



Asbestos Management Plan Meductic Municipal Building

17 School Street
Meductic, New Brunswick

Prepared For:
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CAO/Clerk
Municipality of Lakeland Ridges
199 Main Street
Canterbury, NB
E6H 1M6

December 16, 2025

ALL-TECH Project No.: NB6760

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1. Preface

The Asbestos Management Plan is required to ensure that asbestos-containing material is managed and controlled, to reduce the risk of damaging asbestos-containing material, and potential occupant exposure to airborne asbestos fibres. The Asbestos Management Plan is to be reviewed and updated to reflect changes in policy and regulations at a minimum every 5 years, **or more frequently if required.**

The Asbestos Management Plan is also required in order to comply with Section 4 of *A Code of Practice for Working with Materials Containing Asbestos in New Brunswick, Referenced in New Brunswick General Regulation 91-191 Under the Occupational Health and Safety Act, June 2023.*

As well as the following provincial regulations governing the safe work environment for employees, public and contractors visiting or working in a building containing asbestos:

- *A Code of Practice for Working with Materials Containing Asbestos in New Brunswick, Referenced in New Brunswick General Regulation 91-191 Under the Occupational Health and Safety Act, June 2023*
- Disposal of Friable Asbestos, Province of New Brunswick

The Asbestos Management Plan (AMP) will perform several functions.

- To act as a common term of reference for the safe operation and management of a facility with asbestos-containing materials.
- To be a central depository of information for each facility.
- To act as a control mechanism to ensure compliance.
- To communicate roles and responsibilities of those required to work with or around asbestos-containing materials.
- To communicate the accepted departmental procedures for working with asbestos-containing materials.

This document provides information, procedures, and work practices necessary for the Asbestos Management Plan (AMP) to be functional. The AMP sets guidelines for all facility maintenance, alteration, repair or other activities that may disturb asbestos; and provides ongoing re-assessment of friable asbestos materials. If continuing disturbance or severe deterioration of friable asbestos is indicated, the material will be removed. Major renovations will be preceded by total removal of asbestos-containing materials in the project area if practical.

The AMP describes in general work practices for minor disturbance of asbestos-containing materials (*Low and Moderate risk*). This document is divided so that specific sections can be copied and provided to the worker or contractor performing the work. The AMP includes policies for inspection of work, air monitoring, and worker training.

The AMP does not describe work procedures for major asbestos removal. Such removals are classified as *High risk*. These procedures generally require an experienced contractor to execute and therefore are not detailed within this AMP document. This type of work usually requires “project specific approach” and therefore should be coordinated and monitored by the Asset Manager, or Property and Facility Manager with the assistance of the Regional Asbestos Coordinator.

2. Definitions

Abatement: control or attend to.

Amended water: water which has been treated with a chemical agent to enhance the wetting of asbestos material prior to removal.

Area by area survey: survey of large areas where each plane (aspect/characteristic) within the area is sampled visually and scientifically tested for the presence of asbestos containing materials, i.e., corridors, assembly areas, total basement, boiler rooms, etc.

Asbestos: a generic name given to a number of naturally occurring hydrated mineral silicates. These silicates are incombustible, separate into fibres and have a unique crystalline structure. Specific types of fibrous silicates: Actinolite, Amosite, Anthophyllite, Chrysotile, Crocidolite, Tremolite.

Asbestos-Containing Material (ACM): means any material found to contain asbestos that is at or above the limit defined by provincial standards (1 % Province of New Brunswick), as determined by the standard Polarized Light Microscopy (PLM) method for the analysis of bulk samples.

Asbestos work area: area where work is being performed which will or may disturb asbestos-containing material, including overspray and fallen material or settled dust that may contain asbestos.

Contractor: a person or entity who performs work for and/or supplies services to the owner for monetary compensation, either by undertaking the work alone, by employing one or more workers, or by contracting the services of one or more workers.

Employer representative: a person who acts on behalf of the employer department, as designated by the department. This means that each department located in a building has a representative who communicates with their department's Joint Health and Safety Committee in compliance with Section 4 of *A Code of Practice for Working with Materials Containing Asbestos in New Brunswick, Referenced in New Brunswick General Regulation 91-191 Under the Occupational Health and Safety Act, June 2023*.

Encapsulation: application of a liquid sealant to asbestos-containing material; the sealant may penetrate and harden the material or cover the surface with a protective coating (bridging sealants). Also called encasement.

Enclosure: a structure made of polyethylene or other suitable material to prevent the spread of asbestos containing material from the work area.

Friable material: can be crushed, crumbled, or reduced to a powder by hand pressure when dry.

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.

HEPA Vacuum: High Efficiency Particulate Air Filter Vacuum. For the purposes of asbestos abatement, a HEPA filter must be rated at least 99.97% efficient in collecting and retaining a 0.3 micrometre particle.

Phase Contrast Microscopy (PCM): Phase contrast microscopy approved method for measurement of airborne particulate matter.

Polarized Light microscopy (PLM): Polarized light microscopy method of detection for asbestos in bulk samples.

Qualified person: a person who:

- has the required knowledge, training and experience to organize the work and its performance.
- is familiar with all legislation and regulations that apply to the work.
- has knowledge of any potential or actual danger to health or safety in the workplace.

Respirators: Respirators must be NIOSH approved and acceptable to the Provincial Authorities having jurisdiction. Respirators must be approved for protection against asbestos. Check for NIOSH certification. Please refer to CSA Z94.4-02, Selection, Care and Use of Respirators. See Appendix E.

Room by room survey: survey of individual rooms where each plane (aspect/characteristic) within the room is sampled visually and scientifically tested for the presence of asbestos containing material.

Transmission Electron microscopy (TEM): method of detection used for positive identification of asbestos fibres via the use of an electron microscope.

Workplace: any place where an employee is engaged in work for the department.

Workplace Health and Safety Committee / Joint Health and Safety Committee: as defined in NB Regulations Titled Occupational Health and Safety Act (S.N.B. 1983, c.O-0.2)

Vermiculite: silicate mineral with a layered (mica-like) morphology which may range in colour from silvery-blond to dark grey, brown. For the purposes of this document, vermiculite with concentration of asbestos measured greater than 1% in a composite sample taken in accordance with WorkSafe NB sampling and analysis standards will be considered an asbestos-containing material.

3. Contact List

Meductic Municipal Building, 17 School Street, Meductic, New Brunswick			
Position	Name	Address	Contact Information
Primary Asset, Property, and Facility Manager Primary Asbestos Coordinator Primary Project Manager	Susan Patterson	17 School Street Meductic, NB E6H 1J5	Phone: 506-279-6248 Cell: 506-328-7920 E-mail: spatterson@lakelandridges.ca
Assistant Asset, Property, and Facility Manager Assistant Asbestos Coordinator Assistant Project Manager	Lana Sharpe	17 School Street Meductic, NB E6H 1J5	Phone: 506-279-6248 Cell: 506-612-3897 Email: lsnarpe@lakelandridges.ca
Building Systems Technicians			Please contact above if required

4. Building Specific Information

Building I.D. number	Construction Date
Meductic Municipal Building	1954
Address	
17 School Street, Meductic, NB E6H 1J5	
Configuration	Occupancy
Fire Station, EMO centre, Offices & Community Centre	Up to 75 Persons
Primary Use	
Fire Station and Municipal Offices	
Gross Area	Usable Area
Approx. 12,500 ft ²	Approx. 12,500 ft ²
Structural System	
Wood, Concrete	
Exterior Cladding	
Vinyl, Concrete	

5. Summary of Asbestos in the Building

5.1 Previous surveys prepared for these facilities

- *Asbestos Identification, Site Location: Meductic Community Center*, (Reference # 561519-AQS) prepared by RPC, Dated August 8, 2025
- *Asbestos-Containing Building Materials Assessment and Limited Hazardous Building Materials Assessment, 17 School Street, Meductic, New Brunswick*, (Project # NB6760) prepared by ALL-TECH Environmental Services Limited, Dated December 10, 2025

5.2 Summary of materials present in this facility

- ***Please also see Reports as specified above for additional information.***
- Pipe parging fittings (elbows, tees, hangers, flanges, valve fittings, seams, etc.) (friable) located throughout the basement level and potentially in other wall/ceiling cavities including the top floor.
- Mechanical insulation (friable) on boiler and hot water tank in Boiler Room 010.
- 9"x9" floor tiles (non-friable) observed in Washroom 005, on Stairs 006A, and in Kitchen Storage 007; may be located elsewhere including underneath visible flooring.
- 12"x12" floor tiles (non-friable) observed on the landing of Stairs 006A; may be located elsewhere including underneath visible flooring.
- Floor tiles of unknown dimensions (non-friable) observed at the edge of non-asbestos stick-on vinyl tiles in Room 105A.
- Flooring mastic (non-friable) underneath the above floor tiles, potentially throughout the building.

6. Asbestos Inventory

Include in this section:

Initial inventory spread sheet

Annual reassessment inventory spread sheet

Estimated Quantities of Hazardous Building Materials

17 School Street, Meductic, November 2025

NOTE: ESTIMATED QUANTITIES; CONTRACTORS ARE RESPONSIBLE FOR PROJECT QUANTITIES

Estimated Quantities of Asbestos-Containing Materials

Location	Item	Descriptor (size, color, details)	Quantity (units)			Total
			Good	Fair	Poor	
001	pipe	Parging Cement Fittings (elbows, tees, hangers, flanges, valve fittings, seams) (poor in exterior corner nearest 001A near floor level)	22		2	24
003	pipe	parging fittings (poor each back corner at ceiling)	12		2	14
005	pipe	parging fittings (including in stalls near floor level) (some exposed parging from incomplete covering)	5		2	7
006	pipe	parging fittings (8 good elbows, 4 good tees, 1 poor end entering wall cavity)	12		1	13
007	pipe	parging fitting (capped valve fitting in back right)			1	1
008	pipe	parging fittings (some exposed parging from incomplete covering in back right)	4		1	5
009	pipe	parging fittings (some exposed parging from incomplete covering in back left and front left)	5		2	7
010	pipe	parging fittings (some exposed parging, some incomplete covering, some mouldy; approximate values)	30	5	5	40
011	pipe	parging fittings (includes exposed parging and cracks on elbows, plus exposed hanger)	5		5	10
Grand Totals:			95	5	21	121

***Note: All amounts are an estimate only**

***Note: Possibly more parging in inaccessible areas such as ceiling bulkheads and above fixed ceilings**

Location	Item	Descriptor (size, color, details)	Quantity (square feet)			Total
			Good	Fair	Poor	
010	mechanical	boiler insulation (chip out of back corner on left side)	199		1	200
010	mechanical	hot water tank insulation	150			150
Grand Totals:			349	0	1	350

***Note: All amounts are an estimate only**

Location	Item	Descriptor (size, color, details)	Quantity (square feet)			Total
			Good	Fair	Poor	
005	floor tiles	9"X9" blue-green and grey checker pattern (good tiles; fair is exposed ACM mastic)	175	50		225
006A	floor tiles	9"X9" dark grey on stairs	100			100
006A	floor tiles	12"X12" light green-beige on landing	50			50
007	floor tiles	9"X9" blue-green and off-white checker pattern (good tiles; fair is exposed ACM mastic)	375	15		390
105A	floor tiles	green, mostly covered by stick-on vinly sheet flooring tiles	25			25
Grand Totals:			725	65	0	790

***Note: All amounts are an estimate only**



Estimated Quantities of Identified Lead-Containing Paints

Location	Item	Descriptor (size, color, details)	Quantity (square feet)			Total
			Good	Fair	Poor	
004	wall	pale pink wall (flaking from moisture intrusion)	990		10	1000
005	wall	pale pink wall (flaking from moisture intrusion)	610		15	625
Grand Totals:			1600	0	25	1625

***Note: All amounts are an estimate only**

Observed Quantities of Thermostats with Mercury Vials

Location	Item	Descriptor (size, color, details)	Quantity (units)			Total
			Good	Fair	Poor	
001	mercury vial	in round Lennox units (1 has no cowling)	2			2
006	mercury vial	in removed round unit in box (exposed to potential damage, so listed as poor)			1	1
111	mercury vial	in round Honeywell unit	1			1
Grand Totals:			3	0	1	4

***Note: All amounts are an estimate only**

7. Plans and Drawings

Include in this section:

Initial floor plans and drawings

Changes to floor plans and drawings after annual reassessment



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ASBESTOS LEGEND

-  = CEILING
-  = FLOOR
-  = CEILING AND FLOOR
-  = UNSURVEYED AREA
-  = APPLIANCE
-  = MECHANICAL
-  = PIPE MATERIAL
-  = DUCT WORK
-  = ELECTRICAL
-  = WALL

rev	description	by	date
rev	description	by	date
rev	description	by	date
REA	DESCRIPTION:	BY:	DATE:

CLIENT: MUNICIPALITY OF LAKELAND RIDGES
199 MAIN ST
CANTERBURY, NB
E6H 1M6

SITE: MUNICIPAL OFFICE
17 SCHOOL ST, MEDUCTIC, NB

TITLE: ASBESTOS ASSESSMENT
MEDUCTIC MUNICIPAL OFFICE
BASEMENT

SCALE:	DATE:	DRAWING:	CHECKED:
NTS	09-12-25	TD	TD
PROJECT NO:	DRAWING NO:	REVISION:	
NB6760	01	01	

BACKSTAGE STORAGE 003 [P]

002
STAGE

005
WASHROOM

KITCHEN STORAGE

007
[P]

BOILER ROOM
010

[PM]

011
[P]

011A

001A
EXIT

CONFERENCE / BANQUET HALL (OLD GYM)
001

[P]

004
HALL

006
[P]

006A
STAIRS

008
SERVERY
[P]

009
NEW KITCHEN
[P]



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ASBESTOS LEGEND

-  = CEILING
-  = FLOOR
-  = CEILING AND FLOOR
-  = UNSURVEYED AREA
-  = APPLIANCE
-  = MECHANICAL
-  = PIPE MATERIAL
-  = DUCT WORK
-  = ELECTRICAL
-  = WALL

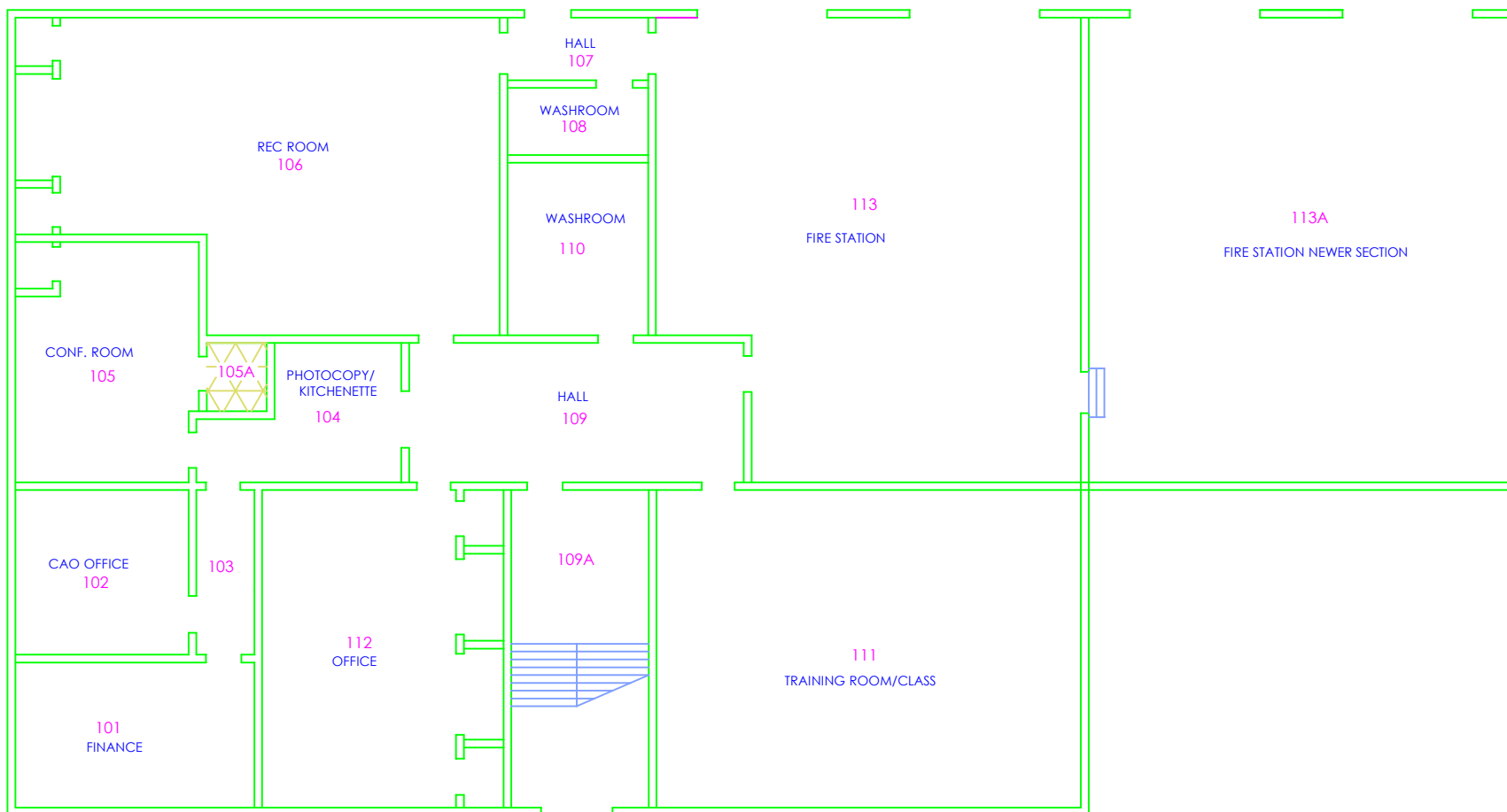
rev	description	by	date
rev	description	by	date
rev	description	by	date
REA	DESCRIPTION	BY	DATE

CLIENT: MUNICIPALITY OF LAKELAND RIDGES
199 MAIN ST
CANTERBURY, NB
E6H 1M6

SITE: MUNICIPAL OFFICE
17 SCHOOL ST, MEDUCTIC, NB

TITLE: ASBESTOS ASSESSMENT
MEDUCTIC MUNICIPAL OFFICE
MAIN FLOOR

SCALE:	DATE:	DRAWING:	CHECKED:
NTS	09-12-25	TD	TD
PROJECT NO:	DRAWING NO:	REVISION:	
NB6760	02	01	



8. Various Reports

Include in this section:

Annual reassessment reports

Air sampling reports

Material sample test results

Hazard investigation reports

Reference Number: 561519-AQS

Report Date: August 8, 2025

Analysis Date: August 8, 2025

Client: Municipality of Lakeland Ridges
199 Main Street
Canterbury, NB
E6H 1M6

ASBESTOS IDENTIFICATION

Site Location: Meductic Community Center

Twelve (12) samples were collected from Meductic Community Center on July 30, 2025 for the identification of asbestos. The samples were subcontracted to Paracel Laboratories for analysis by polarized light microscopy according to EPA 600/R-93/116. The results can be found in the following table.

Sample Identification	Location/Description	Sample Contents
561519-1	Basement – Washroom – Blue/ Green Checker Tile	Green Tile – 2% Chrysotile Asbestos ; remainder non-fibrous material. Green Tile Glue – 5% Chrysotile Asbestos ; remainder non-fibrous material. Blue Tile – 1% Chrysotile Asbestos ; remainder non-fibrous material. Blue Tile Glue – 4% Chrysotile Asbestos ; remainder non-fibrous material.
561519-2	Basement – Washroom – White Tile	Off-Wight Floor Tile – 3% Chrysotile Asbestos ; remainder non-fibrous material. Yellow Glue – Non-fibrous material. No asbestos was found. Tile Glue - 2% Chrysotile Asbestos ; remainder non-fibrous material.
561519-3	Basement – Washroom – Urinal Sheet Flooring	Vinyl Flooring – 20% Cellulose, 10% MMVF; remainder non-fibrous material. No asbestos was found. Yellow/Black Glue - Non-fibrous material. No asbestos was found.

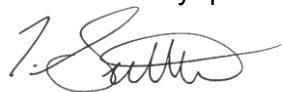
Sample Identification	Location/Description	Sample Contents
561519-4	Basement – Washroom – Urinal Water Elbow	Joint Compound - 60% Chrysotile Asbestos ; remainder non-fibrous material.
561519-5	New Kitchen – Heating Pipe Elbow	Joint Compound - 60% Chrysotile Asbestos ; remainder non-fibrous material.
561519-6	Boiler – Original Insulation	Insulation Compound - 60% Chrysotile Asbestos ; remainder non-fibrous material.
561519-7	Boiler – Insulation Patch on Top	Insulation Compound - 60% Chrysotile Asbestos ; remainder non-fibrous material.
561519-8	Old Gym – Heating Pipe Elbow	Joint Compound - 60% Chrysotile Asbestos ; remainder non-fibrous material.
561519-9	Stippled Ceiling Tile	White Ceiling Tile – 95% Cellulose; remainder non-fibrous material. No asbestos was found.
561519-10	Glass Block Window Mortar	Mortar - Non-fibrous material. No asbestos was found. Sealant - Non-fibrous material. No asbestos was found.
561519-11	Firemen's Entrance – Particle Board	Brown Board – 90% Cellulose; remainder non-fibrous material. No asbestos was found.
561519-12	Office Hallway – Drywall	Drywall – 2% Cellulose; remainder non-fibrous material. No asbestos was found.

This report relates only to the sample(s) and information available to the laboratory.

The detection limit for EPA 600/R-93/116 is 1.0%.

A document entitled "A Code of Practice for Working with Materials Containing Asbestos in New Brunswick", which is referenced in New Brunswick Regulation 92-106 under the Occupational Health and Safety Act, states that "asbestos-containing material" means material, including fireproofing, friction products, textiles, insulation or reinforcing materials, which contains one per cent or more by volume of asbestos.

If there are any questions regarding this report, please contact us.



Tyrel Suttie
Lab Technician – Industrial Hygiene
Air Quality Services



Matthew Norman
Director – Industrial Hygiene
Inorganic Analytical Services



Asbestos-Containing Building Materials Assessment And Limited Hazardous Building Materials Assessment 17 School Street

Meductic, New Brunswick

Prepared For:
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December 10, 2025

ALL-TECH Project No.: NB6760

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Appendix 1A – Laboratory Analysis Reports (Asbestos)

Appendix 1B – Laboratory Analysis Reports (Lead Paint)

Appendix 2 – Site Drawings with Sample Locations

Appendix 3 – Identified Hazardous Materials with Estimated Quantities

Appendix 4 – Site Photographs

Appendix 5 – Disposal of Friable Asbestos – NB Department of Environment

Appendix 6 – Lead Guideline for Construction, Renovation, Maintenance or Repair – EACC

Appendix 7 – Disposal of Lead Paint & Lead Painted Materials – NB Department of Environment

1 INTRODUCTION

ALL-TECH Environmental Services Limited (ALL-TECH) was contracted by the Municipality of Lakeland Ridges (the client) to conduct an Asbestos-Containing Building Materials Assessment, plus a Limited Hazardous Building Materials Assessment, of 17 School Street in Meductic, NB (the site). The assessment was completed by ALL-TECH employees Ryan Floyd and Warren Cummings on November 25, 2025. The purpose of the Assessment was to identify potential hazardous building materials which may require safe handling procedures in accordance with their applicable regulations, and in preparation for upcoming renovations.

In addition to data collected during the above noted date, a previous RPC report provided by the client, entitled *Asbestos Identification, Site Location: Meductic Community Center*, dated August 8, 2025 (Reference # 561519-AQS), was also referenced.

It should be noted that the majority of the assessment focused on the Asbestos-Containing Building Materials Assessment. Anticipated renovation areas were also sampled for suspect lead-containing paints as part of a Limited Hazardous Building Materials Assessment.

2 ASBESTOS-CONTAINING MATERIALS

Included in this Limited Hazardous Building Materials Assessment was an Asbestos Assessment, the purpose of which was to identify asbestos-containing materials (ACM) which may require safe handling procedures in accordance with *A Code of Practice for Working with Materials Containing Asbestos in New Brunswick, Referenced in New Brunswick General Regulation 91-191 Under the Occupational Health and Safety Act, June 2023* (the Code). The Code was developed due to asbestos being defined as hazardous to health, as airborne fibres may potentially cause asbestosis (scarring of the lungs), mesothelioma (which effects the lining of several organs), and lung cancer.

2.1 Applicable Standards

Provincial

- *A Code of Practice for Working with Materials Containing Asbestos in New Brunswick, Referenced in New Brunswick General Regulation 91-191 Under the Occupational Health and Safety Act, June 2023*
- Environmental Protection Act, New Brunswick
- Disposal of Friable Asbestos, Province of New Brunswick

For the purposes of management of asbestos containing materials (ACM) during building maintenance, renovation or demolition the owner must conduct an assessment of suspect materials for the determination of asbestos content. Under regulatory guidelines ACM is defined as a material which contains 1% or more by volume of asbestos. An assessment report must be made available in writing which identifies materials for the management and safe handling of the ACM as well as identifying the responsibilities of the owners, employers and employees.

2.2 Limitations

The following assumptions and limitations for the Asbestos Assessment as performed by ALL-TECH Environmental Services are outlined below:

- Representative sampling was performed on the materials within the building and it is assumed that any other materials having the same properties, qualities or components as the sampled materials will have similar analytical results.
- Where possible, non-destructive sampling techniques were utilized for asbestos sampling. There was limited access into wall cavities, etc. where ACM may be found. Assumptions are made based on the analytical results of the materials sampled.

The results presented in this report are indicative of the observations recorded during the time of the site visits. The opinions contained within this report are based on accepted professional principles but should not be interpreted as legal advice or as a guarantee or warranty regarding potential liability associated with conditions at the site. Any use that a third party makes of this report, or any reliance on, or final decisions made based upon it, are the responsibility of the third party. ALL-TECH accepts no responsibility for damages suffered by third parties because of decisions made based on this report.

2.3 Asbestos Assessment

Asbestos is a general term which is used to describe a group of fibrous mineral silicates. The six major types of asbestos are; chrysotile (white asbestos), amosite (brown asbestos), crocidolite (blue asbestos), anthophyllite, tremolite, and actinolite. Commercially, asbestos has been used in applications such as spray fireproofing materials, various building materials, textiles, friction products, reinforcing materials, and insulations. Asbestos-containing materials can be found in two forms; friable and non-friable asbestos. Friable asbestos refers to materials when dry, can be crumbled, pulverized or reduced to a powder by hand pressure.

Asbestos containing materials can be managed and left in place depending on the location, condition, and friability of the material. The mere presence of asbestos in building materials is not necessarily a problem. The hazards of asbestos exposure are directly related to the degree to which fibres are released (become airborne) from the materials. Intact and undisturbed asbestos does not pose a health risk.

2.4 Scope of Work

The asbestos assessment involved a visual investigation of building structures, wall & ceiling finishes, pipe/mechanical insulations, and floor finishes for the presence of asbestos materials. If these materials were suspected to contain asbestos, a bulk sample was collected of the representative material. Destructive testing or demolition of walls and permanent ceilings was not undertaken during this asbestos assessment.

Asbestos containing materials such as piping straight runs and fittings may be present behind walls, ceilings, columns, shafts, etc. Additional sampling should be performed prior to renovations and demolition to ensure that no asbestos containing materials are present.

2.5 Sampling Methodology

A total of sixteen (16) suspected asbestos bulk samples were collected from the building. All samples were sent to EMSL Canada Inc., Mississauga, Ontario for analysis. The laboratory is accredited the National Voluntary Laboratory Accreditation Program (NVLAP) for asbestos identification. The suspected samples of building materials were carefully collected and placed into a labelled sealable plastic bag and transported to the laboratory (via courier) for polarized light microscopy (PLM) identification. The EPA test method for bulk analysis (EPA600/R-93/116) states in paragraph 2.2.2 that *"the detection limit for visual estimation is a function of the quantity of the sample analysed, the nature of matrix interference, sample preparation, and fibre size and distribution. Asbestos may be detected in concentrations of less than one percent by area if enough material is analysed. Samples may contain fibres too small to be resolved by PLM (< 0.25 µm in diameter) so detection of those fibre by this method may not be possible."*

The twelve (12) bulk asbestos collected for the above noted RPC report were also referenced. Samples with numbers in the format of 561519-(#) will be referenced throughout this report.

2.6 Assessment Findings

Table 1.0
Summary of Asbestos Containing Materials Found
17 School Street, Meductic (November 2025)

Design Element	Description	Type and % Asbestos	Condition	General Location (See Below and Appendix 3 for Additional Information)
Pipe	Parging Cement Fittings (elbows, tees, hangers, flanges, valve fittings, seams)	60% chrysotile (friable)	Good to Poor	Observed throughout basement. Possibly in wall/ceiling cavities on the top floor.
Mechanical	Boiler Insulation, Tank Insulation	60% chrysotile (friable)	Good to Poor	Observed in Boiler Room 010.
Floor	9"X9" and 12"X12" Floor Tiles Various Colours	1-4% chrysotile (non-friable)	Good to Fair	9"x9"s observed in Washroom 005, on Stairs 006A, and Kitchen Storage 007 12"X12"s observed on landing of Stairs 006A Floor Tiles covered with newer stick-on vinyl sheet flooring sampled in Room 105A Based on sampling and observations, ACM floor tiles may be located underneath visible flooring
Floor	Glue/Mastic	2-5% chrysotile (non-friable)	Good to Fair	Underneath both 9"X9" and 12"X12" floor tiles as specified above

Condition:

GOOD: Surface of ACM shows no significant signs of damage, deterioration, or delamination. Up to one percent visible damage to surface is allowed within range of GOOD.

FAIR: Damage is observed to the material, i.e. mechanical insulation, the jacket is cracked or open. Friable ACM is exposed but is intact. ACM is in place and not missing.

POOR: ACM show signs of damage, delamination or deterioration. More than one percent damage to surface of ACM.

Refer to Appendix 1A for laboratory results of the bulk samples collected in the building.

2.6.1 Mechanical and Pipe Insulation Material

- Pipe fitting parging (elbows, tees, hangers, flanges, valve fittings, seams) was found to contain 60% chrysotile asbestos. See Samples 561519-4, 5615195, and 561519-8.
- Straight run pipe insulation was found to be fiberglass or newer types of non-asbestos insulation such as PVC or foam.
- Insulation was sampled from the boiler in Room 010 and contains 60% chrysotile asbestos. See Sample 561519-6 and 561519-7. A hot water tank at ceiling level in Boiler Room 010 appears to be a similar age to the boiler, and should be considered to also contain asbestos.
- No parging was observed on duct insulation, no suspect asbestos duct sealer was observed, and no suspect asbestos duct expansion joints were observed.

Asbestos-containing pipe insulation, mechanical insulation, and/or duct insulation may exist within some wall cavities, tunnels, bulkheads, and columns (limited access prevented an assessment of these areas).

2.6.2 Drywall Joint Compound, Plaster, Texture Coat, and Stucco

- Drywall joint compound was sampled throughout the building and found not to contain asbestos; see Sample 561519-12 and Samples 01 to 09.
- Plaster, texture coat, and stucco were not observed in the building.

2.6.3 Sprayed Structural Fireproofing Materials

- Sprayed fireproofing materials were not observed in the accessible areas of the building.

2.6.4 Ceiling Tiles and Ceiling Tile Adhesives

- 2'X2' and 2'X4' T-bar ceiling tiles located throughout the building were visually identified as being newer.
- 12"X12" fixed ceiling tiles located throughout the building were found not contain asbestos. See Sample 561519-9. All locations where these tiles were observed to be loose or missing were observed to have been stapled to wood framing with no adhesive noted, with no apparent suspect asbestos backing above.

2.6.5 Vinyl Sheet/Linoleum, Floor Tiles, Mastic/Adhesives, and Other Flooring

- Vinyl sheet flooring was observed in Washroom 005, and does not contain asbestos per Sample 561519-3. Also, some was either observed to visually be newer, or is newer stick-on style.
- 9"X9" floor tiles located in several rooms were sampled and found to contain 1-3% chrysotile asbestos. See Samples 561519-1 and 561519-2, plus Sample 10.
- 12"X12" floor tiles were observed on the landing of the central stairs (Room 006A). Sample 11 confirmed that this tile contains 4% chrysotile asbestos.
- Floor tile located underneath non-asbestos stick-on vinyl sheet flooring tiles contains 2% chrysotile asbestos per Sample 12. Only a sliver was visible so it could not be determined if the tiles are 9"X9" or 12"X12".
- Based on the above 3 bullet points, any floor tiles located underneath visible flooring (new vinyl sheet flooring, wood, click laminate) should be considered to contain asbestos unless further sampling occurs.
- Mastic was included on several samples of the flooring listed above. Samples 561519-1 and 561519-2, plus Sample 11 contain up to 5% chrysotile asbestos. Some sampled mastic does not contain asbestos, but due to difficulty in differentiating between mastics, all should be considered to contain asbestos. ACM floor mastic may be located under any visible flooring.
- Mastic was collected from behind the baseboard on the wall adjacent the floor in Stair 006A, and did not contain asbestos. See Sample 13.
- The stage in Room 002, and the stairs to Exit 001A are, raised over the floor, and are carpeted. Additionally, most of the upper floor is covered in newer wood-style click laminate. Due to the limited destructive nature of the assessment, these floors were not damaged to determine what type of flooring is present underneath. As ACM floor tiles have been noted in the building, any renovations or demolition in rooms with newer flooring should begin with removal of the visible layer of flooring to observe what floor type is present underneath, with flooring sampled if not identified in this report.
- It should be noted that any visible flooring could cover older ACM flooring or lead-containing paints. No destructive testing was performed on flooring other than where noted to determine if multiple layers of flooring exist in any rooms.

2.6.6 Transite Panels, Sheeting, Shingles, and Other Cement Board

- Transite panels were not observed during the assessment.

2.6.7 Mortar/Adhesive Products

- Mortar and window putty adjacent the glass block window was sampled, and neither contains asbestos. See Sample 561519-10 and Sample 14.
- A particle board in the Fire Station portion of the building does not contain asbestos per Sample 561519-11.
- Tar paper on the ceiling above 12"X12" ceiling tiles was sampled in Room 105 and does not contain asbestos. See Sample 15.
- Sample 16 shows that a sealer used on the wood panel wall in Room 007 does not contain asbestos.

2.6.8 Electrical Wiring/Lighting

- Electrical wires/equipment were not sampled during the assessment due to live wires.
- No light fixtures with suspect asbestos-containing heat shields were observed in the building.

2.6.9 Roofing

- No roofing materials were tested during the assessment due to the limited destructive testing aspects of the survey (potential to create roof leaks). Prior to renovations or demolition of the roof, roofing material samples should be collected to determine if they contain asbestos.

2.6.10 Vermiculite

- Vermiculite may be found in wall cavities (most commonly exterior cinder block cavities). As access for sampling involves drilling or striking holes into the block, this investigation is typically not performed unless renovations or demolition is due to occur. (Note: exterior walls appeared to all be concrete foundation, with no cinder block observed.)
- Vermiculite may also be found within attic spaces; the attic space was not accessed for this project.

3 LEAD PAINT ASSESSMENT

Lead is a naturally-occurring metal that is present throughout the environment in rocks, soil, water and air. It has been used as a pigment in many paints for centuries, and in some applications, it is still used today. From an occupational health standpoint, intact dry lead paint or particles pose little hazard, but a serious hazard can be created when lead coatings or demolished structures are disturbed. Construction workers who weld, cut or blast structural steel coated with lead-based paint or demolish painted surfaces with lead paint are at significant risk of lead poisoning.

Representative paint samples were collected from the building and assessed to identify the lead content. The paint samples were analyzed in the lab following the SOP EPA 3050B/7000B. The sample results for lead content are reported in percent by weight. Results of lead sample results are presented in Table 2.0.

Note: only a limited assessment for lead paint was performed in requested areas (anticipated renovation areas) and locations where flaking material was observed. Suspect lead paints were not sampled throughout the entire building.

3.1 Applicable Standards

Materials Containing Lead

The Department of the Environment and Local Government states in the Disposal of Lead Paint & Lead Painted Materials that: "In order to dispose of an object that is known (or suspected) to contain lead paint, a leachate extraction test must be completed on a representative sample (or samples) of the paint to determine its leachable lead concentration.

The leachate extraction test must be done using the Toxicity Characteristic Leaching Procedure, Method 1311 that appears in the United States Environmental Protection Agency Publication SW-846 entitled "Test Method for Evaluating Solid Waste, Physical/Chemical Methods", as amended from time to time, or an equivalent test method approved by the department.

For consideration of an object containing lead paint to be disposed of at C&D Site, the concentration of lead in the paint must also be determined".

Disposal of Lead-Contaminated Materials

The Department of the Environment and Local Government States that: "If the results of a leachate extraction test are above 5 mg/L for lead then the object in question is considered leachable toxic and therefore must be disposed through the services of an approved hazardous waste disposal company. Disposal at a C&D Site, Municipal Transfer Station or a Regional Solid Waste Landfill is not permitted.

If it has been determined that the object containing lead paint is not leachable toxic, then it may be disposed of at a Regional Sanitary Landfill or taken to a Municipal Transfer Station if appropriate.

If it has been determined that the lead paint contains a total lead concentration of less than 1000 mg/kg (ppm) then the object may also be disposed of at a C&D Site approved by the Department of Environment and Local Government. However this only applies to objects containing lead paint that is that is tightly bound to the matrix it is covering (i.e. not flaking, chipping or peeling). Regardless of test results, no lead painted objects that are flaking, chipping or peeling may be disposed of at a C&D Site". (New Brunswick Department of Environment and Local Government, August 2014).

3.2 Lead Paint Analysis Results

Table 2.0
Summary of Laboratory Analyses Results of Paint Samples Containing Lead
17 School Street, Meductic (November 2025)

Sample #	Description	Sample Location	Results (%)	Provincial Guideline (%)
LP-01	Pale Pink Wall	Basement Washroom 005 / Hall 004	0.15	≥ 0.1

3.3 Lead Paint Leachate

Based on the results in section 3.2, additional sampling must be conducted on the above lead-containing paints, along with the building components that were painted where possible (drywall, concrete, etc.), previous to any renovations/demolition to determine the conditions of disposal. Any samples that contain greater than the guideline of 5 mg/L (5000 µg/L) of lead must be disposed of according to the NB Department of Environment's document *Disposal of Lead Paint & Lead Painted Materials* (see Appendix 7). Alternately, any lead-containing paints not sampled for leachate analysis must be considered to potentially be lead leachable toxic and treated as such.

3.4 Conclusions

Assume lead paint is found on the following surfaces:

- Pale pink paint on concrete walls in Basement Washroom 005 and Basement Hall 004.

Assume leachable toxic lead paint is found on the following surfaces:

- Pale pink paint on concrete walls in Basement Washroom 005 and Basement Hall 004, if additional sampling is not performed to determine leachate level.

Note: only a limited assessment for lead paint was performed in requested areas (anticipated renovation areas) and locations where flaking material was observed. Suspect lead paints were not sampled throughout the entire building. Expansion of the anticipated renovation area may impact paint old enough to potentially contain lead above the guideline levels.

4 OTHER HAZARDOUS MATERIALS

4.1 Polychlorinated Biphenyls (PCBs) – Light Ballast

Fluorescent light fixtures may have PCB-containing lamp ballasts (polychlorinated biphenyls). Not all ballasts in the fluorescent light fixture units could be assessed due to the units being energized. If ballasts are removed during renovations, they should be set aside for further identification using a document such as Environment Canada's *Identification of Lamp Ballasts Containing PCBs*, or disposed of as PCB-containing.

4.2 Mercury-Containing Thermostats

During this assessment, wall-mounted heating thermostats with mercury-containing vials were observed in the surveyed areas:

- 2 either side of Old Gym / Conference & Banquet Room 001.
- 1 removed thermostat in a box in Storage under Stairs (Room 006).
- 1 in Room 111.
- Other thermostats were observed to be of the non-mercury type.

4.3 Mercury-Containing Fluorescent Light Tubes

Fluorescent light fixtures were observed throughout the assessed areas. Fluorescent light tubes contain a small amount of mercury. Broken tubes can emit mercury to workers who may come in contact with it. Some light tubes in the building appear to be newer LED tubes.

4.4 Concrete and Masonry Products – Crystalline Silica

Renovations, demolition, or building maintenance involving work with concrete and masonry products is a ubiquitous activity. Research has identified demolition of concrete or masonry structures as one of the construction activities with potentially high exposures to respirable crystalline silica¹. There is consistency among various professionals that total elimination or substitution of silica from the construction process may not be a feasible option. The use of wet methods, local exhaust ventilation and high efficiency particulate air (HEPA) filtration systems attached to work tools or equipment, worker's isolation from dust generating sources by tenting off or use of other physical barriers, respiratory protection, practice of basic hygiene, work practices, and worker training may

¹ Raila R., 1988 *Ann Occup Hyg* 32:215-20

significantly reduce silica dust in many construction activities. However, these controls when used separately or incompletely may fail to reduce exposure to less than established occupational exposure limits².

When working with concrete/masonry (crystalline silica) products, ceiling tiles (mineral fibres, and potential crystalline silica) or general dust created by working with other building materials such as flooring, gyproc walls, metals, and wood products) during regular building maintenance, renovations, or demolition, hazardous levels of airborne dust can be created.

To control airborne dust generated during building renovation, maintenance, and demolition the following practices should be followed:

- Pre-planning and post-performance evaluation on development of standard work practices to control dust.
- Use of water to suppress dust (spray until moistened but not wet).
- Use of high efficiency particulate air (HEPA) filtered vacuum to reduce surface dust.
- Use of ventilation and work area isolation of the dust generating source while performing tasks.
- Availability and practice of basic hygiene (hand washing, cleaning tools, and PPE after finishing the work, change clothes before leaving work area.)
- Availability, training and usage of basic PPE for the construction industry (hard hats, safety glasses, ear plugs, work gloves, boots, and respiratory protection).
- Evaluate control procedures using periodic air monitoring.

5 MATERIALS AND AREAS NOT ASSESSED

As stated in Sections 2.2 and 7, areas that are not accessible for visual assessment and/or sampling may obscure hazardous materials.

Additionally, the following areas could not be accessed:

- Roof, and any rooftop mechanical rooms, duct penthouses, etc.
- Stairs 011A (blocked by cabinet in Hall 004, appears to have gone up to Fire Station 113 but not observed there and likely permanently blocked off).

Limited access in ceiling spaces was noted in several rooms. This included conditions such as:

- Elements such as duct work, sprinklers, electrical, or lighting blocking vision in ceiling spaces
- The above elements preventing removal of ceiling tiles
- Unmoveable/heavy floor-level furniture or stairs preventing placement of a ladder
- Small gaps between the ceiling tiles and ceiling structure

Ceiling spaces between ceiling tiles and ceiling structure / roof could contain such ACM as pipe fitting parging based on observations in other rooms.

Fixed ceilings (plywood, drywall, fixed 12"X12" ceiling tiles) were observed in the following rooms, with no access above:

- 12"X12" ceiling tiles in Rooms 001, 003, 004, 007, 008, 009, 101, 102, 103, 105, 105A, 106, 111, 112, and half of 113 (including locations above T-bar ceiling tiles).
- Bulkheads adjacent ceilings surrounded by 12"X12" ceiling tiles, noted in Rooms 001, 007, 008, and 009.
- Bulkhead adjacent ceiling surrounded by either drywall or plywood in Room 010.
- Potentially other bulkheads not noted in other rooms.
- Drywall in Rooms 002, 005, 010 (potentially plywood), 104, 107, 108, 109, 110, and half of 113.

Ceiling spaces between fixed ceilings and ceiling structure / roof could contain such ACM as pipe parging fittings based on observations in other rooms.

² Journal of Physics: Conference Series 151 (2009), *Silica dust control in small-scale building/structure demolition operations using good work practice guidance*

Other items noted with limited or no access:

- As noted above, paint suspected of containing lead was only sampled in the anticipated renovation area (Basement Washroom 005), and on surfaces where flaking was observed. Suspect lead paint was not sampled throughout the building.
- The boiler in Boiler Room 010 could not be sampled for refractory brick (within the boiler itself), which may contain asbestos. Additionally, it is possible that the boiler may have accumulated other hazardous materials such as heavy metals.
- A metal-clad door was observed in Boiler Room 010. Some doors, especially adjacent boiler rooms and electrical rooms or on fire-separation doors, may house an asbestos-containing insulation. No access is possible underneath the thick metal cladding to sample or observe any such potential material.

6 RECOMMENDATIONS

In addition to the scope of work for the handling and / or removal of hazardous materials, the following regulations and guidelines must be carried out:

- Pertinent regulations and guidelines laid out by WorkSafe NB *A Code of Practice for Working with Materials Containing Asbestos in New Brunswick, Referenced in New Brunswick General Regulation 91-191 Under the Occupational Health and Safety Act, June 2023* (the Code) as well as other provincial and municipal regulations must be adhered to for asbestos disposal (such as Appendix 5, Department of Environment and Local Government's *Disposal of Friable Asbestos*).
- According to the Code of Practice in New Brunswick, should any asbestos-containing materials (ACM) be identified, an Asbestos Management Plan (AMP) must be developed (Section 4.1 in the Code).
- As specified in Section 4.3.f of the Code, a procedure must be implemented for inspection of ACM at least once per year in order to determine its condition.
- The Code also states that damaged ACM must be cleaned up, repaired, sealed, removed, or permanently enclosed (Section 4.3.a and 4.3.b in the Code). See Appendix 3 for locations of damaged material.
 - Some ACM pipe parging fittings require repair/sealing, as required to restore to good condition, if parging is exposed or minor damage exists. Additionally, removal of the fittings may occur.
 - Minor damage to the ACM boiler insulation in Boiler Room 010 requires repair (patching).
 - Loose floor tiles and ACM mastic in Rooms 005 and 007 should be removed and/or sealed and/or covered. Any flooring that is not loose or damaged may remain, but mastic underneath any floor tile removal should be inspected for loose material.
- Provide air monitoring and inspection during the removal of asbestos containing materials, to ensure that all government guidelines/regulations are followed during the removal. (WorkSafe NB *A Code of Practice for Working with Materials Containing Asbestos in New Brunswick, Referenced in New Brunswick General Regulation 91-191 Under the Occupational Health and Safety Act, June 2023*).
- Ensure that the abatement contractor is a reputable contractor and has proper training in the removal of asbestos products.
- ***The seven following bullets refer to all non-asbestos materials with lead paint. Note: some notes may not apply to samples collected, but are included in case the scope of renovation areas is expanded, or additional projects occur in the future.***
 1. All lead paint identified within the facility will be required to be removed prior to demolition and disposed of as per NB Department of Environment's Disposal of Lead Paint & Lead Painted Materials.
 2. Under NB Department of Environment's Disposal of Lead Paint & Lead Painted Materials all lead waste must pass Leachate Testing prior to disposal. Please refer to Appendix 7.
 3. As stated in Appendix 7, ***"If it has been determined that the object containing lead paint is not leachable toxic, then it may be disposed of at a Regional Sanitary Landfill or taken to a Municipal Transfer Station if appropriate."*** It also states that, ***"Regardless of test results, no lead painted objects that are flaking, chipping or peeling may be disposed of at a C&D Site"***. Therefore, previous to removal of lead-painted materials, it is recommended for the abatement contractor to scrape loose lead-containing paint from all surfaces using appropriate removal guidelines, and dispose of as lead-containing material. Removal of any flaking lead-containing paints on asbestos-containing materials should be considered asbestos work.
 4. Currently, no guidelines exist for the removal of lead-based paints in the Province of New Brunswick. It

is recommended that contractors removing lead-based paint follow the Environmental Abatement Council of Canada guideline *Lead Guideline for Construction, Renovation, Maintenance or Repair*. Please refer to Appendix 6.

5. Lead containing metal items such as doors / door frames can be recycled as per Appendix 7, however any loose paint must adhere to lead and leachate guidelines, including paint removed for repair or cutting of the metal.
6. Flaking lead-containing paints were observed in the following locations; it is recommended to scrape loose material using lead paint removal guidelines such as specified above and re-paint or seal unless these colours will be fully removed or repaired as part of renovations:
 - LP-01 pale pink concrete walls in Basement Washroom 005 and Hall 004 (a few locations of a few square feet).
7. All lead-containing paints, if damaged in the future by contact, water/moisture, etc. should be scraped and sealed using lead paint removal guidelines as specified above. If damage is minor and no removals or scraping are needed previous to sealing/re-painting, this would fall under regular maintenance.
- Other items such as fluorescent lighting tubes also contain hazardous materials (Mercury, potential for PCBs...): Caution must be taken when renovating or demolition. These items are to be disposed of as per NB Department of Environment's Disposal Requirements.
- Contractors should develop a plan to reduce the release of silica dust during renovations / demolition, and use respiratory protection as necessary to protect workers.

7 ASSUMPTIONS AND LIMITATIONS

The following assumptions and limitations for the Asbestos-Containing Building Materials Assessment and Limited Hazardous Building Materials Assessment as performed by ALL-TECH Environmental Services Limited are outlined below:

- Representative sampling was performed on the materials within the above noted areas and it is assumed that any other materials having the same properties, qualities or components as the sampled materials will have similar analytical results.
- Where possible, non-destructive sampling techniques were utilized for paint and asbestos sampling. Assumptions are made based on the analytical results of the hazardous materials sampled.

This report was prepared by ALL-TECH Environmental Services Limited for the sole benefit of our client, the Municipality of Lakeland Ridges. The information in the report is based on information provided to and/or obtained by ALL-TECH. The report and results are based on ALL-TECH's best judgement of the information provided at the time of the assessment, and are indicative of the observations recorded during the time of the site visits. The opinions contained within this report are based on accepted professional principles but should not be interpreted as legal advice or as a guarantee or warranty regarding potential liability associated with conditions at the site. Any use that a third party makes of this report, or any reliance on, or final decisions made based upon it, are the responsibility of the third party. ALL-TECH accepts no liability and/or damages occurred by any third parties as a result of decisions made based on information obtained in this report. This report must only be used for day-to-day management of the building, and is not be used as the sole reference for tender documents, specifications / scopes of work for remediation / abatement of hazardous materials without further investigation.

Should you have any questions or have any other information to disclose concerning this report, please contact our office at (506)658-1058.



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ALL-TECH Environmental Services Limited

Appendix 1A
Laboratory Analysis Reports - Asbestos



EMSL Canada Inc.

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Phone/Fax: (289) 997-4602 / (289) 997-4607
<http://www.EMSL.com> / torontolab@emsl.com

EMSL Canada Order 552521182
Customer ID: 55ATES44A
Customer PO: NB6760
Project ID:

Attn: Ryan Floyd
All-Tech Environmental Services Ltd.
885 Bayside Drive
Saint John, NB E2R 1A3

Phone: (506) 658-1058
Fax: (506) 652-7998
Collected: 11/25/2025
Received: 11/27/2025
Analyzed: 12/04/2025

Proj: NB6760 - 17 School St Meductic

Summary Test Report for Asbestos Analysis of Bulk Materials for New Brunswick Regulation 92-106

Client Sample ID: 01 **Lab Sample ID:** 552521182-0001

Sample Description: 001 Adj. 003/DWJC Wall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/04/2025	White	0.0%	100.0%	None Detected	

Client Sample ID: 02 **Lab Sample ID:** 552521182-0002

Sample Description: 002/DWJC Ceiling

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/04/2025	White	0.0%	100.0%	None Detected	

Client Sample ID: 03 **Lab Sample ID:** 552521182-0003

Sample Description: 003 Adj. 001/DWJC Wall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/04/2025	White	0.0%	100.0%	None Detected	

Client Sample ID: 04 **Lab Sample ID:** 552521182-0004

Sample Description: 003 - Back Corner of 002/DWJC Wall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/04/2025	White	0.0%	100.0%	None Detected	

Client Sample ID: 05 **Lab Sample ID:** 552521182-0005

Sample Description: 00/DWJC Ceiling

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/04/2025	White	0.0%	100.0%	None Detected	

Client Sample ID: 06 **Lab Sample ID:** 552521182-0006

Sample Description: Arch Between 008/009/DWJC Wall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/04/2025	White	0.0%	100.0%	None Detected	

Client Sample ID: 07 **Lab Sample ID:** 552521182-0007

Sample Description: 102/DWJC Wall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/04/2025	White	0.0%	100.0%	None Detected	



EMSL Canada Inc.

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<http://www.EMSL.com> / torontolab@emsl.com

EMSL Canada Order 552521182
Customer ID: 55ATES44A
Customer PO: NB6760
Project ID:

Summary Test Report for Asbestos Analysis of Bulk Materials for New Brunswick Regulation 92-106

Client Sample ID: 08 **Lab Sample ID:** 552521182-0008

Sample Description: 107 Adj. 108/DWJC Wall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/04/2025	White	0.0%	100.0%	None Detected	

Client Sample ID: 09 **Lab Sample ID:** 552521182-0009

Sample Description: 111 Closet/DWJC Wall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/04/2025	White	0.0%	100.0%	None Detected	

Client Sample ID: 10-Floor Tile **Lab Sample ID:** 552521182-0010

Sample Description: Stairs 006A/9"x9" FT - Dark Grey on Stairs

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/04/2025	Black	0.0%	98.0%	2% Chrysotile	

Client Sample ID: 10-Mastic **Lab Sample ID:** 552521182-0010A

Sample Description: Stairs 006A/9"x9" FT - Dark Grey on Stairs

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/04/2025	Black	0.0%	100.0%	None Detected	

Client Sample ID: 11-Floor Tile **Lab Sample ID:** 552521182-0011

Sample Description: Stairs 006A/12"x12" FT - Lt. Green-Beige on Landing

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/04/2025	Gray	0.0%	96.0%	4% Chrysotile	

Client Sample ID: 11-Mastic 1 **Lab Sample ID:** 552521182-0011A

Sample Description: Stairs 006A/12"x12" FT - Lt. Green-Beige on Landing

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/04/2025	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 11-Mastic 2 **Lab Sample ID:** 552521182-0011B

Sample Description: Stairs 006A/12"x12" FT - Lt. Green-Beige on Landing

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/04/2025	Black	0.0%	98.0%	2% Chrysotile	

Client Sample ID: 12 **Lab Sample ID:** 552521182-0012

Sample Description: 105A/Green FT Under Stick-On VSF

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/04/2025	Green	0.0%	98.0%	2% Chrysotile	



EMSL Canada Inc.

2756 Slough Street Mississauga, ON L4T 1G3
Phone/Fax: (289) 997-4602 / (289) 997-4607
<http://www.EMSL.com> / torontolab@emsl.com

EMSL Canada Order 552521182
Customer ID: 55ATES44A
Customer PO: NB6760
Project ID:

Summary Test Report for Asbestos Analysis of Bulk Materials for New Brunswick Regulation 92-106

Client Sample ID: 13

Lab Sample ID: 552521182-0013

Sample Description: Stairs 006A/Baseboard Mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/04/2025	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 14

Lab Sample ID: 552521182-0014

Sample Description: Exterior/Window Putty Adj. Glass Block

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/04/2025	Black	0.0%	100.0%	None Detected	

Client Sample ID: 15

Lab Sample ID: 552521182-0015

Sample Description: 105/Ceiling Tar Paper Above 12"x12" CTs

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/04/2025	Brown/Black	60.0%	40.0%	None Detected	

Client Sample ID: 16

Lab Sample ID: 552521182-0016

Sample Description: 007/Sealer on Wood Panel Wall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/04/2025	White	0.0%	100.0%	None Detected	

Analyst(s):

Ashley Brito PLM (19)

Reviewed and approved by:

Matthew Davis or other approved signatory
or Other Approved Signatory

None Detected = <0.1%. EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This is a summary report; official reports are available on LabConnect or upon request and relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method") but augmented with procedures outlined in the 1993 ("final") version of the method. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON NVLAP Lab Code 200877-0

Initial report from: 12/04/2025 13:23:35

Appendix 1B
Laboratory Analysis Report – Lead Paint

**EMSL Canada Inc.**

2756 Slough Street, Mississauga, ON L4T 1G3

Phone/Fax: (289) 997-4602 / (289) 997-4607

<http://www.EMSL.com>torontolab@emsl.com

EMSL Canada Or 552520943
CustomerID: 55ATES44A
CustomerPO: NB6760
ProjectID:

Attn: **Ryan Floyd**
All-Tech Environmental Services Ltd.
885 Bayside Drive
Saint John, NB E2R 1A3

Phone: (506) 658-1058
Fax: (506) 652-7998
Received: 11/27/2025 10:07 AM
Collected: 11/25/2025

Project: **NB6760 - 17 School St Meductic****Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)***

<i>Client Sample</i>	<i>Description</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Weight</i>	<i>RDL</i>	<i>Lead Concentration</i>
LP-01 552520943-0001	Site: 005 Desc: Pale Pink Wall	11/25/2025	12/2/2025	0.2545 g	0.0064 % wt	0.15 % wt
LP-02 552520943-0002	Site: 005 Desc: White Ceiling	11/25/2025	12/2/2025	0.2507 g	0.0064 % wt	<0.0064 % wt
LP-03 552520943-0003	Site: Exterior Desc: Grey Foundation	11/25/2025	12/2/2025	0.2522 g	0.0064 % wt	<0.0064 % wt
LP-04 552520943-0004	Site: Exterior Desc: Dark Grey over Teracotta Foundation	11/25/2025	12/2/2025	0.2562 g	0.0064 % wt	<0.0064 % wt

Rowena Fanto, Lead Supervisor
or other approved signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. * Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.0064% wt based on the minimum sample weight per our SOP. "<" (less than) result signifies the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON AIHA LAP, LLC-ELLAP Accredited #196142

Initial report from 12/04/2025 08:21:05

Appendix 2
Site Drawings with Sample Locations



885 Bayside Dr
Saint John, NB E2R1A3
TEL : (506) 658-1058
FAX : (506) 652-7998
WWW.TOALLTECH.COM

ASBESTOS LEGEND

-  = CEILING
-  = FLOOR
-  = CEILING AND FLOOR
-  = UNSURVEYED AREA
-  = APPLIANCE
-  = MECHANICAL
-  = PIPE MATERIAL
-  = DUCT WORK
-  = ELECTRICAL
-  = WALL

rev	description	by	date
rev	description	by	date
rev	description	by	date
REA	DESCRIPTION:	BY:	DATE:

CLIENT: MUNICIPALITY OF LAKELAND RIDGES
199 MAIN ST
CANTERBURY, NB
E6H 1M6

SITE: MUNICIPAL OFFICE
17 SCHOOL ST, MEDUCTIC, NB

TITLE: ASBESTOS ASSESSMENT
MEDUCTIC MUNICIPAL OFFICE
BASEMENT

SCALE:	DATE:	DRAWING:	CHECKED:
NTS	09-12-25	TD	TD
PROJECT NO:	DRAWING NO:	REVISION:	
NB6760	01	01	

BACKSTAGE STORAGE 003 [P]

002
STAGE

005
WASHROOM

KITCHEN STORAGE

007
[P]

BOILER ROOM
010

[PM]

011
[P]

011A

001A
EXIT

CONFERENCE / BANQUET HALL (OLD GYM)
001

[P]

004
HALL

006
[P]

006A
STAIRS

008
SERVERY
[P]

009
NEW KITCHEN
[P]



885 Bayside Dr
Saint John, NB E2R1A3
TEL : (506) 658-1058
FAX : (506) 652-7998
WWW.TOALLTECH.COM

ASBESTOS LEGEND

- = CEILING
- = FLOOR
- = CEILING AND FLOOR
- = UNSURVEYED AREA
- = APPLIANCE
- = MECHANICAL
- = PIPE MATERIAL
- = DUCT WORK
- = ELECTRICAL
- = WALL

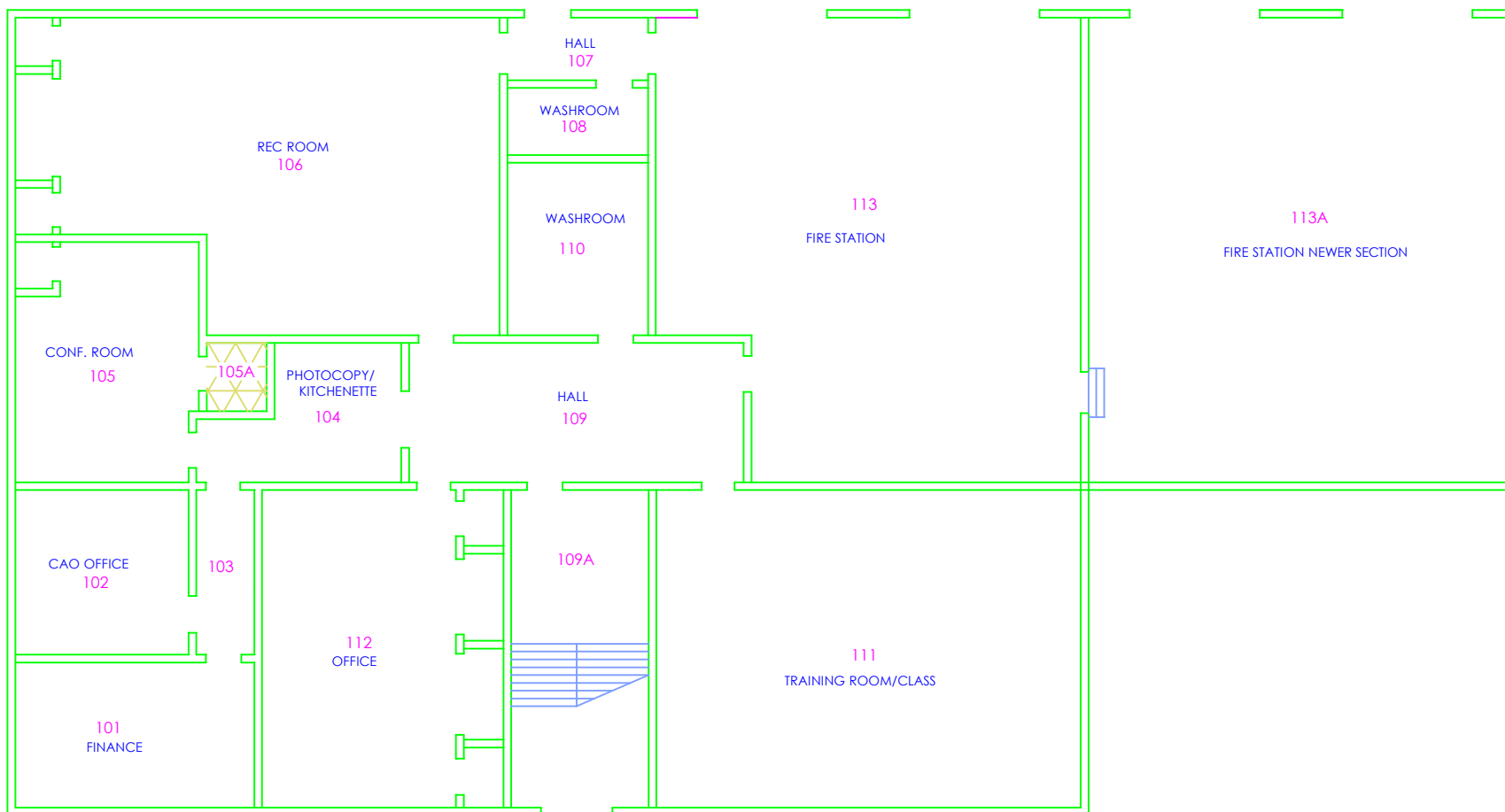
rev	description	by	date
rev	description	by	date
rev	description	by	date
REA	DESCRIPTION	BY	DATE

CLIENT: MUNICIPALITY OF LAKELAND RIDGES
199 MAIN ST
CANterbury, NB
E6H 1M6

SITE: MUNICIPAL OFFICE
17 SCHOOL ST, MEDUCTIC, NB

TITLE: ASBESTOS ASSESSMENT
MEDUCTIC MUNICIPAL OFFICE
MAIN FLOOR

SCALE:	DATE:	DRAWING:	CHECKED:
NTS	09-12-25	TD	TD
PROJECT NO:	DRAWING NO:	REVISION:	
NB6760	02	01	



Appendix 3
Estimated Quantities
Of Identified Hazardous Materials

Estimated Quantities of Hazardous Building Materials

17 School Street, Meductic, November 2025

NOTE: ESTIMATED QUANTITIES; CONTRACTORS ARE RESPONSIBLE FOR PROJECT QUANTITIES

Estimated Quantities of Asbestos-Containing Materials

Location	Item	Descriptor (size, color, details)	Quantity (units)			Total
			Good	Fair	Poor	
001	pipe	Parging Cement Fittings (elbows, tees, hangers, flanges, valve fittings, seams) (poor in exterior corner nearest 001A near floor level)	22		2	24
003	pipe	parging fittings (poor each back corner at ceiling)	12		2	14
005	pipe	parging fittings (including in stalls near floor level) (some exposed parging from incomplete covering)	5		2	7
006	pipe	parging fittings (8 good elbows, 4 good tees, 1 poor end entering wall cavity)	12		1	13
007	pipe	parging fitting (capped valve fitting in back right)			1	1
008	pipe	parging fittings (some exposed parging from incomplete covering in back right)	4		1	5
009	pipe	parging fittings (some exposed parging from incomplete covering in back left and front left)	5		2	7
010	pipe	parging fittings (some exposed parging, some incomplete covering, some mouldy; approximate values)	30	5	5	40
011	pipe	parging fittings (includes exposed parging and cracks on elbows, plus exposed hanger)	5		5	10
Grand Totals:			95	5	21	121

***Note: All amounts are an estimate only**

***Note: Possibly more parging in inaccessible areas such as ceiling bulkheads and above fixed ceilings**

Location	Item	Descriptor (size, color, details)	Quantity (square feet)			Total
			Good	Fair	Poor	
010	mechanical	boiler insulation (chip out of back corner on left side)	199		1	200
010	mechanical	hot water tank insulation	150			150
Grand Totals:			349	0	1	350

***Note: All amounts are an estimate only**

Location	Item	Descriptor (size, color, details)	Quantity (square feet)			Total
			Good	Fair	Poor	
005	floor tiles	9"X9" blue-green and grey checker pattern (good tiles; fair is exposed ACM mastic)	175	50		225
006A	floor tiles	9"X9" dark grey on stairs	100			100
006A	floor tiles	12"X12" light green-beige on landing	50			50
007	floor tiles	9"X9" blue-green and off-white checker pattern (good tiles; fair is exposed ACM mastic)	375	15		390
105A	floor tiles	green, mostly covered by stick-on vinly sheet flooring tiles	25			25
Grand Totals:			725	65	0	790

***Note: All amounts are an estimate only**



Estimated Quantities of Identified Lead-Containing Paints

Location	Item	Descriptor (size, color, details)	Quantity (square feet)			Total
			Good	Fair	Poor	
004	wall	pale pink wall (flaking from moisture intrusion)	990		10	1000
005	wall	pale pink wall (flaking from moisture intrusion)	610		15	625
Grand Totals:			1600	0	25	1625

***Note: All amounts are an estimate only**

Observed Quantities of Thermostats with Mercury Vials

Location	Item	Descriptor (size, color, details)	Quantity (units)			Total
			Good	Fair	Poor	
001	mercury vial	in round Lennox units (1 has no cowling)	2			2
006	mercury vial	in removed round unit in box (exposed to potential damage, so listed as poor)			1	1
111	mercury vial	in round Honeywell unit	1			1
Grand Totals:			3	0	1	4

***Note: All amounts are an estimate only**

Appendix 4

Site Photographs

Appendix 4 – Site Photographs, November 2025
Asbestos / Limited Hazardous Materials Assessment, 17 School Street, Meductic, NB



Figure 1 - Damaged pipe fittings in Room 001. Partially painted but some cracks, and some exposed parging adjacent wall.



Figure 4 - Pipe elbows in Room 003.



Figure 2 - Bulkheads throughout the basement level, including Room 001 shown, may enclose additional pipe parging fittings.



Figure 5 - Some of the covering on the pipe elbow in the back right of Room 003 is incomplete, and should be re-covered or otherwise sealed.



Figure 3 - View of pipes entering bulkhead in Room 001.



Figure 6 - Some of the covering on this pipe elbow in the back left of Room 003 is damaged.

Appendix 4 – Site Photographs, November 2025
Asbestos / Limited Hazardous Materials Assessment, 17 School Street, Meductic, NB



Figure 7 - Pipe insulation and fittings in Room 005. See the grey uninsulated pipe on either side in Figure 8 below.



Figure 10 - The capped valve fitting in Room 007 has exposed parging that appears to be the same type as the asbestos-containing samples.



Figure 8 - Where the cover ends on two elbows in Room 005, some parging is exposed.



Figure 11 - Pipe elbows in Room 008 (shown) and 009 have exposed parging due to incomplete coverings.



Figure 9 - The end of the pipe entering the wall cavity in Room 006 (under stairs storage) has exposed parging.



Figure 12 - Some fittings in Room 010 are slightly mouldy, and some minor cracking is adjacent these valve fittings.

Appendix 4 – Site Photographs, November 2025
Asbestos / Limited Hazardous Materials Assessment, 17 School Street, Meductic, NB



Figure 13 - Location of partially repaired pipe fitting in Room 010. See Figure 14 below.



Figure 16 - Hanger with exposed parging in Room 011.



Figure 14 - This fitting in Room 010 is partially covered, but some exposed parging remains.



Figure 17 - The boiler in Room 010 is mostly in good condition. Also see Figure 18.



Figure 15 - Fittings to left side of doorway to Room 011 (storage under stairs). The elbow to the left is partially painted but has some exposed parging, and the elbow to the right is cracked at both ends.

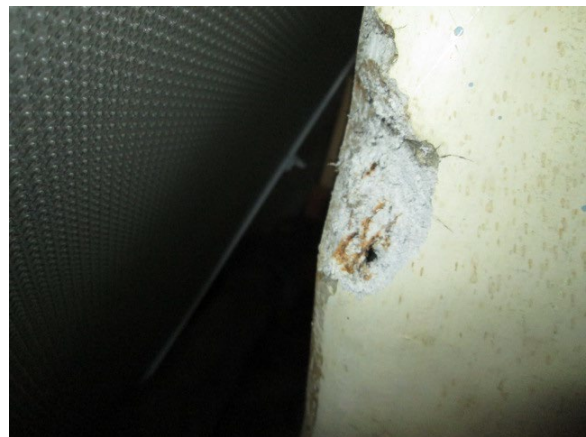


Figure 18 - Some exposed parging is present on the boiler in Room 010 on the back corner of the left side near middle height.

Appendix 4 – Site Photographs, November 2025
Asbestos / Limited Hazardous Materials Assessment, 17 School Street, Meductic, NB



Figure 19 - The hot water tank in Boiler Room 010 also appears to have the same ACM insulation as the boiler.



Figure 22 - 9"x9" dark grey floor tiles on the stairs in Stairway 006A contains asbestos per Sample 10.



Figure 20 - Both 9"x9" floor tiles in Washroom 005 contain asbestos, as does the mastic underneath. Similar conditions were observed at the doorway of Room 007. Also of note, the wood click laminate in the hall and elsewhere may cover older floorings such as shown.



Figure 23 - 12"x12" light green-beige floor tiles on the landing of Stairway 006A also contain asbestos in the tile and mastic. See Sample 11.



Figure 21 - Some of the mastic in Washroom 005 is exposed, including some loose. Loose material should be removed or sealed.



Figure 24 - A sliver of green floor tile was observed underneath stick-on vinyl sheet flooring tiles in Room 105A. Sample 12 shows that these tiles also contain asbestos, and therefore could be underneath other visible flooring.

Appendix 4 – Site Photographs, November 2025
Asbestos / Limited Hazardous Materials Assessment, 17 School Street, Meductic, NB



Figure 25 - In Basement Washroom 005 (shown) as well as Basement Hall 004, pale pink wall paint contains lead above the guideline. Some is also delaminating/flaking.

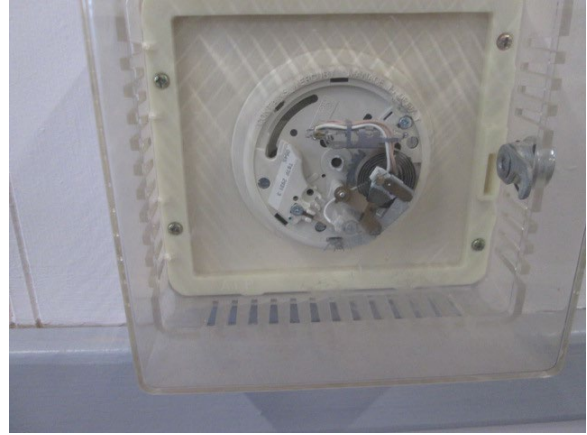


Figure 28 - Another thermostat with no cover in Room 001 at the ramp to 001A also has a mercury vial.



Figure 26 - The Lennox thermostat in Room 001 near Hall 004 has a mercury vial switch. See Figure 27.



Figure 29 - A mercury vial can be seen in this uninstalled thermostat observed in the storage under the stairs in Room 006. See Figure 30.



Figure 27 - The glass vial in the thermostat seen in Figure 26 has mercury present.



Figure 30 - The thermostat in Room 006 was found in a box as shown below.

Appendix 5
Disposal of Friable Asbestos
NB Department of Environment and Local Government

Department of Environment and Local Government

Disposal of Friable Asbestos

Friable (crumbly) asbestos waste is defined as friable waste material containing asbestos fibre or asbestos dust in a concentration greater than 1% by weight.

Friable asbestos waste can become airborne and inhaled. Therefore, extreme care must be taken during the removal, transportation and disposal of this material. The most common form of friable asbestos includes the sprayed-on or plastered material used for insulating, fireproofing, or decorative purposes.

Asbestos which is tightly bound, and is not easily crumbled by the hands does not require special disposal. Following these instructions will keep you compliant with our provincial environmental legislation.

Disposal

- Follow WorkSafe New Brunswick's "A Code of Practice for Working with Materials Containing Asbestos in New Brunswick" (<http://www.worksafenb.ca/asbestos.htm>)
- Asbestos waste can only be disposed of at the following landfills **by appointment**:
 - **Regional Service Commission 11** (formerly Fredericton Region Solid Waste Commission)
 - **Regional Service Commission 9** (formerly Fundy Region Solid Waste Commission)
 - **Regional Service Commission 1** (formerly Commission de gestion Enviro-Ressource du Nord-Ouest (COGERNO))
 - **Regional Service Commission 10** (formerly South West Solid Waste Commission)
 - **Regional Service Commission 7** (formerly Westmorland-Albert Solid Waste Corporation)
 - **Regional Service Commission 3** (formerly Nepisiguit-Chaleur Solid Waste Commission)
- Only asbestos waste generated within New Brunswick shall be disposed in the landfills.
- Asbestos waste must be wetted, placed in either double-bagged 6 mil polyethylene bags securely tied or in a single 6 mil polyethylene bag securely tied and placed in either a drum or in a standard size cardboard box with all seams securely taped.
- Each bag, cardboard box and drum must be clearly labelled "WASTE ASBESTOS UN 2590" or "DÉCHETS D'AMIANTE UN2590".
- If the bags are punctured, the contents must be wetted and repackaged prior to landfilling.
- The personnel handling the asbestos waste must wear the proper respirators and clothing during the unloading and disposal of the asbestos waste.
- Unloading of the vehicle will be done by the driver or helper.

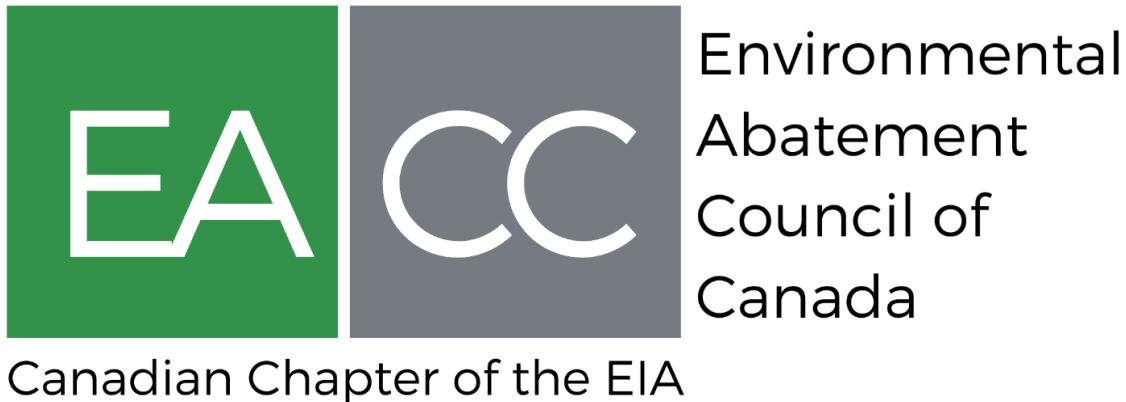
Appendix 6
EACC Lead Guideline
For Construction, Renovation, Maintenance or Repair
Environmental Abatement Council of Canada

EACC

Lead Guideline

For Construction, Renovation, Maintenance or Repair

October 2014



Foreword

This guideline has been prepared to assist building owners, constructors, contractors, subcontractors and workers who have duties under the Occupational Health and Safety Act and its Regulations to safely perform work activities involving lead, lead-containing or lead-contaminated materials. The guideline is intended to promote safe work practices, the use of appropriate personal protective equipment, worker awareness and training and is based in a thorough review of regulatory and guidance materials available to August 2014, as well as professional experience of the abatement industry in Ontario.

We believe that this guideline will not only help employers fulfill their responsibilities and due diligence, under the Occupational Health and Safety Act, but will also assist them to better address the challenges involved with implementing proper work procedures during activities involving lead, lead-containing or lead-contaminated materials.

Disclaimer

EACC disclaims any liability or risk resulting from the use of the work practices and recommendations discussed in the guideline. It is the user's responsibility to ensure that work practices and recommendations discussed in the guideline apply to specific workplaces and projects and to ensure compliance with all other applicable federal, provincial and local acts, codes and regulations.

EACC

Lead Guideline

For Construction, Renovation, Maintenance or Repair

October 2014

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TABLE 1	Symptoms and Adverse Health Effects of Lead Poisoning
TABLE 2	Determination of Class by Airborne Lead Concentration
TABLE 3	Lead-Specific Personal Protective Equipment
TABLE 4	Minimum Number of Clearance Samples
TABLE 5	Wipe Sampling Clearance Criteria
TABLE 6	Analytical Methods and Corresponding Limits of Detection

FIGURE 1	Typical Class 3 Lead Operation Decontamination Facilities Layout
-----------------	--

APPENDIX I	List of Legislation, Guidelines and Relevant Documents
APPENDIX II	Definitions

EACC

Lead Guideline

For Construction, Renovation, Maintenance or Repair

October 2014

1. INTRODUCTION, GENERAL POINTS AND LIMITATIONS

1.1 Introduction

Interpretation and application of existing regulations and guidelines regarding lead are inconsistent within the construction and abatement industry, which impacts decisions regarding worker protection, occupant health and cost. Recognizing these issues, EACC has developed a guideline that transcends barriers between the assessment of lead in building materials and abatement and control procedures.

In this document, work on lead is defined as operations involving the handling, application, removal, disturbance or clean-up of Lead-Containing Materials (LCM) as defined in Appendix II and Section 3.2.

1.2 General Points

This guideline is intended for the environmental abatement industry, construction industry and the painting industry in general. The procedures identified herein are based on the current state of the science, practical experience and industry standard best-practices for lead abatement and dust control methods.

This guideline is not intended to address lead contamination in soil or in water.

1.3 Limitations

EACC is not responsible for the interpretation or use of the information contained within this document. It is the responsibility of the user to determine whether the information contained herein is appropriate to the user's specific activities. While EACC has attempted to identify and provide procedures for common scenarios, where lead abatement and control may be required, not all situations can be anticipated in advance. Therefore, the information contained within this document may not be suitable for all activities involving lead and caution should be used in applying the methods and procedures outlined in this document. Use professional judgement and if in doubt, contact a health and safety professional with experience in lead assessments and lead abatement operations.

EACC

Lead Guideline

For Construction, Renovation, Maintenance or Repair

October 2014

2. REGULATIONS AND GUIDELINES

2.1 Canadian Federal Limits for Lead in Paints and Surface Coatings

The Canadian Federal Government began limiting the amount of lead in certain new paints to 0.5% by weight (5,000 mg/kg, µg/g, parts per million [ppm]) in 1976. The Surface Coating Materials Regulation (SOR/2005-109) dated April 19, 2005, as amended, pursuant to the 2005 Hazardous Products Act, revised the standard to limit the amount of lead in certain paints to 0.06% (600 ppm). In October 2010, this was revised to 0.009 % (90 ppm). As detailed in the Surface Coating Materials Regulation (SOR/2005-109), paints and surface coatings manufactured for the following uses are excluded from the limitation on lead content:

- 1) as an anti-corrosive or an anti-weathering coating applied on the interior or exterior surface of any building or equipment that is used for an agricultural or industrial purpose;
- 2) as an anti-corrosive or an anti-weathering coating applied on any structure, other than a building, that is used for an agricultural, industrial or public purpose;
- 3) as a touch-up coating for metal surfaces;
- 4) on traffic signs;
- 5) for graphic art on billboards or similar displays;
- 6) for identification marks in industrial buildings; or
- 7) as material for the purposes of arts, crafts or hobbies, other than material for use by children (SOR/2010-224, s.1).

2.2 Ontario Regulation 490/09 – Designated Substances

This regulation applies to every employer and worker at a workplace where lead is present, produced, processed, used, handled or stored and at which a worker is likely to be exposed to lead.

2.3 Ministry of Labour Guideline – Lead on Construction Projects

This document is intended to assist persons who have duties under the Occupational Health and Safety Act, and its regulations, to protect workers from exposure to inorganic lead on construction projects.

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Lead Guideline

For Construction, Renovation, Maintenance or Repair

October 2014

3. HISTORY OF LEAD AND LEAD USES

3.1 History

Lead has been commonly used for many industrial and commercial purposes for thousands of years, primarily because it is widely available, easy to extract and easy to work with. Lead is a naturally occurring heavy metal that is solid at room temperature and has a melting point of 327.5 degrees Celsius. Metallic lead has a bluish-white colour after being freshly cut and tarnishes to a dull gray when exposed to air. Lead was, and is, used in applications where low melting point, malleability and high density are useful.

3.2 Common Uses of Lead in Buildings

The following list includes the most common uses or application of lead in buildings. The list is not intended to be exhaustive.

- 1) Acoustic dampening baffles;
- 2) Additive in brass and other alloys;
- 3) Babbitt (bearing metal);
- 4) Batteries;
- 5) Cable and wire casing;
- 6) Cast iron pipe gaskets and connections;
- 7) Counterweights;
- 8) Decorative pieces;
- 9) Flashing;
- 10) Gaskets;
- 11) Glazing;
- 12) Indoor firing ranges;
- 13) Lead glass;
- 14) Late 19th and early 20th century tinted mortar at stone cladding;
- 15) Paint and surface coatings;
- 16) Pipes;
- 17) Radiation shielding (bricks or sheeting);
- 18) Solder (plumbing and electrical);
- 19) Stained glass and window came; and
- 20) Structural steel primer.

EACC

Lead Guideline

For Construction, Renovation, Maintenance or Repair

October 2014

3.3 Exposure Risks to Workers by Activity

Exposure to lead can result in almost any trade. Primarily, workers at highest risk for lead exposure include those involved in iron work, construction work, demolition, painting, plumbing, welding, heating and air conditioning work, building maintenance and repair work, electrical work and carpentry, renovation, and remodeling work.

Operations with the potential to expose workers to lead include, but are not limited to, the following list of activities where lead-containing materials are being disturbed. The list is not intended to be exhaustive.

- 1) Abrasive blasting;
- 2) Application or removal (e.g. by scraping, sanding) of lead-based or lead-containing paints and surface coatings;
- 3) Heat gun applications;
- 4) Lead burning;
- 5) Demolition, renovation or repair of structures where lead, lead-based or lead-containing paints or surface coatings are present;
- 6) Removing, repointing or disturbing lead-containing mortar;
- 7) Welding, high temperature cutting, torch cutting and burning of primed or painted steel structures;
- 8) Soldering;
- 9) Removing lead paint from bridges, structural steel and other materials; and
- 10) Installing or removing lead products (such as lead panels, lead sheeting and lead bricks used for shielding radiation sources).

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4. HAZARDS OF LEAD AND HEALTH EFFECTS

For the purpose of this document, lead refers to inorganic lead. Lead may affect the health of workers if it is in a form that may be inhaled or ingested. Inhalation of lead is considered the primary route of occupational exposure. When lead is present in the air as dust, fume or mist, it can be inhaled into the lungs and upper respiratory tract and then absorbed into the body. Incidental ingestion may occur when lead on work surfaces are transferred, to clothes and hands, and then to the mouth during eating, drinking, smoking, chewing or, touching of the face. Incidental ingestion may also occur when workplace surfaces are not properly cleaned, and good hygiene practices are not followed.

Lead exposure may occur in the form of dust (created through cutting, drilling, grinding, abrading, sanding, vibrating or polishing; as well as through activities related to renovation, demolition, repair or maintenance operations) or fume (created when lead is heated to temperatures above its melting point). Typically, temperatures above 500°C experienced during smelting, refining, welding and flame cutting or burning, are required before significant airborne concentrations of fumed lead are produced.

When lead is inhaled or ingested, it can enter the bloodstream and travel to soft tissues (such as the liver, kidneys, lungs, brain, spleen, muscles and heart). Some of this lead is filtered out of the body and excreted via urine, faeces, sweat and sloughing of dead skin. However, over time, lead in the body will move into the bones and teeth and can be stored there for a long time. Lead does not have a known function in the human body. It disrupts the function of enzyme systems that use other metals such as calcium, zinc and iron. Many of the health effects from lead take a long time to develop and may only become apparent after years of exposure.

Chronic exposure to small amounts of lead can result in a build-up of lead in the body over time, and the more lead in the body, the more likely that health problems will be experienced. Lead will naturally leave the body over time, but under conditions of continued exposure not all lead will be eliminated and will accumulate in body tissues and bone.

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4.1 Symptoms of Lead Exposure

Harmful effects can follow a high exposure over a short-term (acute exposure), or a low exposure over a long-term (chronic exposure).

Table 1: Symptoms and Adverse Health Effects of Lead Poisoning

Acute	• Abdominal cramps • Acute encephalopathy, a condition affecting the brain that develops quickly into seizures, coma, and death from cardiorespiratory arrest (extremely rare) • Constipation	• Diarrhea • Headaches • Irritability • Metallic taste in the mouth • Muscle and joint pain • Tiredness • Vomiting
Chronic	• Anemia, a low number of blood cells • Anxiety • Blue line on the gums • Colic with severe abdominal pain • Constipation • Damage or impairment to the reproductive systems • Damage to the blood forming system • Damage to the brain and kidneys • Damage to the nervous system • Damage to the urinary system • Dizziness • Excessive tiredness • Headaches • High blood pressure	• Hyperactivity • Impaired intellectual development, behaviour, size and hearing of infants. • Insomnia • Loss of appetite • Metallic taste in the mouth • Muscle and/or joint pain or soreness • Nausea • Nervous Irritability • Numbness • Pallor • Possible carcinogen (cancer causing) • Tremors • Weakness (including in fingers, wrists, or ankles) • Wrist drop (the inability to hold the hand extended)

Symptoms listed above should not be relied upon to warn of or to self-diagnose lead-exposure. Some workers may not exhibit a change in health and two workers with similar exposures may exhibit significantly different symptoms. Proper medical assessment and testing by a physician is the only way to assess health impacts due to lead exposure.

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Workers may carry lead-containing dust home on clothes, footwear, skin or hair, thereby increasing secondary exposure to themselves and potentially exposing family members to lead. The best approach in preventing lead exposure and lead poisoning is to be aware of its presence, ensure that proper engineering controls are in place and that control measures are properly implemented during the disturbance, handling, disposal and clean-up of lead and to follow proper worker hygiene (washing) procedures.

For additional information on the Health Effects of lead exposure, refer to “*Health Canada Final Human Health State of the Science Report on Lead*”, February 2013.

4.2 Blood Lead Level and Total Body Burden

Worker exposure to lead is assessed by two primary exposure indices: Blood Lead Level (BLL) and Lead in Mineralizing Tissues, specifically bones and teeth. Thirdly, some lead may also accumulate in soft body tissue (liver, kidneys, lungs, brain, spleen, muscles and heart). The sum of these indices is referred to as Total Body Burden (TBB). BLL is a measure of the amount of lead in the blood and can be used to determine if additional control measures are required or if workers require removal from a work environment. In order to help ensure lead levels in the body do not reach the point where removal from work or treatment is required, airborne lead exposure limits have been established to control the inhalation exposure to workers and proper hygiene procedures are used to control worker ingestion of lead.

5. OCCUPATIONAL EXPOSURE LIMITS

Employers are required by Ontario Regulation (O. Reg.) 833 “*Control of Exposure to Biological or Chemical Agents*” to limit the exposure of workers to specified hazardous biological or chemical agents in accordance with the values set out in the Regulation. In addition, O. Reg. 490/09 “*Designated Substances*” specifies worker exposure limits to lead. If a hazardous biological or chemical agent is not listed, the regulation prescribes the use of the exposure values set by the American Council of Governmental Industrial Hygienists (ACGIH). These values restrict the amount and duration of worker exposure to airborne concentrations of hazardous biological or chemical agents.

Currently, construction site projects are exempt from these regulations, however, under the occupational health and safety act general duty requirements, employers are required to do everything reasonable and practicable to protect workers from workplace hazards. Maintaining worker exposure within the prescribed occupational exposure levels is considered best management practice for construction workers.

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5.1 Airborne Lead Exposure Limits

Ontario Regulation 490/09

- 0.05 mg/m³ Time-Weighted Average (TWA)(8 hour day or 40 hour week).

Ontario Regulation 833

- 0.05 mg/m³ TWA(8 hour day or 40 hour week).

5.2 Rationale for Determination of De Minimis (i.e. virtually safe) Level

O. Reg. 490/09 and O. Reg. 833 prescribe time-weighted average (TWA) occupational exposure levels in Ontario for airborne lead in industry. The Ministry of Labour Guideline “Lead on Construction Projects” established measures and procedures for certain operations to protect worker health based on the type of work (lead operation being done) to maintain worker lead exposure within the TWA prescribed by O. Reg. 490/09 and O. Reg. 833. This guideline provides additional information and procedures for other activities, to enhance worker safety and assist in regulatory compliance.

Work activities involving lead are categorized by this guideline as Class 1, Class 2 or Class 3 Lead Operations. Classes of lead operations are defined in Section 7. Measures, procedures, controls and personal protective equipment requirements for each Class are provided in Section 8.

Various occupational and workplace safety authorities and agencies consider that, depending on the type of disturbance, airborne lead could be generated in hazardous levels from any amount of lead in a paint or surface coating. As such, these agencies have not set a level of lead in paint at which lead-related precautions are not required (a de minimis level). Similarly, there is no established concentration of lead below which lead procedures are not required if a lead-containing material is disturbed.

With no set level below which lead precautions are not required, lead precautions would be required when disturbing a material containing any measureable amount of lead. Several issues arise when abatement, construction repairs or maintenance are required:

- Lead is frequently present in low part per million concentrations in paints and surface coatings due to contaminants in the ingredients. Almost all coatings will be assumed to contain lead since it is not possible, using current analytical methods, to measure zero lead concentration. Therefore, no paint or surface coating can be said to be lead-free.

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- If any concentration of lead in paint or surface coating can create an airborne hazard, then every disturbance, including disturbance of new paint or surface coating (legally containing up to 0.009% lead) is a hazard. This implies that tasks such as new paint applications, drilling a hole through a painted surface, or cutting an opening in a painted surface, no matter how small, would be considered a lead operation.
- Nearly every construction or maintenance worker would disturb lead at some point. Therefore, each worker would require lead abatement training, medical surveillance, and every employer would require a respirator program.
- Since there is no Ontario exposure limit for lead exposures in construction, workers on construction sites may not be protected to the same extent as workers in other workplaces.

This guideline establishes a de minimis (i.e. virtually safe) level of lead in paint or surface coatings where a hazard would not likely be present. The following rationale applies to tasks that do not create excessive or significant dust, mist or fume. Tasks that generate significant dust, mist or fume are excluded and always require adherence to Class 2 or Class 3 operations or require an exposure assessment.

Considering:

- The Ontario TWA for lead is 0.05 mg/m³,
- The Ontario TWA for Particles Not Otherwise Specified (PNOS), sometimes termed “nuisance dust”, is 10 mg/m³ measured as inhalable dust; and
- The U.S. Environmental Protection Agency (EPA) and The Department of Housing and Urban Development (HUD) guideline states that a lead-based paint is any paint containing 0.5% lead (or 1 mg/cm² if measured by an X-Ray Fluorescence Analyzer (XRF)).

If a paint or surface coating containing 0.5% lead was made completely airborne, but not diluted by other dusts (i.e. if all of the paint was sanded off and made airborne and the substrate untouched), then the PNOS TWA would have to be exceeded in order for the lead TWA to be exceeded:

$$10 \text{ mg/m}^3 \text{ PNOS (nuisance dust)} \times 0.5\% \text{ lead} = 0.05 \text{ mg/m}^3 \text{ airborne lead} \\ \text{(which equals the TWA)}$$

If work is done on lead-containing paint or surface coatings (containing up to 0.5% lead) and the PNOS TWA is not exceeded then the Occupational Exposure Limit (OEL) for lead cannot be exceeded. This is conservative as some of the substrate would be expected to become airborne in most disturbances (e.g. power tool disturbance of paint on plaster or wood, hand or power sanding of painted wood).

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Similarly, if a painted surface with 0.25% lead was made completely airborne (and not diluted) then the TWA for lead could not be exceeded unless the TWA for PNOS was exceeded by at least a factor of two. This represents a concentration that is half the TWA (commonly called an action level) and, consistent with standard occupational hygiene practice, would not require respiratory protection.

The U.S. Occupational Safety and Health Administration (OSHA) has set 0.03 mg/m³ (30 µg/m³, TWA) as an action level:

The interim final standard establishes an action level of 30 micrograms of lead per cubic meter of air (30 µg/m³), averaged over an 8-hour workday. The action level triggers several ancillary provisions of the standard such as exposure monitoring, medical surveillance, and training.

Based on this approach OSHA does not require lead-specific precautions if the airborne exposure is below the action level. In this case, the non-lead portion of the paint (particulate matter) is the limiting hazard.

The Workplace Hazardous Material Information System (WHMIS) is enforced in all work places, and at less than 0.1%, an ingredient does not need to be listed on the Material Safety Data Sheet (MSDS). If a material containing less than 0.1% lead was to be made airborne then the TWA for PNOS would have to be exceeded by at least 5 times before the TWA for lead would be exceeded.

Lead content of 0.1% (i.e. 1000 µg/g or 1000 mg/kg or 1000 ppm lead) is considered a de minimis level of lead in paint or surface coatings, provided that aggressive disturbance or heating does not occur.

5.3 “De minimis” or “virtually safe” Lead Level for Paints and Coatings

For the purpose of this guideline:

- Paints or surface coatings containing less than or equal to 0.1% lead by weight (1000 µg/g or 1000 mg/kg or 1000 ppm lead) are considered low-level lead paints or surface coatings. If these materials (and the surfaces to which they are applied) are disturbed in a non-aggressive manner, performed using normal dust control procedures and are completed so that the TWA for PNOS is not exceeded, then worker protection from the inhalation of lead is not required. General health and safety precautions must still be implemented, which may include, in part, prohibiting eating, drinking, smoking and chewing in the work area, implementing dust suppression techniques and washing facilities for workers to wash hands and face.

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- Paints or surface coatings containing greater than 0.1% lead by weight (1000 µg/g, or 1000 mg/kg, or 1000 ppm) but less than 0.5% lead by weight (5000 µg/g, or 5000 mg/kg, or 5000 ppm lead) are considered lead-containing paints or surface coatings. Tasks performed that disturb these materials must be completed in accordance with the Classifications of Work Operations (in Section 7) and corresponding procedures (in Section 8). Alternatively, a hygiene or exposure assessment can be performed to determine procedures that are required.
- Regardless of lead content in paints or surface coatings, tasks that create an aggressive disturbance of coatings such as torching/welding, abrasive blasting must always be completed in accordance with the procedures listed in the Classifications of Work Operations (in Section 7) and corresponding procedures (in Section 8). Alternatively, a hygiene or exposure assessment can be performed to determine procedures that are required.
- Construction operations involving lead-based paints or surface coatings (i.e. concentrations equal to or greater than 0.5% lead by weight (5000 µg/g, or 5000 mg/kg, or 5000 ppm lead) must always be completed in accordance with the procedures listed in the Classifications of Work Operations (in Section 7) and corresponding procedures (in Section 8). Alternatively, a hygiene or exposure assessment can be performed to determine procedures that are required.

5.4 Blood Lead Monitoring and Medical Surveillance

Even with appropriate measures to control lead in the workplace, some workers may be occupationally and non-occupationally exposed. Periodic medical examinations are important for determining if the control measures in place are effective and being properly followed. Medical surveillance is a method of early detection of lead over exposure and assists in prevention of lead poisoning.

EACC recommends that all lead workers be tested for blood lead levels to properly document lead accumulation from all exposure sources including inhalation and ingestion. Testing for blood lead levels is recommended as follows.

- 1) Prior to starting to work with lead;
- 2) Immediately prior to long-duration lead abatement projects (regardless of Class);
- 3) Monthly during;
 - a. prolonged lead abatement projects (regardless of Class),
 - b. frequently completed lead operations (regardless of Class), or
 - c. Class 3 lead abatement projects.

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- 4) At the end of long-duration lead abatement projects (regardless of Class);
and
- 5) At least annually for workers involved in incidental lead work.

Consideration should also be given to additional project-specific testing for Class 2B or Class 3 Operations.

5.5 Blood Lead Guidelines

Blood lead level (BLL), is measured in micrograms of lead per decilitre of blood ($\mu\text{g/dL}$) or micromoles of lead per litre of blood ($\mu\text{mol/L}$).

The current Ontario Code for Medical Surveillance of Lead indicates the following limits:

- $> 70 \mu\text{g/dL}$ – remove from work
- $> 60 \mu\text{g/dL}$ – Action Level: enquiry regarding work practices & personal hygiene
- $\leq 50 \mu\text{g/dL}$ – acceptable for return to work
- $> 40 \mu\text{g/dL}$ – fertile woman must be removed from work

6. WORKER TRAINING

6.1 Training

Training is the first step in ensuring a safe and healthy workplace. It provides employers and workers with the knowledge required to protect themselves and others from injury and illness.

All workers involved in the disturbance or handling of lead-containing materials, or are otherwise exposed to lead, shall receive training.

Training shall be provided by a “Competent Person” as defined by the Occupational Health and Safety Act (OHSA) and ideally by an individual with lead identification and lead abatement training and experience.

The employer shall implement and document a training program for workers and ensure worker participation in the program. Training shall be completed for a worker conducting work which involves lead or may expose a worker to lead. Training shall be provided every 3 years at a minimum. For workers who conduct work that is routinely above the time-weighted average (TWA) for lead (i.e. Class 2 or Class 3 Operations), training shall be provided at least annually.

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At a minimum training shall include:

- a) Brief history of lead usage with a focus on lead in building materials,
- b) Review of Material Safety Data Sheets (MSDS),
- c) Review of the health hazards and illnesses association with lead exposure,
- d) Discussion on the health effects of lead on adults and children,
- e) Lead exposure symptom recognition,
- f) Description of how lead is stored in the body and can cause health effects later in life, and the limitations of blood lead monitoring,
- g) Explanation of routes of entry into the body including inhalation, ingestion and skin absorption. With attention paid to the risks associated with subsequent ingestion and the prohibiting of eating, smoking or chewing in the work area,
- h) Explanation of secondary exposure and exposure of family by taking contamination home on work clothing,
- i) The identification and nature of operations and activities that could result in lead exposure,
- j) Definition of the de minimis level for lead in paints and surface coatings and an explanation of its concept,
- k) Explanation of legislative exposure values for airborne lead,
- l) The purpose of Personal Protective Equipment (PPE), particularly coveralls and respirators,
- m) The selection, fitting, use, maintenance, and limitations of PPE,
- n) The proper donning (putting on) and doffing (taking off) and disposal of PPE,
- o) Review proper hand and face washing and hygiene techniques,
- p) The benefits of using indicator and chelating soaps and wipes to ensure adequate hand washing,
- q) The measures and procedures for various lead operations,
- r) The purpose and benefits of a medical surveillance program, and
- s) General non-lead hazards that may exist on lead projects.

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6.2 Training Requirements – Lead Awareness and Class 1 Operations

In addition to the requirements of sections 6.1:

- a) Lead Awareness Training shall be no less than four hours in duration,
- b) Workers shall be trained in the measures and procedures prescribed in Class 1 Operations (Section 7.1), and
- c) Proper waste classification and disposal in accordance with the Ontario Ministry of Environment Regulations.

6.3 Training Requirements – Class 2 and Class 3 Lead Operations

In addition to the requirements of section 6.2:

- a) Class 2 and Class 3 Lead Operations Training Program shall at a minimum be 1 day (7.5 hours) in classroom theory and shall include a practical hands-on training component,
- b) The employer shall ensure that every worker performing or involved with Class 2 and Class 3 Operations has successfully completed Lead Awareness Training and Class 2 and Class 3 Operations Training Program,
- c) Shall clearly define Class 2 and Class 3 Operations, and
- d) Proof of successful completion shall be issued to both the worker and employer in the form of a certificate.

NOTE: A worker certified with the 253H designation granted by the Ontario Ministry of Training Colleges and Universities (MTCU) is considered to have training equivalent to the requirements of Class 2 and Class 3 as stipulated in this guideline.

7. CLASSIFICATION OF WORK OPERATIONS

Each class of work specifies respirators, measures and procedures that shall be used and followed to protect workers and others from lead exposure. Work is classified based on the type of disturbance or activity that may cause lead exposure and/or the anticipated airborne concentration of lead. In this guideline, work involving lead is classified into three groups, Class 1, Class 2 and Class 3 Operations. Class 2 and Class 3 Operations are further subdivided. Airborne lead concentration typically increases as the classification increases.

NOTE: The application of a physical barrier (e.g. an encapsulant or new coat of paint) to a stabilized lead-containing material, or a paint or surface coating, is not considered a Lead Operation regardless of the concentration on lead in the underlying material. This also pertains to

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applying new low-lead level paints or surface coatings to lead-containing or lead-based paints or surface coatings (e.g. repainting).

7.1 Class 1 Operations

- a) Removal of lead-containing or lead-based paints and surface coatings with a chemical gel/stripper or paste.
- b) Application of lead-containing or lead-based paints and surface coatings with a brush, roller or sponge.
- c) Installation or removal of lead sheeting or flashing.
- d) Installation or removal of lead-containing packing, babbitt, caulking, gasket or similar material.
- e) Removal of materials coated with lead-containing or lead-based paints and surface coatings, using non-powered hand tools, where the material remains chiefly intact and is not crumbled, pulverized or powdered.
- f) Operating construction or demolition equipment (e.g. excavator, bulldozer) during building renovation or demolition where lead-based paints or surface coatings are present on building materials and are being disturbed.
- g) Soldering with lead solder.
- h) Removing lead-containing or lead-based paints or surface coatings with a heat gun.
- i) Removing lead-containing and lead-based paints and surface coatings using a high-pressure water jet (e.g. pressure washer).

7.2 Class 2 Operations

7.2.1 Class 2A Operations

- a) Removal of lead-containing or lead-based paints and surface coatings or lead-containing materials using a power tool that has an effective dust collection system¹ equipped with a HEPA filter.
- b) Welding, torching or high temperature cutting of lead-containing materials indoors when using an effective fume collector or smoke eater² that filters and exhausts lead fume and expels it directly outdoors (away from occupants, entrances, walkways, rest areas, etc.). Fume collector or smoke eater must have

¹ An effective dust collection system, which is an engineering control, that controls airborne lead concentration levels (measured on the worker) to below 0.05 mg/m³.

² An effective fume collection system/smoke eater, which is an engineering control, that controls airborne lead concentration levels (measured on the worker) to below 0.05 mg/m³.

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effective source control and capture velocity, minimum of 0.5 metres per second (100 feet per minute) at the work surface.

- c) Welding, torching or high temperature cutting of lead-containing and lead-based paints and surface coatings or lead-containing materials outdoors.
- d) Removal of lead-containing mortar using handheld non-powered tools.
- e) Removal of lead-containing and lead-based paints and surface coatings or lead-containing materials by scraping or sanding (including wet sanding) using non-powered hand tools.
- f) Demolition of plaster or building components that crumble, pulverize or powder and are covered with lead-containing or lead-based paints or surface coatings.
- g) Clean up and removal of a significant amount of lead-containing dust and debris (that can be made easily airborne) using wet methods or HEPA vacuums.

7.2.2 Class 2B Operations

- a) Spray application of lead-containing paints and surface coatings.

7.3 Class 3 Operations

7.3.1 Class 3A Operations

- a) Removal of lead-containing or lead-based paints and surface coatings or lead-containing materials using a power tool without an effective dust collection system equipped with a HEPA filter.
- b) Welding, torching or high temperature cutting of lead-containing materials indoors or in a confined space (e.g. within a ditch or pit).
- c) Removal of lead-containing mortar using a powered cutting device.
- d) Burning of a material containing lead.
- e) Removal, cleaning or repair of a ventilation system or ductwork used for controlling lead exposure.
- f) Spray application of lead-based paints and surface coatings.
- g) In the absence of an exposure assessment:
 - i. demolition or cleanup of a facility where lead-containing products were manufactured and significant dust and debris, which can be made easily airborne, is present.
 - ii. cleanup of dust and debris down range of a firing station in an indoor firing range.

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- iii. an operation that may expose a worker to lead dust, fume or mist that is not a Class 1, Class 2, or Class 3B operation.

7.3.2 Class 3B Operations

- a) Abrasive blasting of lead-containing and lead-based paints and surface coatings or lead-containing materials (including wet, slurry and dry abrasive blasting and dry-ice blasting).

7.4 Alternate Work Classification Method

Alternatively, the classification of Lead Operations during construction can be based on airborne concentrations.

Table 2: Determination of Class by Airborne Lead Concentration

Class 1 Operations	Class 2 Operations		Class 3 Operations	
	Class 2a	Class 2b	Class 3a	Class 3b
0.025 to 0.05 mg/m ³	>0.05 to 0.50 mg/m ³	>0.50 to 1.25 mg/m ³	>1.25 to 2.50 mg/m ³	>2.50 mg/m ³

Procedures that generate airborne lead at concentrations below 0.025 mg/m³ do not require the use of lead procedures or personal protective equipment, however general health and safety precautions must still be implemented, which may include, in part, prohibiting eating, drinking, smoking and chewing in the work area, implementing dust suppression techniques and establishing washing facilities for workers to wash hands and face.

Determination of airborne lead concentrations can be made by conducting a negative exposure assessment consistent with the principles of the American Industrial Hygiene Association (AIHA), “Strategy for Assessing and Managing Occupational Exposures”. The assessment will measure the airborne lead concentrations during a specific work activity, under specific conditions, while implementing control measures detailed in Section 8. The assessment may demonstrate that engineering controls and other preventive measures are maintaining airborne concentrations of lead within an acceptable exposure range. This proof of exposure control can be used to classify a specific activity or to justify the use of alternative lead-specific precautions pertaining to an existing Class. In order to determine (or reduce) the Classification of a work operation, a negative exposure assessment shall be completed and must include worker personal air monitoring.

Local exhaust ventilation, dust collectors, enclosures or other engineering controls may be used to reduce airborne lead concentrations and reduce the measures and

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procedures prescribed in the applicable Class. An exposure assessment shall be performed to ensure the effectiveness of the controls.

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8. ENGINEERING CONTROLS, PROCEDURES AND HYGIENE

8.1 Planning

An evaluation of the site shall be completed by a competent person to identify classes of work and prepare a plan to satisfy site specific requirements.

8.2 Inspections

A pre-start inspection shall be completed by a competent person. The purpose of this inspection is to ensure and document that the prescribed measures are established and acceptable prior to the start of any work that will disturb lead. The following are minimum inspection requirements:

- a) An inspection of the work area signage and containment, if applicable.
- b) An inspection of the equipment.
- c) An inspection of the hygiene facilities and intended procedures.
- d) An inspection of ventilation controls, if applicable.

Routine inspections must be scheduled while the lead operations are ongoing to ensure and document that the prescribed measures remain in-place and the prescribed procedures are being followed.

Prior to each shift, a competent person shall inspect the work area, any enclosures and washing facility or decontamination facility for defects or deficiencies. All defects and deficiencies shall be corrected before work resumes. The decontamination facility shall be maintained in a clean and sanitary condition.

8.3 General Principles

The strategy for controlling airborne lead hazard is broken down into following basic principles:

- a) Worker education,
- b) Prevent lead from becoming airborne,
- c) Prevent airborne lead from spreading,
- d) Remove airborne lead,
- e) Prevent workers from inhaling airborne lead and or ingesting lead, and
- f) Adequate cleaning to control exposure to lead residue.

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To avoid the ingestion, inhalation and unintentional transfer of lead from contaminated areas, it is essential to have the following control methods in place:

- a) Engineering controls,
- b) Work practices,
- c) Hygiene practices, and
- d) Protective clothing and equipment.

8.4 Engineering Controls

Workplace stakeholders, which may include owners, constructors, contractors, specification writers, supervisors and workers, involved in construction projects that may expose workers to lead should:

- a) Substitute lead-containing materials with low lead content (or materials described commercially as lead-free) alternatives where possible.
- b) Select methods and equipment for the removal or installation of lead-containing materials that will reduce dust generation (e.g. wet methods, such as wet sweeping and shovelling) and shall be used whenever practicable.
- c) Provide general mechanical ventilation to remove contaminated air from the workplace. The replacement air entering the work area must be free from contamination with any hazardous dust, mist, fume, vapour, or gas.
- d) Provide local mechanical ventilation to remove dust, mist and fumes at the source whenever possible. Local mechanical ventilation shall have adequate capture velocity at the source of generation to control worker exposure to dust mist and fumes containing lead. The following should be met.
 - i. Cross draft 0.5 metres per second (100 feet per minute), and
 - ii. Down draft 0.25 metres per second (50 feet per minute).
- e) Unless working in a Class 3 enclosure, power tools used to remove lead-containing paints and surface coatings shall be equipped with an effective dust collection systems attached to HEPA Filters. The dust shroud shall be kept flush with the surface from which the paint or surface coating is being removed.

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8.5 Work and Hygiene Practices

Work practices, personal protective equipment and hygiene practices are on-the-job activities that reduce exposure to lead. Lead-containing material can accumulate on the hands, clothing and hair and when disturbed, can be re-suspended in air and inhaled or ingested. Personal protective clothing and equipment for each Class of lead operation is described in Section 9. Workers shall decontaminate at the end of each shift. The specific washing and decontamination facilities that shall be provided for lead work are detailed in Section 10. For all work with the potential for lead exposure, there shall be no smoking, eating, drinking or chewing in contaminated areas. Food, beverages and tobacco products shall be left outside the work area.

An effective housekeeping program requires regular clean-up and removal of lead-containing dust and debris. Surfaces shall be kept clean by washing down with water or cleaning with a vacuum equipped with a HEPA filter. Lead waste containers shall be kept tightly covered (dust tight) to prevent dust from becoming airborne. Cleaning with compressed air or dry sweeping shall not be performed.

8.6 Measures and Procedures for Class 1, Class 2 and Class 3 Operations

This section of the guideline outlines the general measures and procedures for all work with lead-containing materials, followed by specific minimum recommendations for Class 1, Class 2 and Class 3 operations.

8.6.1 Class 1 Operations

- a) Washing facilities consisting of a wash basin, clean water, soap (consider the use of lead-specific soaps and hygiene indicators based on the scope of the Operation) and towels shall be provided. Workers shall use these washing facilities upon leaving the work area and before eating, drinking or smoking.
- b) Respirators should not be necessary if all general health and safety procedures are followed. However, any worker who requests a respirator shall be provided with a respirator, as prescribed in Table 3, and the worker shall wear the respirator.
- c) Coveralls should not be necessary if all general health and safety procedures are followed. However, any worker who requests coveralls shall be provided with coveralls, as prescribed in Section 9, and the worker shall wear the coveralls.
- d) Gloves shall be provided, as prescribed in Section 9, and the worker shall wear the gloves.
- e) Use removal methods that minimize dust generation whenever possible.
- f) Suppress any dust generated.
- g) Workers shall not eat, drink, chew or smoke in the work area.

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- h) Dust and waste shall be cleaned up at regular intervals and placed in a container that is;
 - i. dust tight,
 - ii. suitable for the type of waste,
 - iii. identified as lead waste,
 - iv. cleaned with a damp cloth or a vacuum equipped with a HEPA filter, or placed in a clean bag so that a clean exterior surface is achieved immediately prior to removal from the work area,
 - v. removed from the workplace frequently and at regular intervals, and
 - vi. evaluated for lead-content and disposed of in accordance with applicable regulations.
- i) The use of 6 mil polyethylene bags as a waste container is acceptable provided it is appropriate for the type of waste. Double bagging of waste is recommended.
- j) Drop sheets shall be used below all lead operations that may produce dust, chips, or debris containing lead.
- k) Dry removal of lead-containing or lead-based paints and surface coatings shall be minimized whenever possible.
- l) Wetting of materials shall be conducted whenever possible to control dust. The addition of wetting agents should be considered. Wetting should not be used if it may create a hazard or cause damage.
- m) Wet methods should be incorporated in the operation to reduce dust generation. Examples of wet methods include wetting surfaces, wet mist, wet scraping and wet shovelling.
- n) Cleaning with compressed air or dry sweeping shall not be performed. Sweeping compounds shall be used where wetting is not possible.
- o) All equipment, tools, respirators and clothing shall be cleaned by damp wiping, or with a vacuum equipped with a HEPA filter, prior to removal from the work area.
- p) Protection of porous or fibrous surfaces is imperative as it is very difficult to remove lead-containing dust from these surfaces. If the material cannot be adequately protected from lead dust or waste it shall be removed and disposed of.
- q) Any water generated from cleaning or removal operations must be appropriately contained, treated or disposed of in accordance with applicable legislation.

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- r) Follow worker hygiene procedures as prescribed in Section 10.

8.6.2 Class 2 Operations

- a) Washing facilities consisting of a wash basin, clean water, soap (consider the use of lead-specific soaps and hygiene indicators based on the scope of the Operation) and towels shall be provided. Workers shall use these washing facilities upon leaving the work area and before eating, drinking or smoking.
- b) Respirators shall be provided, as prescribed in Table 3, and the worker shall wear the respirator.
- c) Gloves, coveralls and other Personal Protective Equipment (PPE) shall be provided, as prescribed in Section 9, and the worker shall wear the PPE.
- d) Signage is required and the area shall be delineated to control access. Signs shall be posted in sufficient numbers to warn of the lead hazard and shall state in large clearly visible letters that, i) there is a lead hazard, and ii) Access to the work area is restricted to persons wearing protective clothing.
- e) Use removal methods that minimize dust generation whenever possible.
- f) Suppress any dust generated.
- g) Workers shall not eat, drink, chew or smoke in the work area.
- h) Dust and waste shall be cleaned up at regular intervals and placed in a container that is;
 - i. dust tight,
 - ii. suitable for the type of waste,
 - iii. identified as lead waste,
 - iv. cleaned with a damp cloth or a vacuum equipped with a HEPA filter, or placed in a clean bag so that a clean exterior surface is achieved immediately prior to removal from the work area,
 - v. removed from the workplace frequently and at regular intervals, and
 - vi. evaluated for lead-content and disposed of in accordance with applicable regulations.
- i) The use of 6 mil polyethylene bags as a waste container is acceptable provided it is appropriate to the type of waste. Double bagging of waste is recommended.
- j) Drop sheets shall be used below all lead operations that may produce dust, chips, or debris containing lead.
- k) Air-handling (supply and return) systems servicing the area of the Class 2 Operation shall be removed from service or isolated to prevent migration of lead through the air handling system.

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- l) Dry removal of lead-containing or lead-based paints and surface coatings shall be minimized whenever possible.
- m) Wetting of materials shall be conducted whenever possible to control dust. The addition of wetting agents should be considered. Wetting should not be used if it may create a hazard or cause damage.
- n) Wet methods shall be incorporated in the operation to reduce dust generation. Examples of wet methods include wetting surfaces, wet mist, wet scraping and wet shovelling.
- o) Cleaning with compressed air or dry sweeping shall not be performed. Sweeping compounds shall be used where wetting is not possible.
- p) All equipment, tools, respirators and clothing shall be cleaned by damp wiping, or using a vacuum equipped with a HEPA filter, prior to removal from the work area.
- q) Protection of porous or fibrous surfaces is imperative as it is very difficult to remove lead-containing dust from these surfaces. If the material cannot be adequately protected from lead dust or waste it shall be removed and disposed of.
- r) Any water generated from cleaning or removal operations must be appropriately contained, treated or disposed of in accordance with applicable legislation.
- s) Where a dust generating operation is carried out, additional local mechanical ventilation shall be provided to remove dust, mist and fumes at the source. Local mechanical ventilation is recommended for welding, burning or high temperature cutting and for the removal of lead-containing and lead-based paints and surface coatings using power tools that are equipped with a dust collection device attached to a HEPA filter. Where local mechanical ventilation is used, the following should be met:
 - i. Air velocity at the source of dust, mist or fume generation shall be no less than 0.5 m/sec (100 ft./min).
 - ii. Air discharged from the local mechanical ventilation system shall pass through a HEPA filter.
- t) Follow worker hygiene procedures as prescribed in Section 10.

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8.6.3 Class 3 Operations

- a) A competent supervisor must be present at all times during Class 3 Operations. Only workers and supervisors with proper training shall perform Class 3 Operations.
- b) Washing facilities consisting of a wash basin, clean water, soap (consider the use of lead-specific soaps and hygiene indicators) and towels shall be provided. Workers shall use these washing facilities upon leaving the work area and before eating, drinking or smoking.
- c) Respirators shall be provided, as prescribed in Table 3, and the worker shall wear the respirator.
- d) Gloves, coveralls and other PPE shall be provided, as prescribed in Section 9, and the worker shall wear the PPE.
- e) Signage is required and the area shall be delineated to control access. Signs shall be posted in sufficient numbers to warn of the lead hazard and shall state in large clearly visible letters that, i) there is a lead hazard, and ii) access to the work area is restricted to persons wearing protective clothing.
- f) Use removal methods that minimize dust generation whenever possible.
- g) Suppress any dust generated.
- h) Workers shall not eat, drink, chew or smoke in the work area.
- i) Dust and waste shall be cleaned up at regular intervals and placed in a container that is,
 - i. dust tight,
 - ii. suitable for the type of waste,
 - iii. identified as lead waste,
 - iv. cleaned with a damp cloth or a vacuum equipped with a HEPA filter, or placed in a clean bag so that a clean exterior surface is achieved immediately prior to removal from the work area,
 - v. removed from the workplace frequently and at regular intervals, and
 - vi. evaluated for lead-content and disposed of in accordance with applicable regulations.
- j) The use of 6 mil polyethylene bags as a waste container is acceptable provided it is appropriate for the type of waste. Double bagging of waste is recommended.

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- k) Enclosures shall be used to separate the work area from other construction activities or work areas, and to prevent lead exposure to persons not directly involved in the lead operation. Barriers should only be used where full and partial enclosures are not practicable.
- u) Drop sheets shall be used below all lead operations that may produce dust, chips, or debris containing lead.
- l) For Class 3a operations conducted indoors where work areas are not accessible to the public, barriers, partial enclosures, or full enclosures may be used.
- m) For all other all other Class 3 operations conducted indoors full enclosures shall be used.
- n) For Class 3a and 3b operations conducted outdoors, barriers, partial enclosures, or full enclosures shall be provided.
- o) ***Barriers, Partial Enclosures and Full Enclosures***
 - i. Ropes or barriers do not prevent the release of contaminated dust or other contaminants into the environment. However, barriers can be used to restrict access to only workers who are adequately protected with proper PPE, and prevent entry of individuals not directly involved in the operation. Ropes or barriers shall be placed at a distance far enough from the operation that allows the lead-containing dust to settle. If this is not achievable, warning signs shall be posted at the distance where the lead-containing dust settles to warn that access is restricted to persons wearing PPE. Ropes or barriers shall be located no less than 10 metres from the work area.
 - ii. Partial enclosures may consist of vertical and/or horizontal tarps and drop sheets (e.g. polyethylene sheeting). The tarps shall overlap and be securely fixed together at the seams. A partial enclosure is not a recommended containment system if significant dust is being generated, however is suitable for containing flakes and chips.
 - iii. Full enclosures are tight enclosures (with tarps that are generally impermeable (e.g. polyethylene sheeting) with fully sealed joints and chambered air lock entryways/exits and upper seals). Full enclosures allow minimal or no fugitive emissions to reach the area outside the enclosure. For full enclosures, the following requirements shall be met:
 - a) The enclosure shall be made of windproof materials that are impermeable to dust.
 - b) The enclosure shall be supported by a secure, adequate and safe structure.
 - c) All joints in the enclosure shall be fully sealed.

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- d) Entrances to the enclosure shall be equipped with air locks (curtain walls, flap doors, zipper doors or solid doors).
- e) The escape of dust, mist, fume, waste, blast media and debris from the enclosure shall be prevented.
- f) General mechanical ventilation shall be provided by a HEPA filtered unit to remove contaminated air from the enclosure. Clean and safe make-up air that is free from hazardous dust, mist, vapours or fumes shall be provided to replace the exhausted air.
- g) Filters used on ventilation equipment shall be adequate to ensure that exhausted air quality meets applicable environmental legislation and standards.
- h) The air velocity within the enclosure shall provide an average minimum cross-draft or down-draft past each worker during abrasive blasting operations as follows.
 - cross draft capture velocity of 0.5 m/sec (100 ft./min) at the worker breathing zone.
 - Down draft capture velocity of 0.25 m/sec (50 ft./min) at the worker breathing zone.
- p) The spread of lead dust from the work area shall be prevented by creating and maintaining within the enclosed area a minimum negative air pressure of 0.02 inches of water column (5 pascal), relative to the area outside the enclosed work area and/or 6 air changes per hour. Pressure differential readings must be taken and logged at regular intervals during lead removal.
- q) Air-handling systems (supply and return) servicing the area of the Class 3 Operation shall be removed from service or isolated to prevent migration of lead through the air handling system.
- r) Dry removal of lead-containing or lead-based paints and surface coatings shall be minimized whenever possible.
- s) Wetting of materials shall be conducted whenever possible to control dust. The addition of wetting agents should be considered. Wetting should not be used if it may create a hazard or cause damage.
- t) Wet methods shall be incorporated in the operation to reduce dust generation. Examples of wet methods include wetting surfaces, wet mist, wet scraping and wet shovelling.
- u) Cleaning with compressed air or dry sweeping shall not be performed. Sweeping compounds shall be used where wetting is not possible.

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- v) All equipment, tools, respirators and clothing shall be cleaned by damp wiping, or using a vacuum equipped with a HEPA filter, prior to removal from the work area.
- w) Protection of porous or fibrous surfaces is imperative as it is very difficult to remove lead-containing dust from these surfaces. If the material cannot be adequately protected from lead dust or waste it shall be removed and disposed of.
- x) Any water generated from cleaning or removal operations must be appropriately contained, treated or disposed of in accordance with applicable legislation.
- y) Where a dust generating operation is carried out, additional local mechanical ventilation shall be provided to remove dust, mist and fumes at the source. Local mechanical ventilation is recommended for welding, burning or high temperature cutting and for the removal of lead-containing and lead-based paints and surface coatings using power tools that are not equipped with a dust collection device attached to a HEPA filter. Where local mechanical ventilation is used, the following should be met:
 - i. Air velocity at the source of dust, mist or fume generation shall be no less than 0.5 m/sec (100 ft./min).
 - ii. Air discharged from the local mechanical ventilation system shall pass through a HEPA filter.

Class 3 Decontamination Facility

Establishing a decontamination facility is required for workers conducting Class 3 operations. The decontamination facility shall be located as close as practicable to the work area and shall consist of:

- a) A suitable area for taking off contaminated protective clothing.
- b) A shower that includes;
 - i. Hot and cold water with individual controls inside the room to regulate water flow and temperature; or
 - ii. Water of a constant temperature that is not less than 40° Celsius or more than 50° Celsius.
 - iii. Clean towels.
 - iv. Soap that is suitable for removing lead, and
 - v. Hygiene indicators to visually confirm that lead has been removed from workers hands.

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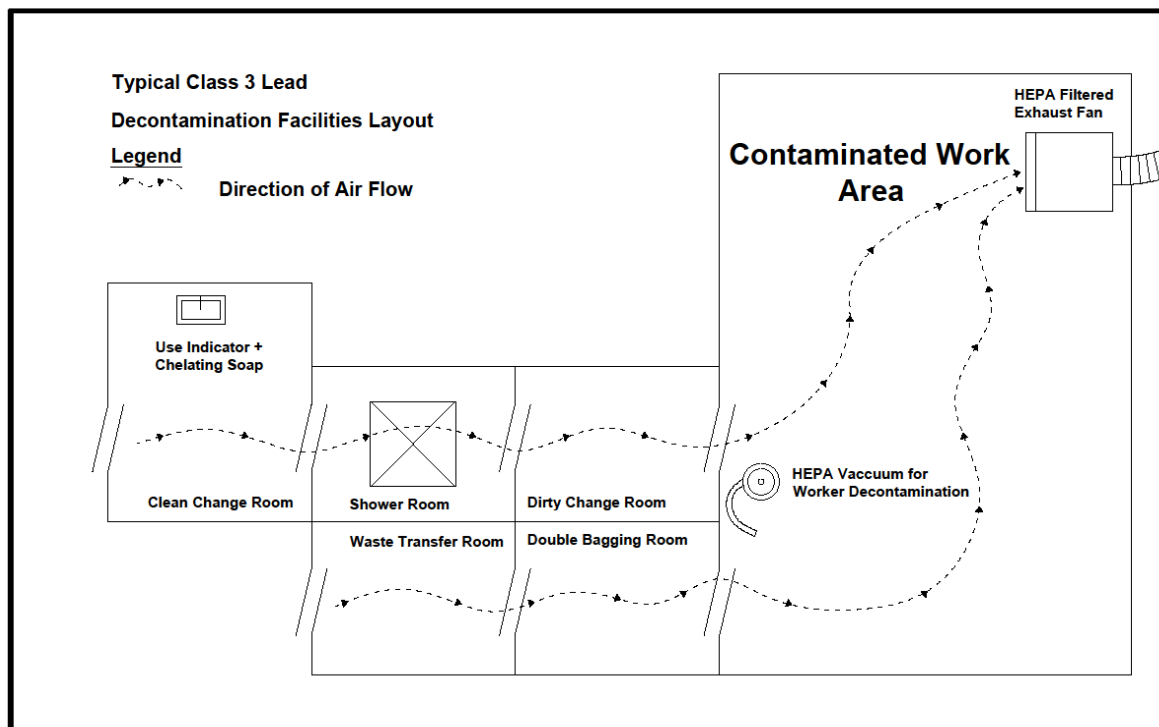
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- c) a suitable area for changing in to street clothes and for storing clean clothing and equipment
- d) Follow worker hygiene procedures as prescribed in Section 10.

Refer to Figure 1 as an example of a typical Class 3 Lead Operation decontamination facility layout.

Figure 1: Typical Class 3 Lead Operation Decontamination Facilities Layout



9. PERSONAL PROTECTIVE EQUIPMENT

Employers must ensure workers who are involved in Lead Operations, are provided with appropriate personal protective equipment (PPE) including:

- a) Dust-impermeable gloves appropriate for the work being completed and disposable chemical resistant gloves for application of solvents, strippers and detergents. Refer to the Material Safety Data Sheets (MSDS) for recommended glove selection. Consideration should be given to wearing two layers of gloves in high lead exposure operations to reduce contaminant transfer during removal of protective clothing.
- b) Full body coveralls made of a material that does not readily retain nor permit penetration of lead, is equipped with a hood or head covering, and that fits

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snugly at the ankles, wrists and neck, in order to prevent lead dust from reaching the garments and skin under the protective clothing. Coveralls shall be repaired or replaced if torn. Suitable footwear or coverings shall be worn.

c) Respirators as prescribed by Table 3.

The following table indicates anticipated airborne concentrations of lead, associated with each Class of lead operation, with the corresponding minimum recommended respiratory protection. Respirators shall be NIOSH approved and the worker shall be fit-tested for the specific type and size of respirator.

Table 3: Lead-Specific Personal Protective Equipment

Class 1 Operation	Minimum Respirator Requirement	Lead-Specific PPE
(0.025 - 0.05 mg/m ³)	Respirators should not be necessary if the general procedures listed in Section 8 are followed and if the level of lead in the air is less than 0.05 mg/m ³ . If a worker requests to wear a respirator, a half-face air purifying respirator with N-, R- or P- series filters, and 95, 99 or 100% efficiency shall be provided.	Appropriate gloves. If a worker requests, coveralls, boot covers and respirator shall be provided.
Class 2a Operation	NIOSH APF = 10	
(>0.05 to 0.50 mg/m ³)	Half-face air purifying respirator with N-, R- or P-series filter, and 95, 99 or 100% efficiency.	Appropriate gloves, coveralls and boot covers, respirator
Class 2b Operation	NIOSH APF = 50	
(>0.50 to 1.25 mg/m ³)	Full-face piece air-purifying respirator with N-, R- or P- series filter, and 100% efficiency.	Appropriate gloves, coveralls and boot covers, respirator
Class 3a Operation	NIOSH APF = 50	
(>1.25 to 2.50 mg/m ³)	Full-face piece air-purifying respirator with N-, R- or P- series filter, and 100% efficiency. Tight-fitting powered air-purifying respirator with a high efficiency filter. Full-face piece supplied-air respirator operated in demand mode. Half-mask or full-face piece supplied air respirator operated in continuous-flow mode.	Appropriate gloves, coveralls and boot covers, respirator
Class 3b Operation	NIOSH APF ≥ 1000	
(> 2.50 mg/m ³)	Type CE abrasive-blast supplied air respirator operated in a positive pressure mode with a tight-fitting half-mask face piece.	Appropriate gloves, coveralls and boot covers, respirator

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	Full-face piece supplied-air respirator operated in pressure-demand or other positive-pressure mode.	
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NIOSH APF – National Institute of Occupational Safety and Health Assigned Protection Factor.

Compressed air systems used with supply air respirators shall meet the requirements of CSA Standard Z180.1-13.

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10. WORKER HYGIENE PROCEDURES

Good hygiene practices must be implemented during lead-related work to protect the worker from lead exposure. Every Class of lead work requires that workers thoroughly wash hands and face when leaving the work area and prior to eating, drinking, smoking or chewing. Proper hand washing techniques specific to lead decontamination shall be posted in the washing facility and products including lead specific hand soaps which combine surfaction, chelation, pH adjustment and mechanical removal of lead from the skin may be used. The use of post washing indicator methods that demonstrate workers have adequately removed lead from skin is strongly recommended.

Using lead wipe indicators will help the worker identify if washing was effective in removing lead. Standard soap and water alone may not be effective at removing lead from skin which can result in secondary exposure by ingestion.

10.1 Class 1 Operations

10.1.1 Decontamination and Personal Hygiene Facilities

- a) Clean change areas with lockers or hangers and hooks for workers' street clothes and personal belongings. The Clean Room will also have a mirror to permit workers to fit respiratory equipment properly.
- b) The Clean Area will accommodate at least one worker allowing sufficient space to change comfortably.
- c) A clean lunch/break area will be provided and kept as free as practicable of lead contamination.

10.1.2 Entering the Work Area

Workers will use the following sequence when entering the work area:

- a) Remove street clothes, if required.
- b) Don appropriate PPE, as prescribed in Table 3, before entering the work area.

10.1.3 Exiting the Work Area

- a) Remove gross contamination from coveralls, if worn, person and personal protective equipment by wet wiping, and/or using a vacuum equipped with a HEPA filter, before leaving Work Area.
- b) If worn, remove coveralls while minimizing contact with undergarments or body (i.e. by removing coveralls downwards and outwards while rolling onto itself).
- c) Proceed to decontamination facility to wash hands and face.

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- d) Washing procedure should be similar to the following sequence.
 - i. Wet hands and face (and respirator if worn) with water.
 - ii. Apply soap to cover hand surface.
 - iii. Rub palm to palm, back of the hands, and in between fingers for 15-20 seconds.
 - iv. Wash and rinse face (and respirator if worn).
 - v. Remove respirator if worn.
 - vi. Wash face, ensuring all surfaces cleaned including ears and neck.
 - vii. Rinse hands and face with running water.
 - viii. Dry hands with a single use towel.
 - ix. Turn off faucet with the towel and dispose of the towel.

10.2 Class 2 Operations

10.2.1 Decontamination and Personal Hygiene Facilities

- a) Clean change areas with lockers or hangers and hooks for workers' street clothes and personal belongings. The Clean Room will also have a mirror to permit workers to fit respiratory equipment properly.
- b) The Clean Area will accommodate at least one worker allowing sufficient space to change comfortably.
- c) A clean lunch/break area will be provided and kept as free as practicable of lead contamination.

10.2.2 Entering the Work Area

Workers will use the following sequence when entering the work area:

- a) Remove street clothes, if required.
- b) Don appropriate PPE, as prescribed in Table 3, before entering the work area.

10.2.3 Exiting the Work Area

- a) Remove gross contamination from coveralls, if worn, person and personal protective equipment by wet wiping, and/or using a vacuum equipped with a HEPA filter, before leaving Work Area.
- b) If worn, remove coveralls while minimizing contact with undergarments or body (i.e. by rolling coveralls downwards and inwards into it).
- c) Leave respirator on and place contaminated disposable PPE in waste container.
- d) Wash hands, face, and respirator prior to respirator removal then wash face and hands again before leaving the work area.

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- e) Washing procedure should be similar to the following sequence.
 - i. Wet hands, face and respirator with water.
 - ii. Apply soap to cover hand surface.
 - iii. Rub palm to palm, back of the hands, and in between fingers for 15-20 seconds.
 - iv. Wash and rinse face and respirator.
 - v. Remove respirator.
 - vi. Wash face, ensuring all surfaces are cleaned including ears and neck.
 - vii. Rinse hands, face and respirator with running water.
 - viii. Dry hands and face with a single use towel.
 - ix. Turn off faucet with the towel and dispose of the towel.
- f) Don street clothes in Clean Room prior to leaving work site.
- g) Upon completion of lead abatement, dispose of shoe coverlets as contaminated waste or clean thoroughly inside and out using lead-specific soap and water, and test with lead indicator wipes before removing from the Work Area.

10.3 Class 3 Operations

10.3.1 Decontamination and Personal Hygiene Facilities

- a) Establish a decontamination facility in accordance with Section 8.
- b) A clean lunch/break area will be provided and kept as free as practicable of lead contamination.

10.3.2 Entering the Work Area

Workers will use the following sequence when entering the work area:

- a) Remove street clothes, if required.
- b) Don appropriate PPE, as prescribed in Table 3, before entering the work area.
- c) Proceed through the shower facility.
- d) Don reusable PPE that remains in the 'dirty change area'.

10.3.3 Exiting the Work Area

- a) Remove gross contamination from coveralls, if worn, person and personal protective equipment by wet wiping, and/or using a vacuum equipped with a HEPA filter, before leaving Work Area.
- b) If worn, remove coveralls while minimizing contact with undergarments or body (i.e. by rolling coveralls downwards and inwards into itself).

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- c) Leave respirator on and place contaminated disposable PPE in waste container. Shower without removing the respirator and clean respirator while in the shower.
- d) Proceed to clean room, remove cleaned respirator and store in a sealed plastic bag/container.
- h) Washing procedure, prior to leaving the clean room, should be similar to the following sequence.
 - i. Wet hands, face and respirator with water.
 - ii. Apply soap to cover hand surface.
 - iii. Rub palm to palm, back of the hands, and in between fingers for 15-20 seconds.
 - iv. Wash and rinse face and respirator.
 - v. Remove respirator.
 - vi. Wash face, ensuring all surfaces are cleaned including ears and neck.
 - vii. Rinse hands, face and respirator with running water.
 - viii. Dry hands and face with a single use towel.
 - ix. Turn off faucet with the towel and dispose of the towel.
- e) Don street clothing before leaving the work area

11. WORK AREA CLEANING PROCEDURES

The following final cleaning procedures are minimum requirements. Additional final cleaning procedures may be necessary to meet project-specific requirements.

11.1 Class 1 Operations

- a) Cleaning shall be completed in a top-to-bottom methodology (i.e. start in high locations and clean down towards floor level) and beginning at the farthest point of the work area from the entrance (i.e. clean towards the entrance to the work area).
- b) Compressed air or dry sweeping shall not be used to clean the work area.
- c) Clean all surfaces in the work area by wet wiping and/or using a vacuum equipped with a HEPA filter.

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- d) When using wet wipe cleaning, frequently and at regular intervals,
 - i. Use folding technique to expose a clean surface of the cloth.
 - ii. Rinse cloth with clean water.
 - iii. Replace soiled cloth with clean cloth.
 - iv. Replace dirty water with clean water.
- e) Clean and rinse a small area at a time before proceeding to the next area.
- f) Place waste in an appropriate container frequently and at regular intervals.
- g) Wet and carefully roll drop sheets toward the centre of the work area. Remove visible dust and debris by wet wiping and/or using a vacuum equipped with a HEPA filter.
- h) Place drop sheets in an appropriate waste container.
- i) Inspect work area for cleanliness. Deficiencies shall be corrected when they are identified.
- j) Complete rinsing with clean water.
- k) Avoid re-contamination of clean areas.
- l) Clean all tools, supplies and equipment in the work area by wet wiping and/or using a vacuum equipment with a HEPA filter. Equipment that cannot be readily cleaned (e.g. vacuum hose, wire brushes, etc.) shall be cleaned to the extent that is practical and placed in sealed containers before removing from the work area.
- m) Waste containers shall be thoroughly cleaned on the exterior and sealed prior to leaving the work area.
- n) Conduct clearance testing if required.
- o) Following a successful visual inspection, and clearance testing if required, a sealant or an encapsulant may be applied.

11.2 Class 2 Operations

- a) Cleaning shall be completed in a top-to-bottom methodology (i.e. start in high locations and clean down towards floor level) and beginning at the farthest point of the work area from the entrance (i.e. clean towards the entrance to the work area).
- b) Compressed air or dry sweeping shall not be used to clean the work area.
- c) The use of lead-specific cleaning solutions may be required as part of the cleaning process.

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- d) Clean all surfaces in the work area by wet wiping and/or using a vacuum equipped with a HEPA filter.
- e) When using wet wipe cleaning, frequently and at regular intervals,
 - i. Use folding technique to expose a clean surface of the cloth.
 - ii. Rinse cloth with clean water.
 - iii. Replace soiled cloth with clean cloth.
 - iv. Replace dirty water with clean water.
- f) Clean and rinse a small area at a time before proceeding to the next area.
- g) Place waste in an appropriate container frequently and at regular intervals.
- h) Wet and carefully roll drop sheets toward the centre of the work area. Remove visible dust and debris by wet wiping and/or using a vacuum equipped with a HEPA filter.
- i) Place drop sheets in an appropriate waste container.
- j) Inspect work area for cleanliness. Deficiencies shall be corrected when they are identified.
- k) Complete rinsing with clean water.
- l) Avoid re-contamination of clean areas.
- m) Clean all tools, supplies and equipment in the work area by wet wiping and/or using a vacuum equipment with a HEPA filter. Equipment that cannot be readily cleaned (e.g. vacuum hose, wire brushes, etc.) shall be cleaned to the extent that is practical and placed in sealed containers before removing from the work area.
- n) Waste containers shall be thoroughly cleaned on the exterior and sealed prior to leaving the work area.
- o) Conduct clearance testing if required.
- p) Following a successful visual inspection, and clearance testing if required, a sealant or an encapsulant may be applied.

11.3 Class 3 Operations

- a) Cleaning shall be completed in a top-to-bottom methodology (i.e. start in high locations and clean down towards floor level) and beginning at the farthest point of the work area from the entrance (i.e. clean towards the entrance to the work area).
- b) Compressed air or dry sweeping shall not be used to clean the work area.

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- c) The use of lead-specific cleaning solutions may be required as part of the cleaning process.
- d) Clean all surfaces in the work area by wet wiping and/or using a vacuum equipped with a HEPA filter.
- e) When using wet wipe cleaning, frequently and at regular intervals,
 - i. Use folding technique to expose a clean surface of the cloth.
 - ii. Rinse cloth with clean water.
 - iii. Replace soiled cloth with clean cloth.
 - iv. Replace dirty water with clean water.
- f) Clean and rinse a small area at a time before proceeding to the next area.
- g) Place waste in an appropriate container frequently and at regular intervals.
- h) Wet and carefully roll drop sheets toward the centre of the work area. Remove visible dust and debris by wet wiping and/or using a vacuum equipped with a HEPA filter.
- i) Place drop sheets in an appropriate waste container.
- j) Inspect work area for cleanliness. Deficiencies shall be corrected when they are identified.
- k) Complete rinsing with clean water.
- l) Avoid re-contamination of clean areas.
- m) Clean all tools, supplies and equipment in the work area by wet wiping and/or using a vacuum equipment with a HEPA filter. Equipment that cannot be readily cleaned (e.g. vacuum hose, wire brushes, etc.) shall be cleaned to the extent that is practical and placed in sealed containers before removing from the work area.
- n) Waste containers shall be thoroughly cleaned on the exterior and sealed prior to leaving the work area.
- o) When HEPA Filtered Exhaust Fan (negative air units) are used, cleaning shall start at the farthest locations from the negative air units (i.e. cleaning shall be completed moving towards negative air units).
- p) Cleaning shall include the worker decontamination chambers and waste transfer rooms.
- q) Minimize water pooling within the work area.
- r) Leave the work area and surrounding areas dry and visibly free of dust and debris for visual inspection by the project authority.

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- s) Conduct clearance testing if required.
- t) Following a successful visual inspection, and clearance testing if required, a sealant or an encapsulant may be applied.

11.3.1 Work Area Tear Down

- a) Inspect the work area prior to starting tear down. Ensure the work area has achieved the appropriate level of cleanliness, that clearance sample requirements have been met, and that clearance has been accepted by the project authority.
- b) Remove polyethylene sheeting used during abatement by wetting and carefully rolling towards the centre of the work area. Remove visible dust and debris by wet wiping and/or using a vacuum equipped with a HEPA filter.
- c) Immediately upon shutting down negative air units, seal air inlet grill and exhaust vent with polyethylene and tape. Clean the cabinet by wet wiping before removal from the work area.
- d) Following enclosure dismantling, a post tear down visual inspection should be completed. If required, additional cleaning should be completed by wet wiping and/or using a vacuum equipped with a HEPA filter.

12. LEAD CLEARANCE STANDARDS

12.1 Lead Clearance Assessments

12.1.1 Class 1 and Class 2 Operations

A lead clearance assessment shall be conducted upon the completion of Class 1 and 2 Operations and shall consist of a visual assessment. The area shall pass the inspection if it is visually clean. Special consideration shall be given to areas that are difficult to access, or clean, such as corners or rough surfaces.

Lead clearance wipe sampling may be considered for large scale Operations conducted in areas of buildings occupied by sensitive populations including:

- a) Children (e.g. daycares and primary schools).
- b) Pregnant and nursing women.
- c) Food preparation, processing and serving areas.
- d) Pediatrics, labour and delivery, and maternity areas of hospitals.
- e) Residential buildings.

12.1.2 Class 3 Operations

Lead clearance testing shall be conducted upon the completion of Class 3 Operations. The purpose of clearance testing is to verify that work areas have been

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cleaned sufficiently and to demonstrate that it is safe for workers and occupants.
The clearance assessment and testing must be completed by a competent person.

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The clearance assessment has two components:

1. A visual assessment

The work area passes the visual inspection if it is adequately cleaned of dust and debris. Special consideration shall be given to areas that are difficult to access or clean such as corners or rough surfaces. The presence of dust, debris or residue indicates that the cleaning was insufficient and additional cleaning shall be completed. Following additional cleaning, a follow-up inspection is required.

2. Collection and analysis of wipe samples

Wipe sampling shall not be completed until the area passes visual inspection. Wipe samples shall be collected in accordance with a validated analytical method. Wipe samples may not be required if a physical barrier will be installed over cleaned surfaces in a manner that prevents access (to the cleaned surfaces) by building occupants.

12.2 Clearance Wipe Sampling

Clearance wipe sampling provides analytical confirmation that an area has been adequately cleaned. Representative sample locations and sample quantities must be collected from the project area in order to effectively demonstrate that the lead concentration is within acceptable levels. Samples shall be collected in accordance with the procedures in Section 13. The following table lists the minimum number of clearance wipe samples to be collected.

Table 4: Minimum Number of Clearance Wipe Samples

Area of Work or Cleaned Surface(s)	Minimum Number of Wipe Samples
1 square meter or less	1
Greater than 1 square meter but less than 10 square meters	2
Greater than 10 square meter but less than 100 square meters	3
Every additional 100 square meters	1
If present, inside the clean room entrance/exit to the work area	1
Clearance for Indoor Firing Ranges	
Exhaust fan inlet area and outlet area (1 sample in each area)	2
Range floor	3
Horizontal surfaces other than the floor (i.e. counters, sills)	3
Bullet trap area	3
Vertical surfaces such as walls, frames	3
Horizontal surfaces exterior to range (i.e. at entrances)	3

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If present, inside the clean room entrance/exit to the work area	1
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A minimum of 1 field blank shall be collected for each clearance sampling event. No less than 1 field blank for every 10 field samples, or part thereof, shall be submitted for laboratory analysis.

12.2.1 Wipe Sampling Clearance Criteria

Lead concentrations of clearance wipe samples, when at or below the assigned clearance criteria, provides analytical confirmation that an area has been adequately cleaned.

Wipe sampling clearance criteria, as detailed in Table 5, are not intended to be an action level or trigger to initiate cleanup activities.

Table 5: Wipe Sampling Clearance Criteria

Area or Surface to be Tested	Clearance Criteria ³	
	µg/100 cm ²	µg/ft ²
Exterior concrete and rough surfaces	86.1	800
Interior concrete, window troughs, rough surfaces	43	400
Interior window sills	26.9	250
Firing ranges and work places where lead is used	21.5	200
Floors and other surfaces: Non-Residential	21.5	200
Floors and other surfaces: Residential	4.3	40
Child care facilities, primary schools, food preparation, food processing, pediatrics, labour and delivery, and maternity areas of hospitals (all surfaces routinely accessible by occupants or used in food processing).	4.3	40

12.3 Air Sampling for Lead Clearance

Surface wipe sampling is the preferred clearance testing method over air sampling as it more accurately represents the remaining lead and the potential for future worker or occupant exposure. Air sampling should not be used alone for clearance purposes, but can be considered to supplement clearance wipe sampling.

12.4 Composite Wipe Sampling

Composite wipes are wipe samples consisting of more than one co-mingled wipe per container. Composite samples provide an average level of lead over the

³ If these levels cannot be achieved, a barrier (e.g., drywall, paint or surface coating, tile) may be installed to prevent access to the cleaned surface by building occupants.

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multiple samples and, therefore, low levels in some samples may mask higher levels (that exceed clearance standards) in others.

There is a lack of inter-laboratory proficiency testing programs for analysis of composited wipe samples that may place the validity of the data under scrutiny. Due to accreditation reporting requirements most laboratories will be obligated to place significant disclaimers and limitations on the results of composite wipes which may further confound interpretation and call into question the value of the results.

If a composite sample is analyzed and exceeds the clearance criteria, all areas encompassed by that composite sample must be re-cleaned (possibly multiple rooms or a large area). Alternatively, if a discrete sample is collected in each room/area, only the room/area associated with a sample that exceeds the criteria will require re-cleaning.

If a competent person determines that composite wipe sampling is appropriate for clearance or pre-abatement assessment of lead, then the following recommendations, in addition to general wipe sample requirements and quality assurance and quality control measures, should be observed:

- a) Confirm that the laboratory is accredited to perform lead analysis and can analyze composite samples and, if so, whether special quality assurance practices are required.
- b) Wipes used for composite samples shall meet the requirements of a validated analytical method.
- c) Composite samples must not contain subsamples from different component or surface types. All the subsamples must be collected from same building components and surface type (e.g. a single composite sample shall not be collected from a carpeted floor and a concrete floor).
- d) The same type of wipe must be used for all subsamples of a composite sample.
- e) The surface areas of subsamples used in a composite sample must swab the same surface area. For example, each subsample in a single composite sample would wipe 100 square centimeters.
- f) The areas to be sampled and composited shall be determined prior to the start of sampling.
- g) A new wipe must be used for each area sampled. No more than four subsamples shall make up a composite sample.
- h) All subsamples must be inserted into the same container.
- i) Composite samples must not be taken from rooms/areas that have dramatically different conditions.

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- j) Laboratory-supplied containers must be used to contain wipe samples to facilitate quantitative rinsing.

The clearance level criterion must be adjusted relative to the number of subsamples in the composite sample. This is done by dividing the clearance level by half the number of subsamples in the composite.

Example: A composite wipe sample contains four (4) subsample wipes. The applicable clearance level for the surface sampled is $40\mu\text{g}/\text{ft}^2$. Divide $40\mu\text{g}/\text{ft}^2$ by 2 (which is half of the 4 subsamples). The adjusted clearance level is $20\mu\text{g}/\text{ft}^2$. All samples must meet the adjusted clearance level to be considered a pass.

The total number of required samples shall meet the requirements of Table 4 (i.e. where two samples are required in the table, either two discrete samples or two composite samples are required).

13. LEAD SAMPLING ANALYTICAL METHODOLOGY

Prior to sample collection, an accredited laboratory and validated analytical method shall be selected for the sample analysis. Samples shall be collected by a competent person in accordance with the validated method.

13.1 Laboratory Accreditations

Ensure laboratories are accredited to perform the analysis requested. The following accrediting agencies are recommended as accrediting bodies for the National Lead Laboratory Accreditation Program (NLLAP):

- Canadian Agency for Laboratory Accreditation (CALA)
- American Industrial Hygiene Association (AIHA)
- American Association for Laboratory Accreditation (A2LA)
- Perry Johnson Laboratory Accreditation, Inc. (PJLA)
- ANSI-ASQ National Accreditation Board/ACLASS
- Laboratory Accreditation Bureau

13.2 Analytical Methods and Limits of Detection

The following table is a summary of analytical methods, applicable to a specific sample matrix (i.e. paint chips, solids, dust wipes, air), and the corresponding limit of detection for each method. An accredited laboratory should be consulted if additional information or clarification is required.

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Table 6: Analytical Methods and Corresponding Limits of Detection

Method	Matrix	Limit of Detection (LOD)	Weight/Area/ Volume required for the LOD
Flame Atomic Absorption Spectrometry			
SW846-7000B	Paint Chips	100 mg/Kg (0.010% wt.)	0.2 g
	Solids	40 mg/Kg (0.004% wt.)	0.5 g
	Dust (wipes)	10 µg/ft ²	144 in ²
NIOSH 7082	Air	0.004 mg/m ³	1000 L
Inductively Coupled Plasma Atomic Emission Spectrometry			
SW846-6010B/C	Solids	1 mg/Kg (0.0001% wt.)	0.5g
	Dust (wipes)	0.5 µg/ft ²	144 in ²
NIOSH 7300 modified	Air	0.0005 mg/m ³	1000 L
Graphite Furnace Atomic Absorption Spectrometry			
SW846-7010	Solids	0.3 mg/Kg (0.00003% wt.)	0.5 g
	Dust (wipes)	0.075 µg/ft ²	144 in ²
NIOSH 7105	Air	0.00003 mg/m ³	1000 L

13.3 Sample Collection

13.3.1 Air Sampling / Air Monitoring

Air monitoring may be necessary to:

- a) Ensure work operations are not producing airborne concentrations of lead which exceed the Time-Weighted Average (TWA) or the protection factor for the respirators being used.
- b) Ensure that workers or occupants in areas adjacent to the work area are not being exposed to airborne lead at concentrations exceeding the TWA.

Air monitoring may be performed inside or outside of the Work Area. If airborne lead levels in the Work Area exceed the Maximum Use Concentration specified for the assigned respirator, work procedures shall be reviewed and altered to reduce airborne lead levels or determine if alternate respiratory protection is required.

If airborne lead is detected at concentrations exceeding the TWA in occupied areas adjacent to the Work Area, an evaluation to determine the cause shall be conducted and an adequate means to control the exposure implemented.

Air sampling collection should be completed following approved analytical methods.

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13.3.2 Paint and Surface Coating Bulk Sampling

Collect samples of distinctive paint finishes and surface coatings, present in more than an insignificant application, where removal of the paint is possible. Collect samples by scraping the paint or surface coating to include all layers.

The following is designed for use as a reference. Samples shall be collected in accordance with the requirements of the analytical method selected and in consultation with the analytical laboratory.

Required Equipment

- a) Appropriate, sealable sample container – one per sample.
- b) Sampling tool (e.g. scraper, knife).
- c) Disposable Gloves.
- d) Indelible Marker.
- e) Chain of Custody Form.

Sampling Procedure

- a) Don clean disposable gloves in preparation for sample collection.
- b) Select discreet area for sample collection.
- c) Remove all layers of paint (to substrate), place into a sample container and seal the sample container.
- d) Using indelible marker, label the container with a unique sample number identifier.
- e) Clean up sampling area by wet wiping or using a vacuum equipped with a HEPA filter.
- f) Encapsulate or repair damaged area, as appropriate.
- g) Complete the Chain of Custody form and submit to an accredited laboratory.

13.3.3 Wipe Sampling

Wipe sample collection should follow NIOSH method 9100 “Lead in Surface Wipe Samples” or NIOSH method 9102 “Elements on Wipes”.

13.4 Sampling Using Portable X-Ray Fluorescence (XRF) Analyzer

The U.S. Environmental Protection Agency (EPA) and U.S. Department of Housing and Urban Development (HUD) historically stated that concentrations of lead in paints and surface coatings of one milligram per square centimetre (mg/cm²) were comparable to 0.5% and were considered “elevated” for lead.

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In cases when laboratory analysis is impractical, or when virtually immediate results are required, a hand-held portable X-Ray Fluorescence Analyzer (XRF) may prove useful. An XRF can provide fast, non-destructive, on-site, analysis of lead concentration in paints and surface coatings, soil, air and surface dust.

13.4.1 Paint and Surface Coating Sampling by XRF

It is of critical importance to understand the Limit of Detection (LOD) of an XRF analyzer. Although the accuracy of XRF analyzers has improved in recent years, the LOD for portable XRF analyzers varies depending on the model used. An XRF can readily determine what paints and surface coatings contain elevated lead above $1\text{mg}/\text{cm}^2$ (comparable to 0.5 % lead by weight), however, may not be able to determine if lead concentrations are below the de minimis level (i.e. 0.1%). Portable XRF analyzers may be used as a screening tool to confirm if paints and surface coatings are considered to be lead-based (i.e. lead concentration of $1\text{mg}/\text{cm}^2$ or greater). Physical samples of paints or surface coatings with readings below $1\text{mg}/\text{cm}^2$ should be collected for laboratory analysis to confirm lead content.

13.4.2 Air Sample and Dust Wipe Sample Analysis by XRF

An XRF analyzer can quickly determine the composition of elemental lead collected on an air filter cassette and dust wipe sample. This can be beneficial for worker exposure monitoring, providing instructions to workers regarding cleaning methods, evaluating the efficacy of engineering controls and hygiene practices and to perform clearance sample analysis. It is important to realize that the use of portable direct-read instrumentation is not necessarily directly comparable to laboratory analytical methods. Consideration should be given to using portable direct-read instruments in conjunction with laboratory analysis.

To properly obtain and analyze air samples by XRF, samples must be collected and analyzed in accordance with U.S. National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods, Fourth Edition, Method 7702, Issue 1 Lead By Field Portable XRF (January 15, 1998).

APPENDIX I

LIST OF LEGISLATION, GUIDELINES AND RELEVANT DOCUMENTS

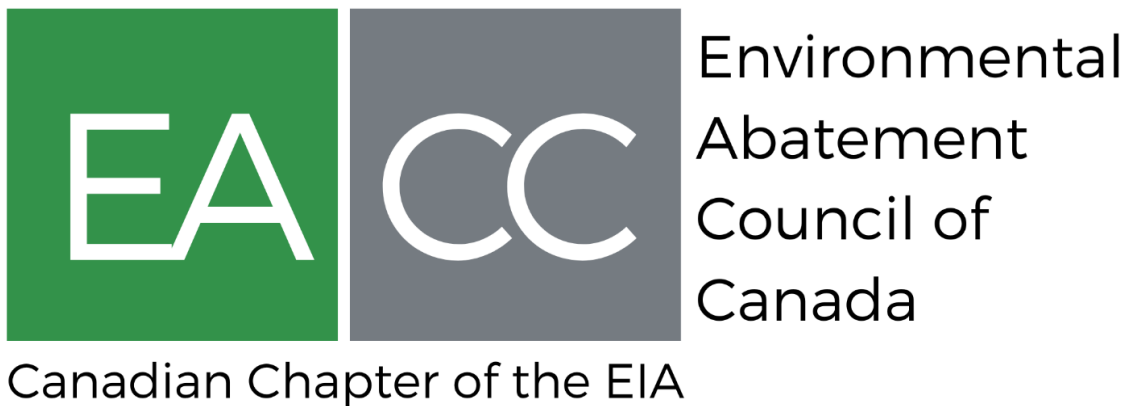
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APPENDIX II DEFINITIONS	
Term	Definition
Action Level	Concentration of ½ of the Occupation Exposure Limit (OEL) for an airborne contaminant at which precautions are implemented to be protective of worker health.
Clearance Tests	Samples collected and analyzed following abatement to verify an acceptable level of cleanliness.
Competent Person or Supervisor	As defined under the Ontario Occupational Health and Safety Act.
Contaminated Area	The portion of the Project where active disturbance, handling or cleanup of lead is occurring.
Designated Substance	As defined in Ontario Regulation 490/09 under the Ontario Occupational Health and Safety Act.
Dust Suppression	Measures taken to reduce the release of dust during work.
Fit-test	A qualitative or quantitative method to evaluate the efficiency of a specific make, model and size of respirator on an individual.
HEPA Filter	High Efficiency Particulate Air filter capable of capturing and retaining particles greater than or equal to 0.3 micrometers in diameter, at a minimum efficiency of 99.97%.
Lead	A malleable metal that can cause acute and chronic health effects in humans. Lead is an additive and contaminant in many frequently used building materials.
Lead-Containing Material (LCM)	Building materials comprising of lead or which contain lead. Examples are provided in Section 3.2.
Low-level lead paints and surface coatings	Paint or surface coating containing less than or equal to 0.1% lead by dry weight (1000 µg/g, mg/kg, ppm).
Lead-containing paints and surface coatings	Paint or surface coating containing greater than 0.1% lead by dry weight, (1000 µg/g, mg/kg, ppm) and less than 0.5% lead by dry weight (5000 µg/g, mg/kg, ppm).
Lead-Based Paints and Surface Coatings	Paint or surface coating containing equal to or greater than 0.5% lead by dry weight (5000 µg/g, mg/kg, ppm).
MSDS	Material Safety Data Sheet, required by Workplace Hazardous Materials Information System (WHMIS) legislation, and giving information on hazardous materials, including properties, hazards, first-aid, emergency response, and personal protection.
NIOSH	National Institute for Occupational Safety and Health
Polyethylene Sheeting	Plastic sheeting installed with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required, to provide a continuous membrane to protect underlying surfaces from damage and to prevent escape of airborne contamination into occupied areas.
Respirator	An apparatus worn over the mouth and nose or the entire face to prevent the inhalation of dust, mist, fume, vapours or other noxious substances.
Wetting Agent	A chemical substance, also called surfactant, that increases the spreading and penetrating properties of a liquid by lowering its surface tension. 235 millilitres (1 cup) of detergent to 20 litres of water.

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Appendix 7

Disposal of Lead Paint & Lead Painted Materials
NB Department of Environment and Local Government

Department of Environment and Local Government

Disposal of Lead Paint & Lead Painted Materials Guideline

The following guideline is intended to provide direction for the disposal of dried lead paint and lead painted objects in New Brunswick.

Background

There are 6 regional solid waste landfills in New Brunswick. These landfills must operate according to the terms and conditions of an Approval to Operate issued by the Department of Environment and Local Government. The landfills are responsible for the disposal of all solid waste generated in the Province, unless a landfill's Approval to Operate prohibits the waste from being disposed of at the landfill.

New Brunswick also has permitted construction and demolition debris disposal sites (C&D Sites) that hold a valid Approval to Operate issued by the Department of Environment and Local Government to accept for disposal inert debris associated with the construction, renovation or demolition of a building or structure.

The Department of Environment and Local Government recognizes the potential negative impact that lead can have on the environment and human health. Consequently, the department wishes to minimize potential pathways that may reintroduce lead back into the environment. Therefore, the Department of Environment and Local Government has established disposal guidelines to help ensure that lead painted items are disposed of appropriately.

Testing Criteria

In order to dispose of an object that is known (or suspected) to contain lead paint, a leachate extraction test must be completed on a representative sample (or samples) of the paint to determine its leachable lead concentration.

The leachate extraction test must be done using the Toxicity Characteristic Leaching Procedure, Method 1311 that appears in the United States Environmental Protection Agency Publication SW-846 entitled "Test Method for Evaluating Solid Waste, Physical/Chemical Methods", as amended from time to time, or an equivalent test method approved by the department.

For consideration of an object containing lead paint to be disposed of at C&D Site, the concentration of lead in the paint must also be determined.

Disposal Options

If the results of a leachate extraction test are above 5 milligrams per litre (mg/L) for lead then the object in question is considered leachable toxic and therefore must be disposed through the services of an approved hazardous waste disposal company. Disposal at a C&D Site, Municipal Transfer Station or a Regional Solid Waste Landfill is not permitted.

If it has been determined that the object containing lead paint is not leachable toxic, then it may be disposed of at a Regional Sanitary Landfill or taken to a Municipal Transfer Station if appropriate.

If it has been determined that the lead paint contains a total lead concentration of less than 1000 milligrams per kilogram (mg/kg or ppm) then the object may also be disposed of at a C&D Site approved by the Department of Environment and Local Government. However this only applies to objects containing lead paint that is tightly bound to the object it is covering (i.e. not flaking, chipping or peeling). Regardless of test results, no lead painted objects that are flaking, chipping or peeling may be disposed of at a C&D Site.

Recycling

The Department encourages recycling of materials whenever practically possible. Lead-painted steel (for example) may be taken to a licensed salvage yard.

Contact

For more information, a list of approved C&D Sites, municipal solid waste transfer stations, municipal solid waste landfills, or approved hazardous waste disposal companies in your area or to inquire whether this is the most recent version of the guideline, please contact the Department of Environment and Local Government – Impact Management Branch at (506) 453-7945.

9. Introduction to the Program

9.1 Objectives

The Asbestos Management Plan is formulated to meet the following objectives:

- To identify all friable and non-friable asbestos-containing materials.
- To be a central repository at the building level, of all information related to the management of asbestos for each facility.
- To describe work classification for disturbances of asbestos-containing materials.
- To act as a common term of reference for the safe operation and management of a building or engineering asset with asbestos-containing materials.
- To maintain asbestos-containing materials in good condition.
- To prevent unintended asbestos exposures to client staff and visitors, contractors, and staff.
- To manage all construction and maintenance activities that might disturb asbestos materials.
- To comply with all federal, provincial, territorial, and municipal requirements for occupational health and safety, and environmental control.

9.2 Response to Policy Directives

The Asbestos Management Plan has been developed to meet Provincial regulatory requirements; as well as the requirements for employee health protection set in *A Code of Practice for Working with Materials Containing Asbestos in New Brunswick, Referenced in New Brunswick General Regulation 91-191 Under the Occupational Health and Safety Act, June 2023*.

9.3 Regional Asbestos Coordinator

A position of Regional Asbestos Coordinator exists to provide services for asbestos control. The Project Manager, or Asset Manager, Property and Facility Manager may ask the Regional Asbestos coordinator for assistance with: annual reassessments, suspect material verification, project specifications, inspection and air monitoring. Name and telephone number of the Regional Asbestos Coordinator can be found in the Contact List.

10. Regulatory Requirements

The Municipality of Lakeland Ridges has responsibilities as building owner, tenant, landlord, and employer, under the following regulations and statutes:

- Canadian Environmental Protection Act
- Transportation of Dangerous Goods Act (TDGA, 1992), S.C, 1992, c.34 including Transportation of Dangerous Goods Regulation SOR/85/77 and subsequent amendments.
- Provincial occupational health and safety legislation (*A Code of Practice for Working with Materials Containing Asbestos in New Brunswick, Referenced in New Brunswick General Regulation 91-191 Under the Occupational Health and Safety Act, June 2023*)

11. Roles and responsibilities

Note: the roles and responsibilities in Sections 11.1 to 11.4 may be assigned as determined to be the best fit for the client (The Municipality of Lakeland Ridges), so long as each role and responsibility in this section is filled/considered.

11.1 Asset Managers, or Property and Facility Managers

- developing and updating Asbestos Management Plans, including the inventory and assessment, as well as annual asbestos inventory reassessment reports, when necessary, collaborating with the Regional Asbestos Coordinator, and ensuring that copies of this information are maintained and available as specified in the Asbestos Management Standard.
- providing a copy of the Asbestos Management Plan, including the inventory and assessment, as well as annual asbestos reassessment reports, or if applicable the professional certificate of no known asbestos, to the Regional Asbestos Coordinator and Employer representatives and recording when and to whom the reports were presented.
- providing contractors access to the Asbestos Management Plan.
- providing written notification to the Employer representatives of potential disturbance (including work processes, duration, hours of work, and possible disruption) of asbestos-containing materials during repair, maintenance and construction projects and recording when and to whom the reports were presented.
- reviewing all maintenance and project work requirements against survey information to determine the possibility of asbestos being disturbed, and classifying the work based on the approved criteria.
- for leased facilities, obtaining from the lessor a copy of the Asbestos Management Plan, including inventory and the most recent asbestos-containing material reassessment, and asbestos-related work notifications, or professional certification confirming that the building does not include any known asbestos-containing materials, and ensuring these items are provided to the Employer representatives and Regional Asbestos Coordinator.
- assisting in the identification of real or potential accidental exposure to asbestos of occupants or visitors, and notifying the Regional/Area Manager Occupational Health and Safety, Asset Managers, Property and Facility Managers, and Project Manager; accordingly, and
- ensuring hazardous occurrence investigation conform with Section 4 of *A Code of Practice for Working with Materials Containing Asbestos in New Brunswick, Referenced in New Brunswick General Regulation 91-191 Under the Occupational Health and Safety Act, June 2023*.

11.2 Regional Asbestos Coordinators

- collaborating with Asset Manager or Property and Facility Managers to ensure the asbestos management plan, and annual reassessment, including the inventory, is updated as required.
- providing guidance during the selection of qualified person.
- collaborating with Project Managers to ensure work is properly classified, proper specifications are provided, and all applicable legislation are respected.
- reviewing the project documentation of high-risk (in terms of project risk and complexity) projects, at the request of the Technical Authority, as provided by the Project Manager; and
- maintaining a copy of the Asbestos Management Plan, inventory, and reassessments as provided by the Asset Managers, or Property and Facility Managers.

11.3 Employer representatives

- providing the workplace Joint Health and Safety Committee documentation related to the asbestos management plan, construction, and hazardous occurrence; and
- responding to employee requests for information concerning asbestos-containing materials in the workplace.

11.4 Project Managers/Supervisors

- ensuring that employees on site have received notification that asbestos-containing material are present in work area.
- ensuring that employees on site have received proper asbestos training based on the responsibilities and duties to be undertaken in relation to asbestos.
- ensuring that documentation has been received by contractor performing asbestos work.
- ensuring that in the case of a hazardous occurrence, comply with all requirements of the departmental Standard on Hazardous Occurrence Investigation and Reporting.
- ensuring contractor hired to perform asbestos work according to applicable legislation are in possession of valid certification to perform asbestos work.
- ensuring employees required to perform work classified as low risk have received proper training.
- ensuring employees do not perform asbestos-related work classified as moderate or high risk.
- ensuring that all procedures for inspection and air monitoring are implemented based on the classification of the work and the specified requirements.

11.5 Contractors

- review the asbestos survey reports provided prior to all renovation and construction work for the possible impact on asbestos.
- complete the Contractor Notification and Acknowledgement form
- ensuring not to disturb asbestos-containing materials without prior notification to the Project Manager or Asset Manager, or Property and Facility Manager.
- ensuring that they complete all the required documentation and provide proof of training required by *A Code of Practice for Working with Materials Containing Asbestos in New Brunswick, Referenced in New Brunswick General Regulation 91-191 Under the Occupational Health and Safety Act*, dated June 2023.

11.6 Building Systems Technicians

- review the asbestos survey reports provided prior to all renovation and construction work for the possible impact on asbestos.
- complete the Contractor Notification and Acknowledgement form
- ensuring that they have taken required training.
- wearing, using, and maintaining the required personal protective equipment, clothing, and tools.
- only performing low risk asbestos related work within the scope of their training as directed by *A Code of Practice for Working with Materials Containing Asbestos in New Brunswick, Referenced in New Brunswick General Regulation 91-191 Under the Occupational Health and Safety Act*, dated June 2023.

12. Asbestos Containing Material

12.1 Non-Friable and Friable Asbestos Products

For the purposes of the AMP, an asbestos containing material (ACM) is any material found to contain asbestos that is at or above the limit defined by provincial standards where it is located, as determined by the standard Polarized Light Microscopy (PLM) or Transmission Electron Microscopy (TEM) methods for the analysis of bulk samples.

A friable asbestos material is an asbestos containing material that when dry can be crumbled, pulverized or powdered by hand pressure, and includes dust or debris arising from non-friable materials that is or will become crumbled, pulverized or powdered (such as asbestos-containing mechanical insulations).

12.2 Types of Non-Friable Asbestos Products

Non-friable asbestos products include, but are not limited to:

- Asbestos cement products: piping, decorative panelling, fireproofing, thermal insulation
- Gaskets and packing: asbestos woven and mixed with rubber or synthetic compounds
- Coatings and sealants: used in roof coating
- Floor tiles
- Friction materials: brake pads

12.3 Types of Friable Asbestos Products

Friable asbestos products include, but are not limited to:

- Sprayed insulation products (fireproofing, thermal insulation, acoustic insulation, or decorative products).
- Acoustic or texture plaster.
- Mechanical insulation, whether or not jacketed.
- Paper products: flooring underlay, roofing felt, gaskets, pipe wrap
- Compressed mineral fibre ceiling tiles.
- Vinyl Sheet Flooring - paper
- Drywall joint compound
- Plaster
- Vermiculite (needs to be confirmed through laboratory analysis)

13. Detection Limits of Bulk Analysis

Asbestos-containing material (ACM) is defined as any material found to contain asbestos at or above the detection limit of asbestos fibres set provincially, as determined by the standard Polarized Light Microscopy method for the analysis of bulk samples.

The provincial detection limits are as follows: ACM is defined as any material found to contain asbestos at or above the limit defined by provincial/territorial standards for an asbestos-containing material, as determined by the allowable analytical method for the analysis of bulk samples

Minimum concentration to consider as an asbestos-containing material	
*New Brunswick	1.0%

Referenced in New Brunswick General Regulation 91-191 Under the Occupational Health and Safety Act, dated June 2023.

***Note that these concentrations may change with regulatory amendments, therefore applicable legislation should be consulted to confirm that they are still valid.*

14. Asbestos Inventory and Assessment

The Asset Manager or Property and Facility Manager with the assistance of the Regional Asbestos Coordinator if required, has arranged for a complete survey and assessment of ACM in the facility.

This survey to provide the Asbestos Inventory and Assessment has been performed on a room-by-room basis. The inventory information is provided in Section 6 Asbestos Inventory of this document.

The survey addresses all of the friable and non-friable asbestos-containing materials, as defined in the Asbestos Management Plan definitions.

The evaluation of friable and non-friable asbestos materials and assessment of condition follows the criteria given in Appendix A. The *Asbestos Inventory* template (provided by Asset Manager or Property and Facility Manager Regional or Regional Asbestos Coordinator) was used to document the ACM.

The analysis of bulk samples was performed by a laboratory accredited by either the National Voluntary Laboratory Accreditation Program (NVLAP), American Industrial Hygiene association (AIHA), or the Canadian Association for Laboratory Accreditation (CALA), or using a method noted in provincial regulations where the sample was taken, to the detection limits specified in Section 13. Frequency of sample collection meets provincial regulations but could have been more frequent at the discretion of the surveyor.

Analysis of bulk samples was performed, where possible, using the United States Environmental Protection Agency method EPA/600/R-93/116 for Polarized Light Microscopy (PLM). In some instances, analysis may have been performed using Transmission Electron Microscopy (TEM) (an example of this would be analysis of vinyl floor tile).

The Asset Manager, or Property and Facility Manager will arrange for copies of the completed Asbestos Inventory and Assessment reports and annual re-assessments to be held by the following persons and locations:

- Regional Asbestos Coordinator
- Employer representatives
- Workplace Joint Health and Safety Committee
- A location in the building, accessible to maintenance staff and contractors.

The Asset Manager, or Property and Facility Manager may decide to utilize the services of the Regional Asbestos Coordinator to arrange for a contractor qualified in asbestos abatement to removal or repair damaged or deteriorated ACM identified by the Asbestos Inventory and Assessment.

15. Re-assessment

The Asset Manager, or Property and Facility Manager, with the assistance of the Regional Asbestos Coordinator if required, will arrange for a yearly re-assessment of all friable and non-friable ACM in exposed accessible locations as per section 4.3(f) as referenced in *New Brunswick General Regulations 91-191 Under the Occupational Health and Safety Act, dated June 2023*.

The existing *Asbestos Inventory* table will be used as a reference during the re-assessment and updated and included in the re-assessment report to reflect any changes in condition and quantity of ACM.

Copies of the re-assessment report will be distributed to holders of the Asbestos Management Plan. Copies will be inserted into Section 8, Various Reports, of this document.

The Asset Manager, or Property and Facility Manager may utilize the services of the Regional Asbestos Coordinator to arrange for removal or repair of damaged or deteriorated asbestos-containing materials identified by the yearly re-assessments.

Once recommendations are completed as required by the re-assessment report, the *Asbestos Inventory* table must be modified to reflect any changes in condition and quantity.

16. Notification

16.1 Notification to Employers

Under *General Regulation 91-191 Under the Occupational Health and Safety Act, June 2023*, all building occupants' have to be informed of any asbestos in facilities they work in. To this end, the Asset Manager, or Property and Facility Manager will provide a written notice of the presence of asbestos-containing materials, as known at the time the Asbestos Management Plan (AMP) comes into effect, ensuring written notice is provided to the Employer representatives of all the departments in the building who will provide copies to the Joint Health and Safety Committee. Notification will also occur for the annual reassessment and asbestos related work in the building.

Notification will be provided prior to any asbestos abatement work being performed. At the completion of the work notification will be provided outlining the results and any further actions required.

16.2 Notification to Contractors

All contractors who perform work at the facility must be notified of the presence of ACM if their work may bring them into contact or close proximity to ACM and they may disturb it. The contractor notification and acknowledgement form is available in Electronic Forms (such as Adobe PDF and Microsoft Word) as CONTRACTOR NOTIFICATION & ACKNOWLEDGEMENT. *Signed copies of the notification form will be kept in Appendix I*

16.3 Notification to Building System Technicians

The Asset Manager, or Property and Facility Manager will provide a written notice of the presence of ACM, and ensure they have access to the Asbestos Management Plan. Notification will also be made of the yearly reassessment.

16.4 Notification of Asbestos Abatement

Project Managers must inform the Asset Manager, or Property and Facility Manager if material is suspected of being ACM, the suspect material must be treated as ACM until proven otherwise. Ensure that provincial authorities are notified as required per applicable regulations

17. Training

17.1 Asbestos Awareness Training

Training for departmental employees is subject to, and must be compliant with, *A Code of Practice for Working with Materials Containing Asbestos in New Brunswick, Referenced in New Brunswick General Regulation 91-191 Under the Occupational Health and Safety Act*, dated June 2023.

Training shall be provided to Asset Managers, Property and Facility Managers, building systems technicians, building operator maintainers, and all employees who may disturb asbestos-containing material through the activities of their work, or persons who may enter a work area. This same training course is also required for those departmental employees who supervise workers, contractors who may work near, and may disturb asbestos-containing material.

17.2 Asbestos Procedure Training

In addition to the Asbestos Awareness course, any employees who will perform low risk work will receive additional appropriate training, from a qualified service provider, that conforms to the regulations, codes and guidelines related to asbestos abatement of the province or territory where the work will be performed as no such requirements exist federally. Copies of certificates of training for asbestos related work are to be placed in Appendix H.

Respirator training will be provided upon request to all those employees who will perform Low risk work and request a respirator. The training will cover limitations of use, facial hair, fitting, and maintenance of respirators. Persons provided with a respirator will be fit-tested with the assigned respirator, using the CSA quantitative method. Appendix E gives notes on respirator fitting and maintenance. Persons who will wear tight-fitting respirators will be required to be clean-shaven where the respirator seals to the face. Reference should be made to the CSA Z94.4-02, Selection, Care and Use of Respirators, as well as the provisions of Section 45 to 47 of Regulation 91-191.

18. Emergency – General Information

The main goal is to limit contamination; decontaminate and/or enclose problem areas with polyethylene.

Examples of possible emergencies: an asbestos clad pipe breaks; heating main breaks, damage to plaster / drywall joint compound, and floods that deteriorate asbestos containing-material (ACM).

Most asbestos emergencies are unique, but basic procedures apply in all cases. Handle emergencies as quickly as possible; follow procedures as outlined in the Asbestos Management Plan.

The emergency situation is under control when the asbestos-containing material is enclosed or removed, and the potential release of airborne asbestos fibres has been eliminated.

VACATE the area of unnecessary personnel.

CONTACT the Asset Manager, or Property and Facility Manager; the Regional Asbestos Coordinator may be contacted for guidance on contamination; or, in the absence of same, the standing offer asbestos consultant or the standing offer asbestos contractor.

CONFIRM that suspect material is asbestos containing, the Asset Manager, or Property and Facility Manager should refer to the inventory in the AMP, an asbestos consultant can be engaged for expert opinion or to sample suspect material and send for analysis. The material may be assumed to contain asbestos and use asbestos clean-up procedures with confirmation of asbestos content once sample analysis is completed.

LIMIT the asbestos contamination:

- Isolate the area by locking doors if this can be done without blocking emergency routes.
- Place enclosure around area if time permits.
- Post warning signs.
- Shut down ventilation system serving area
- Perform repair and cleaning with minimum disturbance of asbestos

INFORM the following (refer to Contact list) of the emergency based on the severity of the incident:

- Asset Manager, or Property and Facility Manager
- Regional Asbestos Coordinator
- Employer representatives
- Asbestos consultant
- Asbestos abatement contractor
- Joint Occupational Health and Safety Committee
- Workers Compensation Board (when private sector Clients/contractors present)
- Provincial (WorkSafe NB)

ASBESTOS MATERIAL REMOVAL shall be performed by persons trained in the handling and removal of asbestos containing material, refer to Appendix F – *Procedures for Emergency Asbestos Work*.

POST CLEAN-UP inspect the work area and monitor the air to confirm acceptable levels and document readings. The Regional Asbestos Coordinator may be contacted concerning air monitoring requirements. A qualified asbestos consultant should be hired to perform air monitoring.

DOCUMENT the disposal of the asbestos and the procedures used.

19. Classification of Asbestos Work

Asbestos work will be classified as Low, Moderate, and High risk according to the following criteria listed below.

If there is a conflict related to asbestos work classification between *A Code of Practice for Working with Materials Containing Asbestos in New Brunswick, Referenced in New Brunswick General Regulation 91-191 Under the Occupational Health and Safety Act*, dated June 2023, or any other provincial or site-specific regulations where the work will be performed, the most stringent requirements will be applied.

19.1 Low Risk Work

- destructive work (i.e., breaking, cutting, drilling, abrading) on wetted non-friable asbestos-containing material with non-powered hand-held tools.
- wet removal or replacement of asbestos-containing compressed-mineral-fibre-type ceiling tiles.
- handling of asbestos waste that has been double bagged.
- opening of ceiling tiles for inspection purposes; and
- collecting samples of materials suspected of containing friable asbestos.

19.2 Moderate Risk Work

- entry into ceiling spaces, crawlspace, pipe tunnels, etc., where friable asbestos debris is or may be present.
- dry removal of asbestos-containing suspended ceiling tiles.
- non-destructive (i.e., without breaking, cutting, drilling, abrading) dry removal of non-friable asbestos-containing material.
- removal of drywall where asbestos-containing joint compound materials has been used.
- destructive work (i.e., breaking, cutting, drilling, abrading) on non-wetted, non-friable asbestos-containing material with non-powered handheld tools.
- destructive work (i.e., breaking, cutting, drilling, abrading) on non-friable asbestos-containing material if the work is done by means of power tools that are attached to dust collecting devices equipped with a high efficiency particulate air (HEPA) filter.
- minor removal or disturbance of friable asbestos-containing material. Minor is defined as up to 30 ft² (2.8 m²) of surface area.
- removal of vinyl asbestos floor coverings
- clean-up of small quantities of friable asbestos debris that has detached from insulation.
- enclosure of asbestos-containing material
- encapsulation of friable asbestos-containing material where the actual damaged area of the entire encapsulation project is less than 30 ft² (2.8 m²).
- applying tape or cover to asbestos-containing insulation.
- glove bag removal of asbestos-containing material from a pipe, duct or similar structure; and
- work not otherwise classified as either low or high risk.

19.3 High Risk Work

- major removal or disturbance of friable asbestos-containing material (greater than 30 ft² (2.8 m²)).
- removing filters in an air handling unit in a building that has sprayed-on asbestos-containing fireproofing.
- cleaning or removal of ductwork and air handling equipment serving or passing through areas of buildings with sprayed, friable asbestos-containing material; and
- destructive work (i.e., breaking, cutting, drilling, abrading) of non-friable asbestos-containing material using power tools not attached to dust-collecting devices equipped with HEPA filters.
- encapsulating friable asbestos-containing material by spray application of an encapsulant or sealant.
- repair, alteration or demolition of a boiler, furnace, kiln, or similar equipment made in part of asbestos-containing refractory materials.

20. Control of Asbestos-related work

20.1 Maintenance Work

The Asset Manager, Property and Facility Manager is responsible to review all maintenance work for the possibility of disturbance of asbestos-containing materials

Employees will only perform low risk work, the Project Manager or Asset Manager, Property and Facility Manager must ensure that the workers have received appropriate training for the tasks to be performed.

The Asset Manager, Property and Facility Manager will inform the Employer representatives prior to the commencement of work. The Employer representative will inform the Joint Occupational Health and Safety Committee.

If there are asbestos-containing materials in the area of maintenance, but the Project Manager, or Asset Manager, Property and Facility Manager judges that the materials will not likely be disturbed by the maintenance work, the Project Manager, or Asset Manager, Property and Facility Manager must caution the maintenance staff or the contractor of the presence of asbestos-containing materials. The contractor notification and acknowledgement form, available in Electronic Forms (such as Adobe PDF and Microsoft Word) as CONTRACTOR NOTIFICATION & ACKNOWLEDGEMENT. *Signed copies of the notification form will be kept in Appendix I*

The Asset Manager, Property and Facility Manager will ensure written processes for performing asbestos remediation work are to be developed by a qualified person for the work to be undertaken. These processes shall be developed in accordance with the Canadian National Master Construction Specification (NMS), Sections 02 82 00.01 (Asbestos Abatement - Minimum Precautions), or 02 82 00.02 (Asbestos Abatement - Moderate Precautions).

Before asbestos abatement work is started:

The following documentation must be provided by the contractor as proof of competency as per provincial/territorial regulations:

- third-party liability insurance
- worker fit test certificates
- Contractors' provider's site-specific safety plan
- Notification to WorkSafe NB for High-Risk Projects
- Copy of WorkSafe NB Clearance Certificate

- copy of trade certificates / competency cards for asbestos awareness training as *referenced in New Brunswick General Regulation 91-191 Under the Occupational Health and Safety Act, dated June 2023*.
- other certificates where required (fall protection, confined space, man lift, etc.)

20.2 Asbestos-Related Work Record

Only maintenance work classified as low risk can be performed by maintenance employees, and they must have taken training as outlined Section 19 and may be required to undertake a medical evaluation as per the requirements of the Standard on Occupational Health Evaluations.

The supervisors of staff performing low risk work will be responsible to ensure that a record is completed for each period of work. The Asbestos-Related Work Record is available in Electronic Forms (such as Adobe PDF and Microsoft Word) as ASBESTOS RELATED WORK RECORD.

These records shall be copied to the employee's employment file and a copy placed in Appendix G *Asbestos-Related Work Record*.

20.3 Renovations and Construction Work

The Asset Manager, Property and Facility Manager will review the asbestos survey reports prior to all renovation and construction work for the possible impact on asbestos materials.

Prior to commencement of projects that include the demolition of material suspected of containing asbestos which has not yet been tested (such as material not accessible in the original survey), testing of this material for asbestos shall be undertaken, unless previous comprehensive testing in the building has shown this material to be free of asbestos. Along with the asbestos surveys of the building, records of test results shall be included in the Asbestos Inventory as part of the Asbestos Management Plan.

If there are asbestos-containing materials in the renovation area, but the Project Manager, or Asset Manager, Property and Facility Manager judges that the materials will not likely be disturbed by the work, the Project Manager, or Asset Manager, Property and Facility Manager must caution the contractor of the presence of asbestos-containing materials. The contractor notification and acknowledgement form, available in Electronic Forms (such as Adobe PDF and Microsoft Word) as CONTRACTOR NOTIFICATION & ACKNOWLEDGEMENT. The contractor shall be required to sign the Contractor Notification and Acknowledgement Form prior to commencement of the work. See Appendix I – Contractor Notification and Acknowledgement.

When there are friable or non-friable asbestos-containing materials in the work area and this material will be disturbed by the work, then the work shall be determined as asbestos-related work and the risk level classified by a qualified person in accordance with the work to be performed.

The Project Manager, or Asset Manager, Property and Facility Manager will make arrangements for specifications to be prepared for the asbestos work by a qualified person. These processes shall be developed in accordance with the Canadian National Master Construction Specification (NMS), Sections 02 82 00.01 (Asbestos Abatement - Minimum Precautions), 02 82 00.02 (Asbestos Abatement - Moderate Precautions), or 02 82 00.03 (Asbestos Abatement - Maximum Precautions). Alterations to specifications, in order to accommodate specific federal and provincial requirements, shall be determined based on work requirements.

Before asbestos abatement work is started documentation must be provided by the contractor as proof of competency as per provincial/territorial regulation as outlined in Section 20.1

In a timely fashion a summary report, written in plain language, concerning the asbestos work must be provided to the Employer representatives. The Employer representative will inform the Joint Occupational Health and Safety Committee. A record must be kept reflecting when and to whom the report was presented.

Upon completion of any project work which alters the amount or condition of asbestos-containing material in the building, a report will be prepared that indicates the work that has been completed and included in Appendix G Asbestos Related Work Records and the Section 6 Asbestos Inventory Table shall be updated as well as Section 7 Plans and Drawings in as required.

21 Low Risk, Moderate Risk and Glove Bag Procedures

Appendices B, C, and D, give standard practices for performing Low risk, Moderate risk, and glove bag asbestos work, respectively. The work procedures for Moderate and glove bag are for information purposes only since these procedures will be performed by a qualified contractor.

22. Project Inspection and Air Monitoring

22.1 Visual Inspection

The primary method of ensuring compliance with work procedures is visual inspection of the site and work practices by a qualified person. It is the responsibility of the Project manager or Asset Manager, Property and Facility Manager to ensure that work inspection is performed by a qualified person

22.2 Low Risk Work

Low risk work will be subject to the normal maintenance or project inspection provided to non-asbestos work by The Municipality of Lakeland Ridges. *Air monitoring or inspection will not be mandatory but may be performed at the discretion of the Project manager or the Asset Manager, Property and Facility Manager.*

22.3 Moderate Risk and Glove Bag Work

A qualified person such as an asbestos consultant will inspect the work during and upon completion. *Air monitoring or inspection will not be mandatory but may be performed at the discretion of the Project manager or the Asset Manager, Property and Facility Manager.*

NOTE: If there is a conflict related to air monitoring between this document and any other guideline or regulation, *A Code of Practice for Working with Materials Containing Asbestos in New Brunswick, Referenced in New Brunswick General Regulation 91-191 Under the Occupational Health and Safety Act, dated June 2023* requirements will be applied, or the regulation with the more stringent policy/procedure if applicable.

22.4 High Risk Work

The Project Manager, or Asset Manager, Property and Facility Manager will make arrangements for inspection and air monitoring of high-risk asbestos projects. In an occupied building or a building in use, inspection and air monitoring will be provided on a daily basis.

The air samples are to be analyzed by phase contrast microscopy (PCM) as determined by NIOSH, Method 7400 or an equivalent under provincial regulations. Analysis of samples shall be performed by organizations participating in a recognized external quality control program. A stop-work order will be issued when phase contrast microscopy measurements of the air samples exceed 0.05 fibres/cm³. This order is in effect until work processes are corrected and subsequent tests are less than 0.05 fibres/cm³.

All high-risk removal projects shall be subject to final clearance air testing. The clearance criterion shall be a concentration of less than 0.01 fibres per cubic centimetre (fibres/cm³) of air, as determined by NIOSH, Method 7400 or an equivalent under provincial regulations.

23 Air Monitoring for Hazard Assessment

Air monitoring will not be used as the primary resource for the assessment of hazard from asbestos-containing materials. For guidelines concerning hazardous occurrence investigation airborne threshold limits, refer to *A Code of Practice for Working with Materials Containing Asbestos in New Brunswick, Referenced in New Brunswick General Regulation 91-191 Under the Occupational Health and Safety Act, June 2023*.

If the Regional Asbestos Coordinator is requested to perform air monitoring under normal conditions of building use (i.e., away from asbestos work) the measurements will be made by the Phase Contrast Microscope (PCM) following NIOSH Method 7400. If the analysed results of a test sample are greater than the acceptable airborne threshold limit as determined by a qualified person such as the Regional Asbestos Coordinator or asbestos consultant, then the test sample will be reanalyzed by the Transmission Electron Microscopy (TEM) analytical method following NIOSH Method 7402.

24. Laboratory Material Analysis

24.1 Laboratory Analysis

During the annual reassessment or investigation prior to renovation projects, material may be discovered that could contain asbestos. The only way to confirm the presence of asbestos is by means of laboratory testing. In order to establish whether there are any asbestos-containing materials, and to identify the type and concentration of asbestos, bulk material samples must be collected by a qualified person from a homogeneous surface, area or insulation. The information gathered is essential in ensuring proper identification of asbestos materials by microscope analysis

The analysis of bulk samples shall be performed by a laboratory accredited by the National Voluntary Laboratory Accreditation Program (NVLAP), American Industrial Hygiene association (AIHA), or the Canadian Association for Laboratory Accreditation (CALA), or using a method noted in provincial regulations where the sample was taken, to the detection limits specified in Section 13. Frequency of sample collection must meet federal/provincial/territorial regulations but can be more frequent at the discretion of the surveyor.

Analysis of bulk samples are to be performed, where possible, using the United States Environmental Protection Agency method EPA/600/R-93/116 for Polarized Light Microscopy (PLM). In some instances,

analysis must be performed using Transmission Electron Microscopy (TEM) (an example of this would be analysis of vinyl floor tile).

24.2 Bulk Sample Collection

The procedures for collection and labelling of bulk samples for asbestos analysis are conducted as follows:

1. The material must be sampled when the area is not in use where feasible. Only those persons needed for sampling should be present in the immediate area.
2. The use of a National Institute for Occupational Safety and Health (NIOSH) approved respirator is recommended for all sampling. Depending on the condition and location of the material, airborne fibres can be generated during sampling.
3. Under the work area, polyethylene drop sheet must be placed over flooring that absorbs dust (such as carpeting) and over flooring in the asbestos work area where dust and contamination cannot otherwise be safely contained. Drop sheets are not to be reused.
4. The material is to be sprayed with a light mist of water to prevent asbestos fibre release during sampling, if possible. The material must not be disturbed any more than necessary.
5. Materials of different appearance should be sampled separately. Mechanical insulation must be sampled separately on all systems, tanks, vessels, etc. Both the straight sections of preformed insulation, and the insulating cement typically present at elbows, fittings, etc. (unless visually identified as fibreglass). Frequency of sampling must meet federal/provincial/territorial regulations.
6. For asbestos insulation, the sample is collected by penetrating the entire depth of the material, as the insulation may have been applied in more than one layer or covered with paint or other protective coating.
7. If pieces of material break off during sampling, the contaminated area must be cleaned up by wet cleaning. Any debris generated must be placed in plastic bags, labelled, sealed and disposed of as asbestos waste in accordance with requirements of the provincial/territorial and/or federal authority having jurisdiction.
8. Samples must be placed in labeled plastic bags with a zip-lock closure or in sealed plastic vials. Samples shall be identified with the following information:
 - sample number
 - location (e.g., building name, room number)
 - date of sampling
 - name of sampler
 - source of sample, e.g., cold water pipe, cold water fitting, etc.
9. Any openings created to collect the sample must be sealed (e.g., self-adhesive tape, paint or metal-foil tape to be wrapped completely around the pipe, duct or structure).
10. Bulk sample analysis shall be done by an accredited laboratory (refer to Section 24.1, Laboratory analysis).
11. The minimum number of bulk material samples to be collected for each type of test material is 1 for 100 ft² (9.3 m²) or less, 3 for 101-1000 ft² (9.4-93 m²), 5 for 1001-5000 ft² (93-465 m²), and 7 for greater than 5000 ft² (465 m²).
12. Separate samples should be taken where there is a difference in the texture or color of the material.

25 Facilities and Waste Disposal

25.1 Waste Disposal

Where staff will perform Low risk asbestos work, ACM waste will be packaged and disposed of in accordance with applicable provincial/territorial and municipal regulations. The waste will be held at a secure location in the building. The Asset Manager, Property and Facility Manager or Project Manager will arrange for periodic collection.

Appendix A – Evaluation and Recommendation Criteria for Control of Asbestos Containing Materials (ACM)

1. Assessment of Condition

1.1 Spray Applied Fireproofing, Insulation and Texture Finishes

To evaluate the condition of ACM spray applied as fireproofing, thermal insulation, or texture, decorative or acoustic finishes, the following criteria are applied:

GOOD

Surface of material shows no significant signs of damage, deterioration or delamination. Up to 1 percent visible damage to surface is allowed within range of **GOOD**. Evaluation of sprayed fireproofing requires the surveyor to be familiar with the irregular surface texture typical of sprayed asbestos products. **GOOD** condition includes un-encapsulated or unpainted fireproofing or texture finishes, where no delamination or damage is observed, and encapsulated fireproofing or texture finishes where the encapsulation has been applied after the damage or fallout occurred.

POOR

Sprayed materials show signs of damage, delamination or deterioration. More than 1 percent damage to surface of ACM spray.

In observation areas where damage exists in isolated locations, both **GOOD** and **POOR** condition may be reported. The extent or percentage of each condition will be recorded on the survey or re-assessment form.

NOTE: FAIR condition is not utilized in the evaluation of the sprayed fireproofing, sprayed insulation, or texture coat finishes.

The evaluation of ACM spray applied as fireproofing, non-mechanical thermal insulation, or texture, decorative or acoustic finishes which are present above ceilings, may be limited by the number of observations made, and by building components such as ducts or full height walls that obstruct the above ceiling observations. Persons entering the ceiling are advised to be watchful for ACM **DEBRIS** prior to accessing or working above ceilings in areas of buildings with ACM regardless of the reported condition.

1.2 Mechanical Insulation

The evaluation of the condition of mechanical insulation (on boilers, breaching, ductwork, piping, tanks, equipment etc.) utilizes the following criteria:

GOOD

Insulation is completely covered in jacketing and exhibits no evidence of damage or deterioration. No insulation is exposed. Includes conditions where the jacketing has minor surface damage (i.e., scuffs or stains), but the jacketing is not penetrated.

FAIR

Minor penetrating damage to jacketed insulation (cuts, tears, nicks, deterioration or delamination) or undamaged insulation that has never been jacketed. Insulation is exposed but not showing surface disintegration. The extent of missing insulation ranges should be minor to none.

POOR

Original insulation jacket is missing, damaged, deteriorated or delaminated. Insulation is exposed and significant areas have been dislodged. Damage cannot be readily repaired.

The evaluation of mechanical insulation may be limited by the number of observations made and building components such as ducts or full height walls that obstruct observations. It is not possible to observe the full length of mechanical insulation from all angles.

1.3 Non-friable and Potentially Friable Materials

Non-friable materials generally have little potential to release airborne fibres, even when damaged by mechanical breakage. However, some non-friable materials, i.e., exterior asbestos cement products, may have deteriorated so that the binder no longer effectively contains the asbestos fibres. In such cases of significantly deteriorated non-friable material, the material should be treated as a friable product.

2. Evaluation of Accessibility

The accessibility of building materials known or suspected of being ACM is rated according to the following criteria:

ACCESS (A)

Areas of the building within reach (from floor level) of all building users. Includes areas such as gymnasiums, workshops, and storage areas where activities of the building users may result in disturbance of ACM not normally within reach from floor level.

ACCESS (B)

Frequently entered maintenance areas within reach of maintenance staff, without the need for a ladder. Includes: frequently entered pipe chases, tunnels and service areas or areas within reach from a fixed ladder or catwalk, e.g., tops of equipment, mezzanines.

ACCESS (C) EXPOSED

Areas of the building above 2.4 metres where use of a ladder is required to reach the ACM. Only refers to ACM that is exposed to view, from the floor or ladder, without the removal or opening of other building components such as ceiling tiles, or service access door or hatch. Does not include infrequently accessed service areas of the building.

ACCESS (C) CONCEALED

Areas of the building which require the removal of a building component, including lay-in ceilings and access panels into solid ceiling systems. Includes rarely entered crawl spaces, attic spaces, etc. Observations will be limited to the extent visible from the access points.

ACCESS (D)

Areas of the building behind inaccessible solid ceiling systems, walls or mechanical equipment, etc. where demolition of the ceiling, wall or equipment, etc. is required to reach the ACM. Evaluation of condition and extent of ACM is limited or impossible, depending on the surveyor's ability to visually examine materials in ACCESS D.

3. ACM DEBRIS

3.1 DEBRIS from Friable ACM

The presence of fallen ACM is noted separately from the presumed friable ACM source (sprayed fireproofing, thermal insulation, texture, decorative or acoustic finishes or mechanical insulation) and is referred to as **DEBRIS**.

3.2 DEBRIS from Damaged Non-Friable ACM

The presence of fallen ACM from damaged non-friable ACM is also reported separately from the non-friable ACM source. Only fallen non-friable ACM that has become friable is reported as **DEBRIS**.

The identification of the exact location or presence of **DEBRIS** on the top of ceiling tiles is limited by the number of observations made and the presence of building components such as ducts or full height walls that obstruct observations. Workers are advised to be watchful for the presence of **DEBRIS** prior to accessing or working in proximity to mechanical insulation or above ceilings in areas of buildings with ACM regardless of the reported presence or absence of **DEBRIS**.

4. Action Matrix and Action Descriptions

The Asbestos Management Plan requires the following responses:

- Immediately clean-up **DEBRIS** that is likely to be disturbed.
- Remove, repair or enclose friable ACM in **POOR** or **FAIR** condition whose continued deterioration will result in **DEBRIS** that is likely to be disturbed.

The following factors shall be considered in making site-specific recommendations for compliance with the existing applicable regulations or codes and the practical implementation of the Asbestos Management Plan:

1. ACM in **POOR** condition is not routinely repairable. If an abatement action is necessary, removal is the recommended action (enclosure is a viable option in unusual circumstances, e.g., where removal is difficult or costly and the asbestos-containing material can be thoroughly enclosed).
2. Mechanical insulation in **FAIR** condition will be repaired or removed based on the following general recommendations, applied on a case-by-case basis:
 - ACM insulation found in **FAIR** condition in ACCESS (B), or ACCESS (C) EXPOSED areas is to be repaired.
 - ACM mechanical insulation found in **FAIR** condition in ACCESS (B) and ACCESS (C) EXPOSED areas, where future damage to the ACM is likely to occur, is to be removed.
3. ACM in **GOOD** condition present in ACCESS (A) can be managed by surveillance, as long as it is not disturbed by future renovation, maintenance or demolition. Proactive removal of the ACM in ACCESS (A) will be considered where damage is possible by on-going occupant activity (accidental or intentional).
4. Non-friable or manufactured products are considered in the action matrix as follows:
 - Non-friable and manufactured products reported in **POOR** condition, or friable **DEBRIS** resulting from the deterioration of non-friable ACM, are treated as friable materials and the appropriate action, and depending on accessibility is determined from the action matrix for friable ACM.
 - For non-friable or manufactured products reported in **GOOD** condition, Action 7 (surveillance) is recommended regardless of accessibility.

5. All asbestos-containing material from a particular area is to be removed where small quantities of asbestos are present, and removal will negate the need for the use of an Asbestos Management Program in that area.

The action matrix provided below establishes the recommended asbestos control action. The ACTIONS themselves are described in full following the table.

4.1 Action Matrix Tables

FRIABLE ACM				
ACCESS	CONDITION			DEBRIS
	GOOD	FAIR	POOR	
(A)	ACTION 5/7 ¹	ACTION 5/6 ²	ACTION 3	ACTION 1
(B)	ACTION 7	ACTION 6/5 ³	ACTION 3	ACTION 1
(C) EXPOSED	ACTION 7	ACTION 6	ACTION 4	ACTION 2
(C) CONCEALED	ACTION 7	ACTION 7	ACTION 4	ACTION 2
(D)	ACTION 7	ACTION 7	ACTION 7	ACTION 7

¹ If material in **ACCESS (A)/GOOD** condition is not removed **ACTION 7** is required.

² If material in **ACCESS(A)/FAIR** condition is not removed **ACTION 6** is required.

³ Remove ACM in **ACCESS (B)/FAIR** condition if ACM is likely to be disturbed.

4.2 Action Descriptions

ACTION 1 - Immediate Clean-Up of DEBRIS that is Likely to Be Disturbed

Access that is likely to cause a disturbance of the ACM **DEBRIS** is to be restricted and **clean up ACM DEBRIS is to be done immediately**. Use correct asbestos procedures. This action is required for compliance with regulatory requirements and good practice. The assessor should immediately notify the Asset or Property and Facility Manager, or Regional/Area Asbestos Management Coordinator of this condition.

ACTION 2 - Moderate risk precautions for Entry into Areas with ACM DEBRIS

At locations where ACM **DEBRIS** can be isolated in lieu of removal or cleaned up, use appropriate means to limit entry to the area. Restrict access to the area to persons using moderate risk asbestos precautions. The precautions will be required until the ACM **DEBRIS** has been cleaned up, and the source of the **DEBRIS** has been stabilized or removed.

ACTION 3 - ACM Removal Required for Compliance

Remove ACM for compliance with regulatory requirements and good practice. Utilize asbestos procedures appropriate to the scope of the removal work.

ACTION 4 - Access into areas where asbestos-containing material is present and likely to be disturbed by access requires moderate risk precautions.

Moderate risk asbestos precautions are to be used when entry or access into an area is likely to disturb the ACM. **ACTION 4** must be used until the ACM is re-moved (Use **ACTION 1** or **2** if **DEBRIS** is present). Moderate risk or high-risk precautions should be used for removal (depending on extent of removal).

ACTION 5 - Proactive ACM Removal

Removal of ACM in lieu of repair may be considered, even if it is in **GOOD** condition at locations, where ACM is easily accessible, limited in quantity, and removal would be cost-effective.

ACTION 6 - ACM Repair

Repair ACM found in **FAIR** condition, and not likely to be damaged again or disturbed by normal use of the area or room. Upon completion of the re-pair work treat ACM as material in **GOOD** condition and implement **ACTION 7**. If ACM is likely to be damaged or disturbed during normal use of the area or room, **ACTION 5** is to be implemented.

ACTION 7 - Routine Surveillance

Institute routine surveillance of the ACM. Trained workers or contractors must use appropriate asbestos precautions (low, moderate or high) during disturbance of the remaining ACM.

Appendix B – Low Risk Work Procedures

For locations of non-friable asbestos materials, refer to the current version of the Asbestos Inventory and Assessment Report.

NOTE: These low-risk 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. The Asset Manager, or Property and Facility Manager with the assistance of the Regional Asbestos Coordinator will determine which procedures are appropriate.

1. Equipment

All equipment must be on site before proceeding.

1.1 Vacuum

Use of a vacuum is optional. Wet cleaning methods may be used in place of a vacuum. If a vacuum is used it must be equipped with a high efficiency particulate (HEPA) filter and all brushes, fittings, etc. The vacuum must only be opened in an enclosure following moderate procedures, or in a laboratory exhaust hood. The vacuum exterior should be carefully wet cleaned after emptying.

1.2 Respirators

The Municipality of Lakeland Ridges will supply, at the workers request, a half face respirator with HEPA filters, with training on use and qualitative fit testing. Respirator must be used according to written use procedures provided to worker as per training procedures. Filters must be changed after 24 hours of wear or sooner if breathing resistance increases. No person using respirator shall wear facial hair which affects the seal between respirator and face.

1.3 Protective Clothing

Reusable or disposable clothing may be used. Non-disposable clothing with visible asbestos contamination shall be cleaned with a HEPA vacuum and laundered as asbestos contaminated. Disposable clothing and respirator filters to be disposed of as asbestos waste.

1.4 Other Equipment

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

2. Other Protective Measures

Do not eat, drink or smoke in the work area.

On leaving work area, proceed to washroom and wash all exposed skin on hands and face.

3. Preparation

Before disturbing non-friable asbestos materials, wherever practical cover floor and surfaces below work with polyethylene sheeting to catch debris.

Wherever dust on a surface is likely to be disturbed remove with HEPA vacuum or damp cloth.

4. Execution

4.1 Wet Removal of Vinyl Asbestos Floor Tile

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-degree 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 of small area 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 area, vacuum clean floor with HEPA vacuum or wet mop. Dispose of the mop head as contaminated waste.

4.2 Installing, Cutting or Drilling Non-Friable Asbestos Materials using Wet Techniques

Work using power tools not fitted with a HEPA filter dust collector, must not be performed as Low risk work.

Where possible wet all materials to be disturbed.

Immediately place waste in asbestos waste receptor. Clean area frequently during work with HEPA vacuum or by wet methods.

At completion of work, clean drop sheets to be reused with HEPA vacuum or by wet methods.

Drop sheets shall be disposed of as asbestos waste.

4.3 Removal of Other Non-Friable Asbestos Materials

The Low-risk procedures apply only to materials which can be removed intact, or in sections, without producing a pulverized or powdered waste. This method is most applicable to asbestos-cement board products, acoustic ceiling tiles, gaskets, etc.

Where possible wet all material to be disturbed.

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. Damp cloth disposed of as asbestos waste after cleaning.

Drop sheets shall be disposed of as asbestos waste.

5. 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. Use a barrel, fibre drum, or cardboard or wooden box in place of the second bag when the asbestos waste material is likely to tear the inner bag. Seal the outer container.

Provide storage area for holding minor amounts of asbestos waste in sealed containers. Garbage containers shall be labelled and assigned exclusively for asbestos waste.

Dispose of the waste in compliance with provincial regulations. The Asset Manager, or Property and Facility Manager or Project Manager will arrange for disposal.

Appendix C – Moderate Work Procedures

For locations of asbestos materials, refer to the current version of the Asbestos Inventory and Assessment Report.

1. Equipment

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

1.1 Vacuum

An asbestos-approved vacuum (HEPA filtered), equipped with brushes, fittings, etc. Vacuum must not be opened except by a fully protected worker within an enclosure.

1.2 Respirators

Workers within the work area shall wear approved respirator. Respirators and filters will be provided by the employer, and individually assigned to workers. Respirators must be NIOSH approved and acceptable to the Provincial Authorities having jurisdiction. Respirator shall be a half-face piece respirator with high efficiency filters. Respirators must be kept in position throughout the entire time the worker is in the area of the work from first disturbance of the ceiling tile or asbestos material until the final cleaning of the area and bagging of waste is complete. Change filters after 24 hours of wear or sooner if breathing resistance increases. No person using respirator shall wear facial hair which affects seal between respirator and face. For more information, see Respirator definition in Section 2, plus refer to Appendix E – Respirator Fitting, Inspection, Cleaning and Disinfection.

1.3 Protective Clothing

All workers shall wear disposable coveralls with attached elasticized hood. Coveralls should be worn with the hood in place at all times. Coveralls may be vacuumed or wet wiped clean for re-use, for a maximum of 8 hours cumulative wear. Suit and head cover shall remain in place until worker leaves work area or the enclosure is dismantled. Boot covers or dedicated boots are recommended.

1.4 Other Equipment

- plastic sheet (6 mil polyethylene) - to erect a total enclosure or to serve as drop sheet
- wood framing or clips to support polyethylene sheeting, as appropriate to work area
- tape - to fasten plastic enclosure to ceiling 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 as per manufacturer's recommendations
- 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

2. 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 to wash exposed skin on hands and face.

3. Scheduling of Work

Schedule work when occupants are absent. If persons are present, do not start work.

If work above ceiling is required on an emergency basis when area is occupied, the Employer representative must be advised and ensure that occupants vacate the area until work is complete, and clearance is given to return.

4. 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 shall be adequately covered and sealed using 6 mil polyethylene and tape. The intent of the protection is to provide an airtight envelope to protect the articles from airborne dust or splashed debris.

Post signs or barrier tape to indicate asbestos hazard and requirement for protective clothing for anyone entering the space.

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 and scaffolds and ladders required to gain access. If a suspended ceiling is present, the enclosure shall extend to the ceiling line. The enclosure shall be as airtight as conditions permit including the provision of a double overlapping flap at the entrance. The floor of the work area shall be a layer of 6 mil polyethylene sealed to the plastic walls of the enclosure.

Don protective clothing and respirator prior to removing ceiling tile or disturbing pipe jacketing or sprayed fireproofing.

5. Execution

To remove fireproofing, texture plaster, plaster, drywall with asbestos-containing joint compound, saturate using amended water solution, by use of a pump sprayer. Do not remove the asbestos-containing material until the material is thoroughly wetted to the substrate. **Do not use water where electrical hazard exists.**

To remove pipe insulation, first wet any area of damage, then carefully cut jacket. Keep insulation surface wetted by mist of water with wetting agent. Remove insulation in large sections and place immediately in disposal bag. After large pieces have been removed, saturate debris on mechanical equipment and clean all exposed surfaces with abrasive pads, sponges, cloths, etc.

To repair pipe insulation, 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.

For removal of suspended ceiling tiles (where asbestos debris is present on top of tiles or equipment to be accessed), remove the first tile carefully and vacuum all surfaces. Vacuum the upper surface of each subsequent tile prior to removal. Store tiles in the work area.

Remove dust and loose friable material likely to be disturbed in the process of doing the work, with a HEPA vacuum or by damp wiping.

When asbestos-containing material is removed, all pieces should be placed directly into 6 mil polyethylene bags as they are removed. Avoid dropping material to floor wherever possible. After bulk removal is complete, wet wash the exposed surface.

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 fireproofing, texture plaster, or mechanical insulation with heavy layer of encapsulating sealer. Apply sealer coat to surfaces from which asbestos-containing 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 shall be decontaminated as above and placed in labelled disposal bags. Workers shall vacuum all exposed skin, suit and respirator, and proceed to nearest washroom to wash hands and face.

Removal of Asbestos-Containing Sheet Flooring < 30 square feet (2.8m²) Surface Area (Friable):

Remove binding strips or other restrictive mouldings. Workers shall wear air purifying respirator fitted with high efficiency filter, and coveralls at all times.

Make series of cuts 100 mm to 200 mm (4" to 8") apart through top layers and about halfway through felt backing, parallel to wall.

Start at end of room furthest from door and pry up corner of strip, separating top sheet from backing layer. Pull top layer back upon itself slowly and evenly, and half backing and top layers should pull free. After it is removed, roll up strip face out into tight roll, tape or tie securely, and place into asbestos waste receptor. Wet the asbestos felt underlay remaining on floor as soon as exposed.

Continue with successive strips. Avoid walking on exposed asbestos felt. Seal asbestos waste receptors when filled. Remove maximum of three strips before wet scraping exposed felt under-lay.

Remove remaining adhered underlay by wet scraping. Soak area with water applied by sprayer. Allow water to penetrate felt. Scrape off remaining material. Maintain material wet by applying more water. Place scrapings in asbestos waste receptor.

Continue this procedure alternately removing top sheets and then wet scraping felt, three strips at a time. Be careful not to walk on stripped floor.

When whole floor has been cleaned of asbestos felt, allow it to dry and vacuum up any dirt with a HEPA vacuum or wet mop. Do not dry sweep. Dispose of the mop head as contaminated waste.

Thoroughly clean tools and equipment with a damp cloth before being put back into regular service. Dispose of cloth as contaminated waste.

6. Waste Transport and Disposal

Place waste into asbestos labelled disposal bag, seal with tape, clean the bag, and place into a second clean bag, also to be sealed with tape. Use a barrel, fibre drum, or cardboard or wooden box in place of the second bag when the asbestos waste material is likely to tear the inner bag. Seal the rigid outer container.

Provide storage area for holding minor amounts of asbestos waste in sealed containers. Containers shall be labelled and assigned exclusively for asbestos waste.

Dispose of waste in compliance with provincial regulations. The Asset Manager, or Property and Facility Manager or Project Manager will arrange for disposal.

Appendix D – Glove Bag Work Procedures

1. Equipment

All equipment must be on site before proceeding with the work. Note that these procedures are primarily based on the use of Safe-T-Strip polyvinyl chloride movable glove bags. If the single use polyethylene glove bag permitted in some jurisdictions are used, it should be understood that they are for use at one location only and cannot be moved or used elsewhere. NOTE: If single use polyethylene glove bag is used, Section 5 – Execution shall be replaced by manufacturer's recommended procedures.

1.1 Glove Bag

Prefabricated, 0.25 mm (10 mil) minimum thickness polyvinyl-chloride bag with integral 0.25 mm (10 mil) thick polyvinyl-chloride gloves and elasticized port. Bag shall be equipped with reversible double-pull double throw zipper on top. Bag must incorporate internal closure strip if it is to be removed from pipe for re-use elsewhere.

OR Prefabricated polyethylene glove bag, single use, not movable.

Provide size and configuration appropriate for insulation to be removed. Once filled bag must be disposed of. Bag shall not be emptied and reused.

1.2 Securing Straps

Reusable nylon straps at least 1" wide with metal buckle for sealing ends of bags around pipe and/or insulation.

1.3 Water Sprayer

Garden reservoir type, low velocity, capable of producing mist or fine spray with water containing wetting agent. Dilute wetting agent as per manufacturer's recommendations.

1.4 Respirators

Workers using glove bag must wear approved respiratory protection. Respiratory protection must be equal to or exceed protection of half-face respirator with high efficiency filters. Respirators must be NIOSH approved and acceptable to the Provincial Authorities having jurisdiction. Respirators must be kept in position from the time the worker attaches the glove bag to the pipe until final cleaning of the pipe and bagging of waste is completed. Filters shall be changed after 24 hours of wear or sooner if breathing resistance increases. No person using respirator shall wear facial hair which affects the seal between respirator and face. For more information, see Respirator definition in Section 2, plus refer to Appendix E – Respirator Fitting, Inspection, Cleaning and Disinfection.

1.5 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 for use inside glove bag
- plastic sheet (4 mil polyethylene) to cover exposed or damaged section of pipe prior to attaching glove bag

- tape - to fasten plastic to pipe if required
- cleaning supplies, e.g., scouring pads, sponges, brushes, buckets, etc.
- HEPA vacuum, for evacuating air from bag prior to removing bag from pipe; HEPA filter must be rated at least 99.97% efficient in collecting and retaining a 0.3 micrometre particle.

1.6 Protective Clothing

Workers shall wear disposable suit with attached elasticized hood. Suit and head cover (hood) shall remain in place until worker completes cleaning of pipe. Suit may be cleaned for re-use or disposed of as asbestos waste.

2. 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 to wash all exposed skin on hands and face.

3. Scheduling of Work

Schedule work when occupants are absent. If persons are present, do not start work.

4. Preparation

Where practical, clear area below pipe of moveable furnishing or equipment. Provide scaffold as required to reach pipe.

Post an asbestos warning sign at all entrances to room in which the procedure is being used. Use rope or tape barriers to separate work area.

Segregate the area of asbestos work from other parts of the building required to remain in use using polyethylene walls or barrier tape.

Shut off and seal all diffusers, vents and other openings to ventilation and exhaust systems in the room with polyethylene secured with tape.

Cover all items or equipment located in the designated work area with polyethylene if the items or equipment cannot be cleaned in the case of a spill. Tape the polyethylene in place. The polyethylene should cover a width equal to the height of the pipe from the floor, with a minimum width of 12 feet, where required.

Seal all openings or voids in the vicinity of the glove bag operation with one layer of polyethylene secured with tape.

Check condition of pipe insulation where work will be performed. If the pipe insulation has minor isolated damage, mist surface and patch with tape. If damage is more extensive, wrap pipe with plastic and "candy stripe" it with duct tape first. If pipe insulation is severely damaged and cannot be simply repaired, glove bag is not appropriate. (See Moderate Risk Procedures.)

Pre-clean with HEPA vacuum or wet methods any loose material on surface of pipe or any material on the floor. If significant amount of material is on floor, moderate risk procedures may be required for clean-up. (See Moderate Risk Procedures.)

Place necessary tools in bottom of glove bag.

5. Execution

Zip the bag onto the pipe and seal each end to the pipe with the securing straps. Do not pull the bag tightly to the ends - a small amount of slack allows better room to work within the bag. If a vertical bag is in use, ensure lower strap passes through plastic grommet and cloth tab on zipper.

Place hands into gloves and use necessary tools (wire saw, utility knife, wire cutters) to remove insulation from pipe. Arrange insulation in bottom of bag to obtain full capacity of bag. Roll jacketing carefully to minimize the possibility of ripping or puncturing the bag.

Insert nozzle of spray pump into bag through valve and wash pipe and interior of upper section of bag thoroughly. Use one hand to aid washing process. Wet surface of insulation in lower section of bag and any exposed ends of asbestos insulation remaining on pipe.

Prior to removing the bag from the pipe, wash the top section of the bag and tools thoroughly. Insert nozzle of HEPA filtered vacuum into bag through elasticized valve and evacuate air from bag. Seal the closure strip, remove the vacuum nozzle and straps, and remove the bag. Re-install and seal in new location before reopening closure.

If bag is to be moved along the same pipe, loosen securing straps, move bag, re-seal to pipe using double-pull zipper to pass hangers. Repeat insulation removal operation.

If during use the glove bag is ripped, cut or opened in any way, cease work and repair opening before continuing work. All spilled material must be cleaned up and removed with a HEPA vacuum or wet cleaning.

To remove tools after completion of insulation removal, thoroughly wash top section of bag and tools. Place tools in one glove, pull hand out inverted, twist to create a separate pouch, tape in-side-out glove at two separate locations 1" apart to seal pouch. Remove inside-out glove and tools by cutting between the tape seals.

Place glove pouch and tools into the next clean glove bag to be used. Alternately, place the tool pouch into water bucket, open pouch underwater and clean tools, then allow to dry.

Prior to disposal of bag, evacuate the bag with a HEPA vacuum. Pull a 6-mil polyethylene bag over glove bag before removing from pipe. Remove securing straps. Unfasten zipper. Seal glove bag and seal 6 mil polyethylene bag.

After removal of bag ensure pipe is clean of all residues. If necessary, after removal of each section of asbestos, vacuum all surfaces of pipe, using HEPA filtered vacuum equipment or wipe with wet cloth.

Seal all surfaces of freshly exposed pipe with encapsulating sealer to tack-down any residual dust. Cover exposed ends of any remaining asbestos insulation with lagging cloth or tape.

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 shall be decontaminated as above and placed in labelled disposal bags. Workers shall vacuum all exposed skin, suit, respirator and hair (after removing hood) and proceed to nearest washroom to wash hands and face.

6. Waste Transport and Disposal

Provide storage area for holding minor amounts of asbestos waste in sealed containers. Containers shall be labelled and assigned exclusively for asbestos waste.

Dispose of waste in compliance with provincial regulations. The Asset Manager, or Property and Facility Manager or project Manager will arrange for disposal.

Appendix E – Respirator Fitting, Inspection, Cleaning and Disinfection

NOTES FOR AIR PURIFYING HALF FACEPIECE RESPIRATORS

WARNING: This respirator does not supply oxygen. It must not be used in oxygen deficient atmospheres (less than 19.5%); in poorly ventilated areas or enclosed spaces such as tanks or small rooms; for abrasive blasting or firefighting; or for protection against contaminants excluded or not covered by the applicable Approval Label.

Note: Respirators must be approved for protection against asbestos. Check for NIOSH certification. Please refer to CSA Z94.4-02, Selection, Care and Use of Respirators.

Respirator Fitting

1. Persons required to wear respirators must first pass a qualitative fit-test administered according to the current version of CSA standard Z-94.4-02. The fit test should be repeated yearly.
2. The respirator wearer must be clean-shaven along all the seal points for proper protection. Even stubble growth may be sufficient to reduce the seal of the face piece, and therefore the protection. The respirator approval is voided for users with facial hair which interferes with the seal.

Inspection Items Prior to Each Use

1. Examine face piece for:
 - dirt
 - cracks, tears or holes
 - distortion and inflexibility
 - crack or breaks in filter holders, worn threads and missing gaskets
2. Examine head straps for:
 - breaks or tears
 - loss of elasticity
 - broken or malfunctioning buckles and attachments
3. Examine valves for:
 - detergent residue, dust or other material on valves or valve seats
 - cracks, tears or distortion in the valve material
 - missing or defective valves or valve covers
4. Examine filter for:
 - proper filter for protection against asbestos (High Efficiency Particulate)
 - incorrect installation, loose connections, missing or worn gaskets or cross threading
 - cracks or dents in filter housing
5. Leak-checks:
 - Perform the following tests on each donning:
 - negative pressure test: cover inlets to filters, breathe in and hold breath; respirator should be drawn to face for minimum of 10 seconds (if not, check exhalation valve and fit)

- positive pressure test: cover exhalation valve cover and puff out slightly and hold breath; respirator should slightly pressurize and still hold seal (if not, check inhalation valves and fit)

Respirator Cleaning and Disinfection

1. Remove filters and disassemble face piece. Discard or repair defective parts.
2. Wash components in warm water (50°C - 60°C) with mild detergent, using a brush. Cleaning and disinfectant solutions are available from respirator manufacturers.
3. Thoroughly rinse components in clean, warm water.
4. Air dry or hand dry components with a clean, lint-free cloth.
5. Reassemble respirator and test to ensure that all components are working properly (see above). Be careful to check that valves are not lost in the cleaning.

Filter Cartridge Handling and Replacement

1. Filter cartridges should be sealed on the inlet side with tape once used. This refers to whether the cartridge is intended to be reused and is going to be stored (between shifts or otherwise), or if the cartridge is being disposed of as asbestos-contaminated waste.
2. Filters can be re-used until an increase in breathing resistance is noted. Under typical moderate risk conditions, filter cartridges should last a minimum of 24 hours.

Appendix F – Procedures for Emergency Asbestos Work

In the case where moderate risk abatement procedures cannot be strictly observed due to the urgency, some judgement will be required of the person responsible for the work, and other staff or contractors responding to the emergency. The general principle of emergency response work is to minimize the exposure to airborne asbestos and to protect the workers performing the repair. The procedures given below should be followed to the extent possible in the circumstances of the emergency.

1. Clear area of all occupants.
2. Shut down the ventilation system serving the area.
3. Isolate the area by locking doors if this can be done without blocking emergency exits.
4. Construct enclosure around area if time permits. Do not obstruct emergency exits.
5. Only trained workers or abatement contractors will be allowed to perform the work.
6. Worker performing repair shall wear protective respirator and disposable suit.
7. Use drop sheet under work to minimize clean-up if possible
8. Remove all debris of the disturbance using HEPA filtered vacuum or wet cleaning.
9. Dispose of all cleaning supplies, disposable clothing and footwear as contaminated waste.
10. Proceed to washroom and wash face and hands.
11. Remove barriers from the area only after inspection has been performed by a qualified asbestos consultant or the Regional Asbestos Coordinator.

Appendix G – Asbestos-Related Work Record

Meductic Municipal Building, 17 School Street, Meductic, New Brunswick

This form is to be completed by the contractor or team member performing asbestos related work.

ASBESTOS RELATED WORK RECORD				
Date:				
Project Location: (Facility & Room #)				
Project Description:				
Start Date/Time:		Finish Date/Time:		
Contractor:		No. of Personnel:		
Supervisor/ Foreman:		Work Phone: Home Phone:		
Names of Contractor Personnel: (PRINT ALL NAMES IN FULL)				
Classification of Work:				
	☐	Low Risk – Removal & Repair	☐	Moderate Risk – Removal
	☐	Moderate Risk – Ceiling Entry	☐	Moderate Risk – Asbestos Clean-up
	☐	Moderate Risk – Repair	☐	High Risk – Removal
Commencement Approved:				
	(PRINT)	(DATE)	(SIGNATURE)	
Completion Approved:				
	(PRINT)	(DATE)	(SIGNATURE)	

A SEPARATE ASBESTOS RELATED WORK RECORD MUST BE PREPARED FOR EACH WORK ORDER OR PROJECT

This form is to be copied, immediately upon completion, to the Asbestos Coordinator.

Appendix H – Certificate of Training for Asbestos-Related Work

Appendix I – Contractor Notification and Acknowledgement

Meductic Municipal Building, 17 School Street, Meductic, New Brunswick

Asbestos Acknowledgement Forms

The Facility Asbestos Coordinator is to be notified of all asbestos related work to be performed, prior to the commencement of the work.

CONTRACTOR NOTIFICATION & ACKNOWLEDGEMENT	
Asbestos Containing Materials (ACMs) have been identified at:	FACILITY NAME
FACILITY ASBESTOS COORDINATOR	LOCATION PHONE NO.
Working with asbestos can be dangerous unless appropriate work practices and personal protective equipment are utilised. Inhaling asbestos fibres can cause various types of lung disease including cancer. Only contractors that have received asbestos abatement training can undertake the disturbance of asbestos containing materials.	
By signing this form I acknowledge and understand that I may be working in areas with asbestos-containing materials. Should my work require the disturbance of any ACM or should I accidentally disturb any ACM, I will <u>immediately report</u> this to the Facility Asbestos Coordinator. Facility Asbestos Coordinator contact number is:	
Company Name:	
NAME & TITLE	
Contractor Employee:	
Signature:	Date:

Appendix J – Logbook

[illegible]