that safe work practices in accordance with WorkSafeBC are followed and that the work is carried out by trained and competent personnel. Wherever practical, a qualified asbestos abatement contractor should be contacted to deal with the asbestos.

Emergency Response Kit

Maintenance workers should prepare an emergency response kit for work involving asbestos-containing materials. Typically, the kit will include the following:

- Vacuum equipped with HEPA filter.
- Disposable plastic drop sheets.
- Sponges, buckets and cleaning supplies.
- Asbestos waste disposal bags.
- Duct tape.
- Disposable coveralls and boots.
- Warning signs and barrier tape.
- Ladders, tools and other appropriate equipment required in the work area.
Appendix C

Bulk Sampling Procedures
Bulk Sample Collection Procedures

The first step towards developing an Asbestos Exposure Control Plan (AECP) is to conduct an asbestos survey. The survey involves collecting representative samples of materials throughout the building and a preliminary investigation of the building was carried out by Pacific Environmental Consulting Services.

The following steps are the components of the bulk sample collection method conducted for the premises. These procedures are also to be used to collect additional samples for specific projects or additional sampling of unidentified materials should that be necessary.

- All persons working in the immediate area of the sampling will be informed as to the nature of the work being carried out and suitable precautions will be taken to prevent them from being exposed to airborne asbestos fibres. If practicable, only the person collecting the material (sample) should be present in the area.

- The material should be sampled when the area is not in use. Only persons needed for sampling should be present in the immediate area.

- The use of a respirator during sampling is required, since there is a potential to exceed the occupation exposure limit of airborne asbestos fibres.

- The material to be sampled must be sprayed with a light mist of water to prevent fibre release during sampling and the material must not be disturbed any more than absolutely necessary.

- Representative samples shall be taken from within the suspect materials by penetrating the entire depth of the material down to the substrate it is adhered to. Samples should be taken from each homogenous area in accordance with the “Bulk material sample collection guide” table found in the “Safe Work Practices for Handling Asbestos”, WorkSafeBC 2017 edition. Mechanical insulation must be sampled on all straight runs, elbows and fittings on piping as well as from tanks, vessels, boilers, compressors and furnaces.

- If pieces of material break off during sampling, the contaminated area must immediately be cleaned up with a vacuum cleaner equipped with a High Efficiency Particulate Aerosol (HEPA) Filter or by wet cleaning. Small amounts of material must be placed in plastic ziplock bags, labelled, sealed and disposed of as asbestos waste, using the approved waste disposal procedure.

Samples shall be submitted to a qualified laboratory for analysis. Laboratories selected shall use a combination of both Polarized Light Microscopy (PLM) and Dispersion Staining following the Analytical Method 205 of WorkSafeBC.

The laboratory selected will have a Quality Assurance Program in place consisting of:

- Intra-laboratory re-analysis of samples.
- Regular checks for contamination.
- Regular calibration of microscopes.
- Complete sample records and storage of samples and records.
In addition, all staff performing analysis will have been trained in a documented and thorough in-house training program or an approved accredited Asbestos Analysis course.

**Documentation of Results**

The results (whether positive or negative for asbestos-containing) shall be documented in a readily accessible format and shall be available to building maintenance staff, contractors and any workers likely to come into contact with asbestos-containing materials during the course of their work. The report should include:

- A list of all materials containing asbestos with an approximate quantity of each.
- Comprehensive results of bulk sample analysis.
- Description by room number or location of all sample locations.
- A list of materials requiring prompt removal due to severe deterioration.
- A list of materials requiring minor removal or repair due to slight deterioration.

The asbestos survey report will be in the custody of EHS and FS, who will inform all workers likely to disturb any asbestos-containing material through the identification system. This will permit them to use appropriate procedures to protect both themselves and other building occupants from the release of any airborne asbestos fibres. Ready access to all sample analysis results and this AECP plan must be provided to all workers who may come into contact with asbestos during the course of their employment.

**Visual Re-Evaluation**

All asbestos-containing materials identified in the survey shall be re-inspected visually on an annual basis. The re-inspection shall be performed by either the same person who carried out the initial survey or by another qualified person, as assigned by FS Maintenance and Operations. Further bulk samples will not be needed unless it is to keep in compliance with new WorkSafeBC Regulations, but the re-evaluation must encompass all factors originally noted and should concentrate on any signs of deterioration, delamination or disturbance to the materials. In the event of disturbance of friable material by water leak, structural failure or other unforeseen occurrence, all asbestos in the area shall be re-evaluated promptly.

Any recommendations made as a result of these inspections will include details regarding the priority, nature and extent of any corrective actions.

Common corrective actions are:

- Encapsulation of damaged or exposed materials.
- Repair of damaged asbestos materials.
- Removal of damaged or exposed materials.

It is essential that maintenance procedures and contract documents include information regarding the presence of asbestos-containing materials. Consideration must be given to the need for protection of maintenance and service workers that may be affected by work as well as the safety of building occupants.