

Part 1 General

1.1 SUMMARY

- .1 Comply with requirements of this Section when performing the following Work:
 - .1 Removing more than 7.5 square metres of asbestos containing suspended ceiling tiles, as indicated; without being broken, cut, drilled, abraded, or ground.
 - .2 Do not allow asbestos fibres to be discharged to the air. Air at and adjacent to the Asbestos Abatement Work Area will be monitored by the PSPC Representative and must report asbestos levels not exceeding 0.05 fibres/cm³, 0.01 fibres/cm³ if negative air machine is discharged inside the building, as determined by National Institute of Occupational Safety and Health (NIOSH) Method 7400-A Phase Contrast Microscopy (PCM) report.

1.2 RELATED REQUIREMENTS

- .1 Section 01 33 00: Submittal Procedures.
- .2 Section 01 35 29: Health and Safety Requirements.
- .3 Section 01 74 21: Construction/Demolition Waste Management & Disposal.
- .4 Section 02 82 00.01: Asbestos Abatement – Minimum Precautions.

1.3 REFERENCE STANDARDS

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.205-94, Sealer for Application of Asbestos Fibre Releasing Materials.
- .2 Department of Justice Canada (Jus)
 - .1 Canadian Environmental Protection Act, 1999 (CEPA).
 - .2 Canada Occupational Health and Safety Regulations, last amended June 2019 (COHS)
- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .4 Transport Canada (TC)
 - .1 Transportation of Dangerous Goods Act, 1992 (TDGA).
- .5 Underwriters' Laboratories of Canada (ULC)
- .6 Nova Scotia Labour and Advanced Education (NSLAE)
 - .1 Occupational Health and Safety Act, S.N.S. 1996, c. 7, last updated in 2016, c.14
 - .2 Occupational Safety General Regulations, amended to N.S. Reg. 53/2013.
 - .3 Workplace Hazardous Materials Information System (WHIMIS) Regulations, amended to N.S. Reg. 64/89.
 - .4 Workplace Health and Safety Regulations, amended to N.S. Reg. 143/2014.

- .5 A Guide to Assessment and Management of Asbestos in the Workplace, November 21, 2013.
- .6 A Guide to Removal of Friable Asbestos Containing Material, November 21, 2013.
- .7 Nova Scotia Environment (NSE)
 - .1 Asbestos Waste Management Regulations, N.S. Reg. 53/95 **as amended to O.I.C. 2017-203 (August 8, 2017), N.S. Reg. 121/2017.**
- .8 Canadian Standards Association (CSA) Standard Z94.4-18, *Selection, Use and Care of Respirators*.
- .9 Public Services and Procurement Canada Asbestos Management Directive, dated June 5, 2017 (updated June 1, 2019).
- .10 Public Services and Procurement Canada Asbestos Management Standard, dated June 5, 2017 (updated June 1, 2019).
- .11 Final Report: Asbestos and Lead Containing Materials Assessment, Canadian Coast Guard College, Sydney, Nova Scotia. Available upon request. Note that in the event of a conflict, information outlined in Section 1.8 supersedes information outlined in the Asbestos and Lead Containing Materials Assessment.
- .12 Final Report: Asbestos Management Plan, Canadian Coast Guard College, 1190 Westmount Road, Sydney, Nova Scotia. Available upon request. Note that in the event of a conflict, information outlined in Section 1.8 supersedes information outlined in the Asbestos Management Plan.

1.4 DEFINITIONS

- .1 Administrator: A person anointed by the minister of the Environment in Nova Scotia.
- .2 Amended Water: water with non-ionic surfactant wetting agent added to reduce water tension to allow wetting of fibres.
- .3 Asbestos-Containing Materials (ACMs): materials that contain 0.5 per cent or more asbestos by dry weight and are identified under Existing Conditions including fallen materials and settled dust. ACM also includes vermiculite identified to contain any amount of asbestos as outlined in the Nova Scotia Guidelines.
- .4 Asbestos Work Area: area where work takes place which will/ or may disturb ACMs.
- .5 Authorized Visitors: PSPC Representatives or designated representative(s), and representative(s) of regulatory agencies.
- .6 Competent worker: in relation to specific work, means a worker who:
 - .1 Is qualified because of knowledge, training, and experience to perform the work.
 - .2 Is familiar with the provincial and/or federal laws and with the provisions of the regulations that apply to the work.
 - .3 Has knowledge of all potential or actual danger to health or safety in the work.
- .7 Friable material: means material that when dry, can be crumbled, pulverized, or powdered by hand pressure, and includes non-friable ACMs that are damaged to the extent that it is crumbled, pulverized or powdered by hand pressure.

- .8 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with filter system capable of collecting and retaining fibres greater than 0.3 microns in any dimension at 99.97% efficiency.
- .9 Non-Friable Material: material that when dry cannot be crumbled, pulverized, or powdered by hand pressure.
- .10 Occupied Area: any area of building or work site that is outside Asbestos Work Area.
- .11 PACM: presumed asbestos-containing material.
- .12 Polyethylene: polyethylene sheeting or fibre-reinforced polyethylene sheeting with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide protection and isolation.
- .13 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must have appropriate capacity for scope of work.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 Submittal Procedures.
- .2 Submit proof satisfactory to PSPC Representative that suitable arrangements have been made to dispose of asbestos containing waste in accordance with requirements of authority having jurisdiction.
- .3 Submit proof of Contractor's Asbestos Liability Insurance.
- .4 Submit to PSPC Representative necessary permits for transportation and disposal of asbestos containing waste and proof that asbestos containing waste has been received and properly disposed.
- .5 Submit proof satisfactory to PSPC Representative that all asbestos workers have received appropriate training and education by a competent person in the hazards of asbestos exposure, good personal hygiene, entry and exit from Asbestos Work Area, aspects of work procedures and protective measures while working in Asbestos Work Areas, and the use, cleaning and disposal of respirators and protective clothing.
- .6 Submit proof that supervisory personnel have attended asbestos abatement course, of not less than two days duration, approved by Submit to the PSPC Representative all copies of manifests/transportation documents. Minimum of one supervisor for every ten workers.
- .7 Submit Worker's Compensation Board status and transcription of insurance.
- .8 Submit documentation including test results, fire and flammability data, and Material Safety Data Sheets (MSDS) for chemicals or materials including:
 - .1 Encapsulants;
 - .2 Amended water;
 - .3 Slow drying sealer.
- .9 Submit proof satisfactory to PSPC Representative that employees have respirator fitting and testing. Workers must be fit tested with respirator that is personally issued.

1.6 QUALITY ASSURANCE

- .1 Regulatory Requirements: comply with Federal, Provincial/Territorial, and local requirements pertaining to asbestos, provided that in case of conflict among these requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at the time work is performed.
- .2 Health and Safety:
 - .1 Do construction occupational health and safety in accordance with Section 01 35 29 Health and Safety Requirements.
 - .2 Safety Requirements: worker and visitor protection.
 - .1 Protective equipment and clothing to be worn by workers while in Asbestos Work Area include:
 - .1 Air purifying half-mask respirator with N-100, R-100 or P-100 particulate filter, personally issued to worker and marked as to efficiency and purpose, suitable for protection against asbestos and acceptable to Provincial Authority having jurisdiction. The respirator to be fitted so that there is an effective seal between the respirator and the worker's face, unless the respirator is equipped with a hood or helmet. The respirator to be cleaned, disinfected, and inspected after use on each shift, or more often if necessary, when issued for the exclusive use of one worker, or after each use when used by more than one worker. The respirator to have damaged or deteriorated parts replaced prior to being used by a worker; and, when not in use, to be stored in a convenient, clean, and sanitary location. The employer to establish written procedures regarding the selection, use and care of respirators, and a copy of the procedures to be provided to and reviewed with each worker who is required to wear a respirator. A worker not to be assigned to an operation requiring the use of a respirator unless he or she is physically able to perform the operation while using the respirator.
 - .2 Disposable type protective clothing that does not readily retain or permit penetration of asbestos fibres. Protective clothing to be provided by the employer and worn by every worker who enters the work area, and the protective clothing to consist of a head covering and full body covering that fits snugly at the ankles, wrists and neck, in order to prevent asbestos fibres from reaching the garments and skin under the protective clothing. It includes suitable footwear, and it to be repaired or replaced if torn.
 - .3 Eating, drinking, chewing, and smoking are not permitted in Asbestos Work Area.

- .4 Before leaving Asbestos Work Area, the worker must decontaminate his or her protective clothing by using a vacuum equipped with a HEPA filter, or by damp wiping, before removing the protective clothing and placing it in a container for dust and waste. The container to be dust tight, suitable for asbestos waste, impervious to asbestos, identified as asbestos waste, cleaned with a damp cloth or a vacuum equipped with a HEPA filter immediately before removal from the work area, and removed from the work area frequently and at regular intervals.
- .5 Ensure workers wash hands and face when leaving Asbestos Work Area. Facilities for washing are located will be determined on-site and must be verified by the PSPC Representative.
- .6 Ensure that no person required to enter an Asbestos Work Area has facial hair that affects seal between respirator and face.
- .7 Visitor Protection:
 - .1 Provide protective clothing to Authorized Visitors to work areas.
 - .2 Authorized Visitors shall provide their own respirators and are responsible to be in compliance with the CSA Standard Z94.4-18.
 - .3 Instruct Authorized Visitors in the use of protective clothing and procedures.
 - .4 Instruct Authorized Visitors in proper procedures to be followed in entering into and exiting from Asbestos Work Area.

1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling or reuse in accordance with Section 01 74 21 Construction/Demolition Waste Management and Disposal.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal packaging material in appropriate on-site bins for recycling in accordance with Section 01 74 21 Construction/Demolition Waste Management and Disposal.
- .4 Separate for recycling and/or reuse and place in designated waste containers in accordance with Section 01 74 21 Construction/Demolition Waste Management and Disposal.
- .5 Place materials defined as hazardous or toxic in designated container.
- .6 Handle hazardous materials in accordance with the CEPA, TDGA, Provincial and Municipal regulations.
- .7 If applicable, fold up metal banding, flatten and place in designated area for recycling.
- .8 Disposal of asbestos waste generated by removal activities must comply with Federal, Provincial, Territorial and Municipal regulations. Dispose of asbestos waste in sealed double thickness 0.15 mm bags or leak proof drums. Label containers with appropriate warning labels.
- .9 The asbestos-containing ceiling will be stacked and wrapped with 0.15 mm poly sheeting. The bundles shall be sealed, wet-wiped or HEPA vacuumed before exit from the work area. The bundles will then be wrapped again with 0.15 mm poly sheeting and labeled with appropriate warning labels.

- .10 Before sending asbestos containing products for disposal, the Contractor shall arrange with the PSPC Representative to coordinate with for inspection. This shall be done before any asbestos containing material leaves the property.
 - .1 The Contractor's request shall be made a minimum of 72 hours prior to the actual shipment date. Direct contact through in-person or phone conversation with the PSPC representative is required (i.e. phone messages, email, text messages, etc. do not constitute direct contact).
 - .2 The Contractor shall provide the following information to the PSPC Representative prior to the shipment date:
 - .1 When (date, time and location).
 - .2 Name of carrier/transporter and the carrier/transporters registration number.
 - .3 Intended receiver, their location and approval number.
 - .4 Type of vehicle being used to transport.
 - .5 Name of authorized driver, their contact information and their TDG certificate.
 - .6 Quantity of asbestos waste to be shipped (i.e. number of asbestos waste bags).
 - .3 The Contractor is responsible to maintain the integrity of the sealed double thickness 0.15 mm bags. Any tears/punctures shall be repaired immediately.
- .11 Provide manifests describing and listing waste created. Transport containers by approved means to licenced landfill for burial.

1.8 EXISTING CONDITIONS

- .1 ACMs have been identified in the form of "lay-in" acoustic ceiling tiles. For this project, ceiling tiles are being removed:

Description	Quantity	Location(s)
2' x 2' and 2' x 4' "lay-in" acoustic ceiling tiles with pinholes and fissures Note: some ceiling tiles have fibreglass batt with a second ceiling tile overtop	975 m ²	Building CG1 – 2313/2313A, 2321, 2323/2323A, 2802/2802C/2802D/2802E, 3110, 3111, 3112, 3114, Corridor A302, 3117, 3121, 3137/3137A, 3141, 4145, Corridor B430

Note:

- Quantities are approximations and should not be used for tendering purposes.
 - Not all tiles in each room are the same, where visually similar tiles have been confirmed to be asbestos containing all tiles in a room are to be treated as asbestos containing.
 - Non-asbestos containing building materials considered to be porous (e.g. fibreglass, carpet, etc) that are contaminated with asbestos dust/debris are to be treated as friable ACMs.
- .2 Reports and information pertaining to ACMs to be handled, removed, or otherwise disturbed and disposed of during this project can be provided by the PSPC Representative upon request.

- .3 Notify PSPC Representative of friable material discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material pending instructions from PSPC Representative.

1.9 SCHEDULING

- .1 Hours of Work: Abatement work may take place during normal office hours (0700 to 1600 hrs), or outside of normal office hours.
- .2 Before beginning Work on this Project notify the following in writing with copies to PSPC Representative:
 - .1 The Administrator.
 - .2 Disposal Authorities (e.g. municipal landfill, C&D Site, etc.).
- .3 Inform sub-trades of presence of friable Asbestos-Containing Materials identified in Section 1.8 of this specification.

1.10 PERSONNEL TRAINING

- .1 Before beginning Work, provide PSPC Representative satisfactory proof that every worker has had instruction and training in hazards of asbestos exposure, in personal hygiene and work practices, and in use, cleaning, and disposal of respirators and protective clothing.
- .2 Instruction and training related to respirators includes, at minimum:
 - .1 Fitting of equipment.
 - .2 Inspection and maintenance of equipment.
 - .3 Disinfecting of equipment.
 - .4 Limitations of equipment.
 - .5 Instruction and training must follow the guidance prescribed in the CSA Standard Z94.4-18.
- .3 Instruction and training must be provided by competent, qualified person.

Part 2 Products

2.1 MATERIALS

- .1 Drop and Enclosure Sheets:
 - .1 Polyethylene: 0.15 mm thick.
 - .2 Fibre Reinforced polyethylene: 0.15 mm thick woven fibre reinforced fabric bonded both sides with polyethylene.
- .2 Wetting Agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with water in concentration to provide thorough wetting of asbestos containing material.
- .3 Waste Containers: contain waste in two separate containers.
 - .1 Inner container: 0.15 mm thick sealable polyethylene waste bag.

- .2 Outer container: sealable metal or fibre type where there are sharp objects included in waste material; otherwise outer container may be sealable metal or fibre type or second 0.15 mm thick sealable polyethylene bag.
- .3 Labelling requirements: affix pre-printed cautionary asbestos warning, in both official languages, that is visible when ready for removal to disposal site.
- .4 Tape: tape suitable for sealing polyethylene to surfaces under both dry and wet conditions using amended water.
- .5 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual asbestos fibres.
- .1 Sealer: flame spread and smoke developed rating less than 50 and be compatible with new fireproofing.

Part 3 Execution

3.1 SUPERVISION

- .1 Minimum of one Supervisor for every ten workers is required.
- .2 Approved Supervisor must remain within Asbestos Work Area during disturbance, removal, or other handling of asbestos-containing materials.

3.2 PROCEDURES

- .1 Do construction occupational health and safety in accordance with Section 01 35 29 Health and Safety Requirements.
- .2 Within 10 days of the Contract award and prior to beginning any work on the site, submit detailed plans for the removal of the asbestos containing material.
 - .1 Included in the plan will be full details of a comprehensive plan for all aspects of asbestos containing removal, sufficient to clearly demonstrate a full understanding of the task.
- .3 Before beginning Work, at each access to Asbestos Work Area, install warning signs in both official languages in upper case 'Helvetica Medium' letters reading as follows, where number in parentheses indicates font size to be used: 'CAUTION ASBESTOS HAZARD AREA (25 mm) / NO UNAUTHORIZED ENTRY (19 mm) / WEAR ASSIGNED PROTECTIVE EQUIPMENT (19 mm) / BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM (7 mm)'.
- .4 When appropriate before beginning Work remove visible dust from surfaces in work area where dust is likely to be disturbed during course of work.
 - .1 Use HEPA vacuum or damp cloths where damp cleaning does not create hazard and is otherwise appropriate.
 - .2 Do not use compressed air to clean up or remove dust from any surface.
- .5 Prevent spread of dust from Asbestos Work Area using measures appropriate to work to be done.
 - .1 Use fibre reinforced polyethylene drop sheets sealed to walls and floors.

- .2 When removing asbestos containing suspended ceilings that do not enclose work area Contractor is to erect enclosure of polyethylene sheeting around work area, shut off mechanical ventilation system serving work area and seal ventilation ducts to and from work area.
- .6 Remove loose material by HEPA vacuum; thoroughly wet friable material containing asbestos to be removed or disturbed before and during Work unless wetting creates hazard or causes damage.
 - .1 Use garden reservoir type low - velocity sprayer or airless spray equipment capable of producing mist or fine spray.
 - .2 Perform Work in a manner to reduce dust creation to lowest levels practicable.
- .7 Cleanup:
 - .1 Frequently during Work and immediately after completion of work, clean up dust and asbestos containing waste using HEPA vacuum or by damp mopping.
 - .2 Place dust and asbestos containing waste in sealed dust tight waste bags. Treat drop sheets and disposable protective clothing as asbestos waste and wet and fold to contain dust and then place in waste bags.
 - .3 Immediately before their removal from Asbestos Work Area and disposal, clean each filled waste bag using damp cloths or HEPA vacuum and place in second clean waste bag.
 - .4 Seal and remove double bagged waste from site. Dispose of in accordance with requirements of Provincial/Territorial and Federal authority having jurisdiction. Supervise dumping and ensure that dump operator is fully aware of hazardous nature of material to be dumped and that guidelines and regulations for asbestos disposal are followed.
 - .5 Perform final thorough clean-up of Asbestos Work Areas and adjacent areas affected by Work using HEPA vacuum.
- .8 A final inspection shall be carried out by the PSPC Representative to verify that all asbestos containing materials have been removed and that no dust or debris remains on surfaces as a result of removal activities.
 - .1 Work is subject to visual inspection. Contamination of surrounding areas indicated by visual inspection or air monitoring will require additional asbestos abatement to be completed following Asbestos Abatement (Maximum Precautions).
 - .2 Work may be subject to air monitoring. Do not allow asbestos fibres to be discharged to the air. Air at and adjacent to the Asbestos Abatement Work Area may be monitored by the PSPC Representative and must report asbestos levels not exceeding 0.05 fibres/cm³, or 0.01 fibres/cm³ if negative air is discharged into the building as determined by NIOSH Method 7400-A Phase Contrast Microscopy (PCM) report.
 - .3 If applicable, requirements for clearance air testing shall be in compliance with latest Nova Scotia guidance documents.
- .9 Copies of the weigh-bills/manifests and bill of lading are required to be submitted to the PSPC Representative to demonstrate proof of proper disposal.

3.3 AIR MONITORING

- .1 From beginning of Work until completion of cleaning operations the PSPC Representative will collect air samples from within the work area or outside the Asbestos Abatement Work Area.
- .2 If air monitoring shows that areas outside Asbestos Work Area enclosures are contaminated, enclose, maintain and clean these areas in same manner as that applicable to Asbestos Work Area.
- .3 Ensure that respiratory safety factors are not exceeded in accordance with the CSA Standard Z94.4-18.
- .4 During the course of Work, PSPC Representative will measure fibre content of air outside Work areas by means of air samples analyzed by Phase Contrast Microscopy (PCM).
 - .1 Stop Work when PCM measurements exceed 0.05 fibre/cm³ or 0.01 fibre/cm³ if negative air discharge is directed into the occupied building and correct procedures.
- .5 Final air monitoring will be conducted as follows:
 - .1 After the Asbestos Abatement Work Area has passed visual inspection and an acceptable coat of lock-down agent has been applied to surfaces within enclosure, and appropriate setting period has passed, final air monitoring will be completed.
 - .2 Final air monitoring shall be in compliance with latest Nova Scotia guidance documents and results must show fibre levels of less than 0.01 fibre/cm³.
 - .3 If air monitoring results show fibre levels in excess of 0.01 fibre/cm³, re-clean work area and apply another acceptable coat of lock-down agent to surfaces.
 - .4 Repeat as necessary until fibre levels are less than 0.01 fibre/cm³.

END OF SECTION