

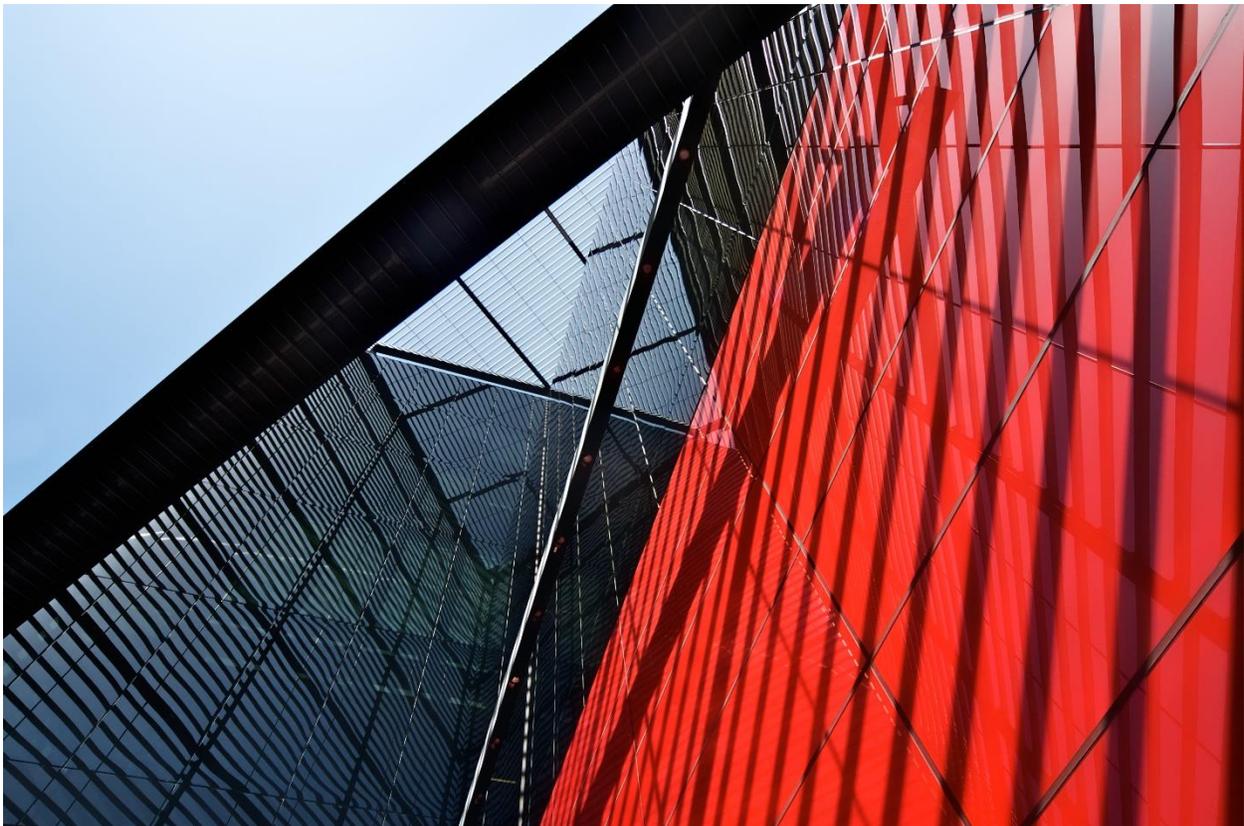


PUBLIC SERVICES AND PROCUREMENT CANADA

# DESIGNATED SUBSTANCE AND HAZARDOUS MATERIALS ASSESSMENT REPORT

ADMINISTRATIVE BUILDING #2, SAINT-  
REGIS, AKWESASNE

MARCH 31, 2020



BUILT ENVIRONMENT





# DESIGNATED SUBSTANCE AND HAZARDOUS MATERIALS ASSESSMENT REPORT

ADMINISTRATIVE BUILDING #2,  
SAINT-REGIS, AKWESASNE

PUBLIC SERVICES AND PROCUREMENT CANADA

REPORT

PROJECT NO.: 181-09302-15  
DATE: MARCH 31, 2020

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March 31, 2020

Public Services and Procurement Canada  
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**Attention: Lee Chan, Environmental Specialist, Environmental Services and Contaminated Sites, Ontario Region**

Dear Mr. Chan,

**Subject: Designated Substance and Hazardous Materials Assessment Report  
Administrative Building #2, Saint-Regis, Akwesasne**

WSP Canada Inc. (WSP) was retained by Public Services and Procurement Canada (PSPC) on behalf of the Mohawk Council of Akwesasne to conduct a Designated Substances & Hazardous Materials Assessment (DSHMA) of Administrative Building #2 located at 2 Saint-Regis Street, in Saint-Regis, Akwesasne.

The purpose of this assessment was to report WSP's findings for the building and provide PSPC with relevant recommendations for the removal of Designated Substances and hazardous materials ahead of the planned demolition of the building.

The assessment was conducted to comply with a building owner's/employer's duties under the Canadian Occupational Health and Safety Regulations, the Canadian Labour Code, and the National Joint Council Occupational Health and Safety Directive to identify, manage, and prevent occupational exposures to Designated Substances and hazardous materials. In addition to the above, this assessment was performed in compliance with Ontario Regulations as requested by PSPC and the Mohawk Council of Akwesasne.

The following report outlines the regulatory framework and methodology for conducting the DSHMA and presents our findings and recommendations.

Please contact the undersigned should you have any questions or concerns.

Yours sincerely,

Meredith Cake, EPT  
Environmental Technician

Stephen Heikkila, P.Eng.  
Senior Project Engineer

MC/SH

WSP ref.: 181-09302-15

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# QUALITY MANAGEMENT

ISSUE/REVISION	FIRST ISSUE	REVISION 1	REVISION 2	REVISION 3
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Signature				
Reviewed by	Conrad Goericke	Conrad Goericke		
Signature				
Reviewed by	Stephen Heikkila	Stephen Heikkila		
Signature				
Project number	181-09302-15	181-09302-15		

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Stephen Heikkila, P.Eng.  
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The conclusions presented in this report are based on work performed by trained, professional and technical staff, in accordance with their reasonable interpretation of current and accepted engineering and scientific practices at the time the work was performed.

The content and opinions contained in the present report are based on the observations and/or information available to WSP at the time of preparation, using investigation techniques and engineering analysis methods consistent with those ordinarily exercised by WSP and other engineering/scientific practitioners working under similar conditions, and subject to the same time, financial and physical constraints applicable to this project.

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Design recommendations given in this report are applicable only to the project and areas as described in the text and then only if constructed in accordance with the details stated in this report. The comments made in this report on potential construction issues and possible methods are intended only for the guidance of the designer. The number of testing and/or sampling locations may not be sufficient to determine all the factors that may affect construction methods and costs. We accept no responsibility for any decisions made or actions taken as a result of this report unless we are specifically advised of and participate in such action, in which case our responsibility will be as agreed to at that time.

Overall conditions can only be extrapolated to an undefined limited area around these testing and sampling locations. The conditions that WSP interprets to exist between testing and sampling points may differ from those that actually exist. The accuracy of any extrapolation and interpretation beyond the sampling locations will depend on natural conditions, the history of Site development and changes through construction and other activities. In addition, analysis has been carried out for the identified chemical and physical parameters only, and it should not be inferred that other chemical species or physical conditions are not present. WSP cannot warrant against undiscovered environmental liabilities or adverse impacts off-Site.

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These limitation statements are considered an integral part of this report.

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Environmental Specialist                              Lee Chan

## WSP

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Project Coordinator                                      Conrad Goericke

Senior Project Engineer                                Stephen Heikkila

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# EXECUTIVE SUMMARY

WSP Canada Inc. (WSP) was retained by Public Services and Procurement Canada (PSPC) on behalf of the Mohawk Council of Akwesasne to conduct a Designated Substances & Hazardous Materials Assessment (DSHMA) of Administrative Building #2 (the ‘subject building’) located at 2 Saint-Regis Street, in Saint-Regis, Quebec (Akwesasne).

The building consists of a three (3) storey structure, built between 1970 and 1975.

The purpose of this assessment was to report WSP’s findings for the subject building and provide PSPC with relevant recommendations for the removal of Designated Substances and hazardous materials ahead of the planned demolition of the building.

The assessment was conducted to comply with a building owner’s/employer’s duties under the Canadian Occupational Health and Safety Regulations, the Canadian Labour Code, and the National Joint Council Occupational Health and Safety Directive to identify, manage, and prevent occupational exposures to Designated Substances and hazardous materials. In addition to the above, this assessment was performed in compliance with Ontario Regulations as requested by PSPC and the Mohawk Council of Akwesasne.

This report must be provided to building personnel or workers who work in close proximity to DSHM or who might otherwise come into contact with, handle, or disturb these materials. This report must also be presented to prospective contractors (and in turn to their sub-trades) prior to entering into a contract for work that will be conducted in areas where DSHM are present.

A summary of the findings of this report are presented in the table below:

**Table 0.1 Results Summary**

MATERIAL	RESULTS SUMMARY
Asbestos	<p>A total of ten (10) homogeneous building materials were sampled during this assessment. In addition to these, samples were previously collected by Pinchin (2013) and Gesfor Pinchin (2017). Based on the laboratory results, four (4) building materials were identified as asbestos-containing, as defined by O. Reg. 278/05 (i.e. a material that contains 0.5% or more asbestos by dry weight). The following asbestos-containing materials have been identified:</p> <p><u>Friable</u></p> <ul style="list-style-type: none"> <li>– Vermiculite Present within concrete block wall cavities on perimeter walls, columns and ceilings.</li> <li>– Vermiculite Waste Ten (10) bags of asbestos-containing waste from a previous vermiculite spill are currently being stored within Location 18. The bags are double-bagged and sealed in yellow asbestos waste bags as per O. Reg. 278/05.</li> </ul> <p><u>Non-Friable</u></p> <ul style="list-style-type: none"> <li>– Vinyl floor tiles Observed in various locations throughout the building (previously sampled, Pinchin, 2013).               <ul style="list-style-type: none"> <li>– 12” x 12”, White with Black Streaks</li> </ul> </li> <li>– Acoustic Ceiling Tiles Observed in various locations throughout the building (previously sampled, Pinchin, 2013).               <ul style="list-style-type: none"> <li>– 24” x 48”, small pinholes with medium lengthwise fissures</li> </ul> </li> </ul>

**MATERIAL RESULTS SUMMARY**

	<ul style="list-style-type: none"> <li>– Vinyl floor tiles – 12" x 12", White with Blue Flecks</li> <li>– Vinyl floor tiles – 12" x 12", White with Black Flecks</li> </ul> <p>Observed in various locations throughout the building (previously sampled, Pinchin 2013, Gesfor Pinchin, 2017).</p> <p>Observed in various locations throughout the building (previously sampled, Pinchin, 2013, Gesfor Pinchin, 2017).</p> <p><u>Notes:</u> Asbestos-containing materials may be present in inaccessible areas, or building components (i.e. electrical/mechanical equipment, etc.). Refer to Section 2 for further details.</p>
Lead	<p>A total of eighteen (18) distinct paints were sampled at the time of this assessment. Based on the laboratory results, three (3) of the paints had detectable concentrations of lead and are therefore considered to be lead-containing. The following paints are considered lead-containing:</p> <ul style="list-style-type: none"> <li>– Grey Paint      Observed on concrete floors in various locations throughout the building.</li> <li>– Black Paint      Observed on structural columns and door frames throughout the building.</li> <li>– Brown Paint      Observed on the steel overhang on the exterior of the building.</li> </ul> <p>Additional materials/components, including powder coatings on structural steel beams and joists, are presumed to contain lead. These materials should therefore also be treated as lead-containing and handled accordingly if discovered within the building. Refer to Section 2.3 and 5.2 for further details.</p>
Mercury	<p>Mercury (vapour) is present in fluorescent lamps and CFL light bulbs observed in the building.</p>
Silica	<p>Building materials and components known to contain silica such as: glass, concrete, masonry, mortar, etc., were observed throughout the building.</p>
Mould	<p>Suspected mould growth and water damage/staining was observed on acoustic ceiling tiles in various locations on the 3<sup>rd</sup> Floor. Water-damaged or water-saturated building materials are conducive to mould growth.</p>
PCBs	<p>Individual fluorescent light ballasts were not inspected for the presence of PCBs as they were energized at the time of the site visit and therefore inaccessible to the assessor. Fluorescent lamp ballasts manufactured prior to 1980 are generally known to contain PCBs. Each lamp ballast must be inspected prior to its disposal, otherwise it must be treated as though it contains PCBs. The PCB content of lamp ballasts is typically verified through manufacturer's date/product codes, however, some ballasts are clearly labeled with "No PCBs".</p>

Complete commentary and recommendations for the above noted DSHM will be discussed in the report to follow. This executive summary is not intended to substitute for the complete report, nor does it discuss certain specific issues documented within the report.



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# 1 INTRODUCTION

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## 1.1 OBJECTIVES

WSP Canada Inc. (WSP) was retained by Public Services and Procurement Canada (PSPC) to conduct a Designated Substances & Hazardous Materials Assessment (DSHMA) of Administrative Building #2 (the ‘subject building’) located at 2 Saint-Regis Street, in Saint Regis, Quebec (Akwasasne).

The building consists of a three (3) storey structure, built between 1970 and 1975.

The purpose of this assessment was to report WSP’s findings for the subject building and provide PSPC with relevant recommendations for the removal of Designated Substances and hazardous materials ahead of the planned demolition of the building.

The assessment was conducted to comply with a building owner’s/employer’s duties under the Canadian Occupational Health and Safety Regulations, the Canadian Labour Code, and the National Joint Council Occupational Health and Safety Directive to identify, manage, and prevent occupational exposures to Designated Substances and hazardous materials. In addition to the above, this assessment was performed in compliance with Ontario Regulations as requested by PSPC and the Mohawk Council of Akwasasne.

This report must be provided to building personnel or workers who work in close proximity to DSHM or who might otherwise come into contact with, handle, or disturb these materials. This report must also be presented to prospective contractors (and in turn to their sub-trades) prior to entering into a contract for work that will be conducted in areas where DSHM are present.

The primary objectives of the assessment were to:

- Develop an up-to-date inventory of the Designated Substances and hazardous materials that are present in the accessible areas of the building;
- Document their locations, applications, concentrations, approximate quantities and current conditions; and
- Provide recommendations for their management, safe handling and/or removal.

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## 1.2 SCOPE OF WORK

The intent of a DSHMA is to visually identify, and/or sample and analyze (where appropriate) building materials suspected to contain Designated Substances or hazardous materials.

WSP’s Designated Substances and Hazardous Materials Assessment, was performed in a manner that is consistent with the degree of care, skill and diligence as per industry standards, and included the following:

- Records review to identify the presence of, and evaluate the potential for, DSHM (based on availability and applicability)
- A “room-by-room” visual inspection of the building’s accessible areas for DSHM;
- Collection of bulk samples of building materials suspected to contain asbestos, according to the requirements stipulated in O. Reg. 278/05 (see Table 2.1);
- Assessment of the condition of the asbestos-containing materials;
- Collection of a representative number of bulk paint samples for the determination of lead content;
- Assessment of the condition of suspected lead-containing materials;
- An inventory of evident sources of mercury (e.g. fluorescent lamps, liquid mercury in gauges, etc.);
- Visual identification of suspected and/or obvious signs of mould growth;
- Visual identification of PCBs in lighting ballasts; and

- Visual identification of other DSHM including equipment containing ODS, fuels, oils and/or waste oil storage, chemical storage, and radioactive materials. Where possible name plate/label information and quantities were recorded.

The assessment was intrusive (e.g. inspection within accessible false ceilings, walls, and other building spaces) and destructive where necessary. Inaccessible building spaces and cavities that were not inspected as part of this assessment include inside mechanical equipment such as boilers and furnaces; inside electrical equipment/components or inside fire-rated materials such as doors.

Workers, maintenance personnel, and contractors, must be aware of the hazards of disturbing undisclosed/unidentified materials when breaking into inaccessible and/or concealed building spaces, cavities and areas. Undisclosed materials should be presumed to be a DSHM until proven otherwise by inspection and testing by a qualified individual.

## 2 METHODOLOGY

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### 2.1 GENERAL ASSESSMENT METHODOLOGY

WSP's assessment sought to identify those substances defined as Designated Substances under the Ontario Occupational Health and Safety Act including: asbestos (friable and non-friable), lead, mercury, silica, benzene, acrylonitrile, arsenic, coke oven emissions, ethylene oxide, isocyanates, and vinyl chloride. In addition, other hazardous materials, such as: mould, PCBs, ozone-depleting substances (ODS), Radioactive Materials, animal droppings/guano, Radon and other stored chemicals and wastes were also included in the assessment, where applicable.

WSP's assessors performed a systematic assessment of the building for the purposes of identifying DSHM and documenting observations made about their locations and respective conditions. These observations form the basis for developing the recommendations provided within this report.

Reasonable efforts were made to access and inspect all areas of the building, however, the DSHMA was limited by the following:

- Concealed areas that are not accessible;
- Facility owned or stored items such as furniture, appliances, etc.;
- Internal components of electrical or mechanical systems (e.g. wiring, boilers, etc.);
- Materials not associated with building construction, building materials or base building systems; and
- Underground or subsurface pipes, systems or materials.

### 2.2 ASBESTOS SURVEY METHODOLOGY

WSP was instructed by PSPC and the Mohawk Council of Akwesasne to follow Ontario Regulation 278/05 under the Ontario Occupational Health and Safety Act (the Act).

The assessment included the identification of potentially friable and non-friable asbestos-containing materials (ACM) within the building. Asbestos refers to any of the following fibrous silicates: actinolite, amosite, anthophyllite, chrysotile, crocidolite or tremolite. According to O. Reg. 278/05 entitled "Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations", the term 'friable material' is applied to a material that when dry, can be crumbled, pulverized or powdered with moderate hand pressure. Asbestos materials that are friable have a greater potential to release airborne asbestos fibres into the air when disturbed. Common friable asbestos-containing buildings materials used in the past include: sprayed fireproofing, stucco, texture coat, and thermal pipe and jacket insulation.

"Non-friable" materials are those materials which are not easily crumbled or pulverized by hand pressure, and whose asbestos fibres are less likely to be released into the air when disturbed, because they're bound by resins, or

cements. Common types of non-friable asbestos containing materials found in buildings include: vinyl floor tiles, gasket materials, asbestos cement (Transite™) pipe, Transite™ board and asbestos textiles. However, when damaged, deteriorated, or vigorously disturbed (for example by power tools), the resulting dust/debris becomes highly friable.

The assessors inspected the building for the presence of friable and non-friable asbestos-containing materials (ACM). Examples of the most common ACM found in buildings include:

- Sprayed insulation
- Plasters
- Drywall joint (finishing) compounds
- Mechanical (thermal) insulation on pipe fittings
- Mechanical (thermal) insulation on pipes
- Asbestos cement (i.e. Transite™)
- Acoustic ceiling tiles
- Vinyl floor tiles and vinyl sheet flooring
- Caulks and sealants
- Roofing membranes

Bulk samples were collected from “suspect materials” (i.e. materials known as having the potential to be asbestos-containing) and analyzed by a third-party laboratory for verification. Asbestos samples were collected by taking a small volume of material (approximately two square centimeters in size) from either intact building materials or where possible, from damaged areas. The collected bulk samples were sealed and then submitted to an accredited, independent laboratory for analysis (accompanied by a chain of custody form) of asbestos content via US EPA Method EPA/600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials in accordance with the requirements of O. Reg. 278/05.

The number of bulk samples required, in order to establish whether a material is asbestos-containing according O. Reg. 278/05, is summarized in Table 2.1.

**Table 2.1 Bulk Sample Requirements Under O. Reg. 278/05**

TYPE OF MATERIAL	QUANTITY	MINIMUM NUMBER OF BULK SAMPLES
Surfacing material, including without limitation material that is applied to surfaces by spraying, by troweling or otherwise, such as acoustical plaster on ceilings, fireproofing materials on structural members and plaster	Less than 90 m <sup>2</sup>	3
	90 m <sup>2</sup> or more, but less than 450 m <sup>2</sup>	5
	450 m <sup>2</sup> or more	7
Thermal insulation, except as described below	Any size	3
Thermal insulation patch	Less than 2m or 0.5 m <sup>2</sup>	1
Other material	Any size	3

In accordance with O. Reg. 278/05 and laboratory analytical methods, the following considerations are also necessary for handling/analyzing bulk material samples:

- for layered materials, each individual or discrete layer sampled or observed by the laboratory during analysis, is treated as a discrete sample; and
- if a bulk sample is found to contain greater than 0.5% asbestos (by dry weight), additional bulk samples from the same material are not required to be analyzed (“Stop-Positive” analysis), and the entire area of homogenous material from which the bulk sample was collected is deemed to asbestos-containing material.

As per PSPC's Statement of Work, the laboratory was instructed to carry out Transmission Electron Microscopy (TEM) analysis of Vinyl Floor Tiles.

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## 2.3 LEAD SURVEY METHODOLOGY

Lead is a heavy metal that has been commonly used for many industrial and commercial purposes for an extensive period of time. It is heavy, malleable, and a poor conductor of electricity. Lead may be used in its pure elemental form or combined chemically with other elements to form lead compounds. Lead has had many common uses in buildings. The following list includes the most common uses or applications of lead in buildings:

- Acoustic dampening baffles;
- Additive in brass and other alloys;
- Batteries;
- Cable and wire casing;
- Cast iron pipe gaskets and connections;
- Flashings;
- Gaskets;
- Glazings;
- Indoor firing ranges;
- Lead glass;
- Late 19<sup>th</sup> and early 20<sup>th</sup> century tinted mortar for stone cladding;
- Pipes;
- Solder (plumbing and electrical);
- Stained glass; and
- Structural steel primers.

Workers are exposed to lead through a variety of operations and practices which commonly occur in buildings. Workers at highest risk for lead exposure include those involved in iron work, construction work, demolition, painting, plumbing, welding, heating and air conditioning work, electrical work and building maintenance. Operations with the greatest potential to expose workers to lead include:

- Abrasive blasting;
- Application or removal (e.g. by scraping, sanding or heat guns) of lead-containing paints and surface coatings;
- Demolition, renovation or repair of structures where lead-containing paints or surface coatings are present;
- Removing, repointing or disturbing lead-containing mortar;
- Welding, high temperature cutting, torch cutting and burning of primed or painted steel structures;
- Soldering; and
- Installing or removing lead products (such as lead panels, pipes, glass, etc.).

Bulk samples were collected from paints (“paint chips”) and/or other surface coating materials. Samples were collected from each distinct colour of paint or surface coatings observed within the building. Samples were collected with the aid of a thin-bladed knife or paint scraper, which were cleaned prior to each sampling event. WSP's assessors selected sample locations where it appeared that the paint applications or surface coatings were most representative of all the areas on which they were applied. Each bulk sample was placed in a clear bag with a tight closure, uniquely labelled and then placed in a second, similar bag. A chain of custody form was completed and accompanied the bulk samples to an accredited, independent laboratory for analysis of lead content. Analysis to determine lead concentrations, was performed via Flame Atomic Absorption Spectrometry (SW846-7000B) or equivalent.

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## 2.4 SILICA

The assessors inspected the subject site for the presence of materials known to contain silica. Silica is present in materials such as glass, concrete, masonry, stone and mortar which are prevalent materials in building construction. Identification of materials/components containing silica was limited to visual identification only.

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## 2.5 MERCURY

The assessors inspected the subject site for equipment and materials which are likely to contain mercury. Pertinent information for suspected equipment including: manufacturer, dates, model and serial numbers, and quantities were recorded when available. Identification of materials/components containing mercury was limited to visual identification only.

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## 2.6 POLYCHLORINATED BIPHENYLS (PCB)

The assessors inspected the subject site for equipment which may contain PCBs. Equipment that is generally suspected of containing PCBs includes lamp ballasts, transformers, hydraulic fluid, compressors, switchgears, capacitors and other electric equipment. Pertinent information of the suspected equipment including: manufacturer, dates, model and serial numbers, and quantities were recorded when available. Identification of materials/components containing PCB's was limited to visual identification only.

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## 2.7 MOULD

The assessors inspected the subject site for the presence of mould. This included a visual assessment of exterior and interior building materials, surfaces and components for evidence of obvious visible mould growth, and/or areas conducive to mould growth (i.e. materials with significant moisture saturation or water damage).

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## 2.8 RADON

Radon is a radioactive gas (i.e. emits ionizing radiation) found naturally in the environment. It is produced by the breakdown of uranium found in soil, rock or water. Radon is invisible, odourless and tasteless. When radon is released from the ground into the outdoor air, it is diluted and is not a concern. However, in enclosed spaces, like homes and buildings, it can accumulate to high levels and become a risk to health.

Radon enters buildings primarily in areas where the building contacts the ground: cracks in foundations, floors and walls, construction joints, gaps around service pipes, support posts, window casements, floor drains, sumps or cavities inside walls.

Radon levels can only be determined through sampling, which was not conducted as part of this DSHMA. Therefore, the presence of Radon has been presumed until proven otherwise through sampling.

## 3 SITE OVERVIEW

### 3.1 DESCRIPTION

The following table presents a general overview of the site/building and the areas included or excluded in WSP's DSHMA.

**Table 3.1 Site Description**

ITEM	DESCRIPTION
Type	Office Building
Current Use/State	Vacant
Construction Date	Approximatly 1970-1975
Floors	Three (3)
Structure	Steel and concrete
Exterior Cladding	Steel and concrete block wall
Roof	Built-up roofing
Interior Walls	Drywall, wood and concrete block wall
Interior Floors	Vinyl floor tiles, wood (laminated) and concrete
Interior Ceilings	Acoustic ceiling tiles
Cooling/Heating	Electric baseboards and forced air

### 3.2 RECORDS REVIEW

Prior to conducting the site assessment, WSP reviewed the following reports which were provided by the client:

**Table 3.2 Previous Reports/Documents Reviewed by WSP**

DATE	REPORT TITLE	AUTHOR
April 4, 2013	Asbestos Assessment, Mohawk Council of Akwesasne, Administrative Building #2, St. Regis, Quebec	Pinchin Environmental Ltd.
July 27, 2017	Characterization of Materials Likely to Contain Asbestos, Administrative Building No. 2, Saint-Regis, Quebec	Le Groupe Gesfor Poirier, Pinchin Inc.

Relevant information from the above noted report has been incorporated into our methodology and findings where applicable.

# 4 REGULATORY CONTEXT

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## 4.1 DESIGNATED SUBSTANCES

Section 30 of the Occupational Health and Safety Act (the Act) stipulates that prior to the commencement of a project, a list shall be prepared of all Designated Substances that are present at the project site. In accordance with the Act, the locations of Designated Substances must be identified, and provided in writing to all prospective constructors, contractors and sub-contractors who may work, disturb or come into contact with these types of materials, prior to project tendering, or entering into contracts for work.

The term “Designated Substance” refers to the eleven chemical or physical agents specifically identified within the Act. Each of these substances is governed by a consolidated regulation, Designated Substances - Ontario Regulation 490/09 (O. Reg. 490/09) that defines the minimum health and safety requirements for assuring safe worker-substance interaction as well as the obligations of employers and workers in workplaces containing these substances. O. Reg. 490/09 further stipulates the maximum concentrations of each of the respective substance to which a worker may be exposed, according to short-term exposure values and time-weighted average exposure values.

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## 4.2 ADDITIONAL REGULATORY REQUIREMENTS FOR ASBESTOS

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### 4.2.1 FEDERAL LEGISLATION

#### CANADA LABOUR CODE

Since the subject property is considered a federal site, and will be accessed by federal employees, the Canada Labour Code (Part II) (The Code) applies. Under The Code, the Canada Occupational Health and Safety Regulations (SOR/86-304) govern the health and safety of employees working in federally-regulated industries and organizations which includes the federal government and crown corporations. The Code establishes responsibilities and requirements of employers, managers and supervisors who act on behalf of the employer and employees, in order to maintain safe workplaces and working environments.

Part X of SOR/86-304 states that every employer shall keep and maintain a record of all hazardous substances that, in the work place, are used, produced, handled, or stored for use in the work place, and may either keep and maintain such a record in the work place or keep and maintain a centralized record in respect of several work places, in one work place. In addition, SOR/86-304 details requirements for hazard investigations, sampling, medical examinations, signage/labelling, training, and the establishment of an Asbestos Exposure Management Plan.

#### NATIONAL JOINT COUNCIL – OCCUPATIONAL HEALTH AND SAFETY DIRECTIVE

The National Joint Council (NJC) Occupational Health and Safety Directive (the OHS Directive) contains enhancements to The Code for dealing with asbestos and materials containing asbestos. The OHS Directive states that departments and agencies will comply with Public Works and Government Services Canada Departmental Policy DP 057. In June 2017, PWGSC replaced DP 057 with the Public Services and Procurement Canada Asbestos Management Standard. This Survey Report should be read in conjunction with this Management Plan.

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### 4.2.2 PROVINCIAL LEGISLATION (ONTARIO)

#### DESIGNATED SUBSTANCES

Asbestos is one (1) of the eleven (11) Designated Substances specifically identified within Section 30 of the Occupational Health and Safety Act (OHSA). Each of the identified substances is governed by a consolidated

regulation, Designated Substances - Ontario Regulation 490/09 (O. Reg. 490/09), which defines the minimum health and safety requirements for assuring safe worker-substance interaction as well as the obligations of employers and workers in workplaces containing these substances. The regulation further stipulates the maximum concentrations of each of the respective substances to which a worker may be exposed, according to short-term exposure values and time-weighted average exposure values.

#### ADDITIONAL REGULATORY REQUIREMENTS FOR ASBESTOS

Among the Designated Substances, asbestos is unique in that it is governed by two regulations under the Occupational Health and Safety Act - one for the general mining and processing operations involving asbestos, and one for asbestos on construction projects, and in buildings and repair operations.

Ontario Regulation 490/09 (O. Reg. 490/09), made under the Act, entitled “Designated Substances”, came into effect on July 1, 2010, applies mainly to workers engaged in mining, processing, or manufacturing asbestos products, and repairing, altering and maintaining machinery and equipment containing asbestos.

Ontario Regulation 278/05 (O. Reg. 278/05), made under the Act, entitled “Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations” came into effect on November 1, 2005, with some sections contained therein becoming effective on November 1, 2007. This regulation revoked and replaced the previous asbestos regulation, O. Reg. 838/90.

Section 8 of Ontario Regulation 278/05 indicates that if asbestos-containing materials are identified within a building, the property owner must keep on the premises a record containing all asbestos-containing materials, including the location, friability and condition of the materials. Furthermore, this record must be updated at least once in each 12-month period or whenever the owner becomes aware of new information relating to asbestos-containing materials within the buildings.

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### 4.3 ADDITIONAL REQUIREMENTS FOR LEAD

The Ontario Ministry of Labour (MOL) has not prescribed specific criteria for classification of lead-containing paints or other surface coatings and construction materials. The Surface Coating Materials Regulation (SOR/2005-109) made under the federal Hazardous Products Act (HPA) prescribes an acceptable level of 0.009% (90 ppm) lead by dry weight or less, as determined by bulk chemical analysis in accordance with good laboratory practises.

However, based on a recent publication (EACO Lead Guideline For Construction, Renovation, Maintenance or Repair, dated October 2014) from the Environmental Abatement Council of Ontario (EACO), an industry group representing consultants and contractors in the Ontario abatement industry, various occupational and workplace safety authorities and agencies consider that any detectable amount of lead in paint and similar materials has the potential to produce an airborne hazard to workers and building occupants when these materials are disturbed.

As such, for the purpose of this survey, WSP has classified any material containing detectable/measurable amounts of lead as “lead-containing” materials and recommends that all disturbances to these materials be conducted in accordance with the EACO or MOL Guideline for Lead on Construction Projects.

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### 4.4 ADDITIONAL REGULATORY REQUIREMENTS FOR WASTE MANAGEMENT

The disposal of Designated Substances and hazardous materials is regulated under the Ontario Environmental Protection Act, specifically R.R.O. 1990, Regulation 347, General – Waste Management (most recently amended by O. Reg. 334/13). The regulation details the minimum requirements for the appropriate transport and disposal of wastes in Ontario.

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## 4.5 OTHER APPLICABLE REGULATIONS AND GUIDELINES

The following regulations and guidance documents also relate to Designated Substances and hazardous materials:

- Guideline for Lead on Construction Projects (MOL, September 2004, as amended)
- Guideline for Silica on Construction Projects (MOL, September 2004, as amended)
- The United States Department of Housing and Urban Development (HUD) Guidelines for the Evaluation and Control of Lead-Based Paint in Housing
- Canadian PCB Regulations (SOR/2008-273)
- O. Reg. 362 Waste Management – PCBs
- Mercury-Containing Products Pollution Prevention Fact Sheet #21 (Ministry of Environment (MOE), September 2001, as amended)
- Canadian Construction Association document CCA 82/2004, Mould Guidelines for the Canadian Construction Industry
- Canadian Chlorofluorocarbon Regulations (SOR/90-127), Ozone-depleting, Substances Regulation (SOR/94-408) and Ozone Depleting Substances Products Regulations (SOR/90-584)
- O. Reg. 463/10 Ozone Depleting Substances and Other Halocarbons
- Lead Guideline For Construction, Renovation, Maintenance or Repair (Environmental Abatement Council of Ontario (EACO) – October 2014)
- EACO Mould Abatement Guidelines, 2010
- EACO Vermiculite Guideline, 2015

# 5 FINDINGS AND RECOMMENDATIONS

Workers, maintenance personnel, and contractors, should be aware of the hazards of disturbing undisclosed materials when breaking into inaccessible and/or concealed building spaces, cavities and areas. Undisclosed materials should be presumed to be a DSHM until proven otherwise by inspection and testing by a qualified individual.

## 5.1 ASBESTOS

### 5.1.1 ASBESTOS-CONTAINING MATERIALS

In accordance with the requirements stipulated in O. Reg. 278/05, homogenous materials (i.e. materials uniform in color and texture) must be considered to be asbestos-containing, if any sample which is collected from that homogeneous material, is identified to have an asbestos concentration of 0.5% or greater by dry weight.

The table below summarizes only those materials which were identified, or presumed, to be asbestos-containing materials and are presented along with the recommended remedial actions for each respective material.

Recommended actions for management, repair or removal of these materials, are based on the requirements and procedures specified by O. Reg. 278/05 and have been suggested based on the type of disturbance which is anticipated or likely. Alternate handling, repair and removal procedures must fully comply with the requirements of O. Reg. 278/05 (as amended).

The positive identification of asbestos-containing materials within the building requires the preparation and establishment of an Asbestos Management Plan for the building, in accordance with O. Reg. 278/05. The condition of the materials identified or presumed to be asbestos-containing in Table 5.1 below must be assessed on an annual basis.

**Table 5.1 Asbestos-Containing Materials**

MATERIAL	OBSERVED LOCATIONS AND QUANTITIES <sup>7</sup>	ASSESSMENT <sup>1,2,3</sup>	ACTION <sup>3</sup>
Vinyl Floor Tiles, 12" x 12", white with black streaks <sup>4</sup>	Location 2 – 195 sq. ft. Location 7 – 145 sq. ft. Location 10 – 60 sq. ft. Location 13 – 100 sq. ft. Location 18 – 145 sq. ft. Location 19 – 100 sq. ft. Location 23 – 145 sq. ft. Location 24 – 120 sq. ft. Location 25 – 120 sq. ft. Location 26 – 120 sq. ft. Locatin 30 – 145 sq. ft. Locatin 31 – 145 sq. ft. Location 32 – 195 sq. ft.	<i>Sample ID:</i> 0001A-C <sup>5</sup> <i>Concentration:</i> 1-5% Chrysotile <i>Material:</i> Non-Friable <i>Accessibility:</i> A – Area of the building within reach of all building users. <i>Condition:</i> Good	Action 7 – Routine surveillance of ACM in good condition.  Removal or disturbance of this material should be completed following a minimum of Type 1 procedures.

MATERIAL	OBSERVED LOCATIONS AND QUANTITIES <sup>7</sup>	ASSESSMENT <sup>1,2,3</sup>	ACTION <sup>3</sup>
Acoustic Ceiling Tiles, 24" x 48", pinhole and lengthwise fissures	Location 1 – 265 sq. ft. Location 2 – 435 sq. ft. Location 3 – 50 sq. ft. Location 6 – 8 sq. ft. Location 7 – 145 sq. ft. Location 8 – 145 sq. ft. Location 9 – 145 sq. ft. Location 10 – 60 sq. ft. Location 11 – 705 sq. ft. Location 12 – 625 sq. ft. Location 14 – 290 sq. ft. Location 15 – 145 sq. ft. Location 16 – 36 sq. ft. Location 17 – 440 sq. ft. Location 18 – 145 sq. ft. Location 19 – 195 sq. ft. Location 20 – 435 sq. ft. Location 21 – 625 sq. ft. Location 23 – 145 sq. ft. Location 24 – 120 sq. ft. Location 25 – 120 sq. ft. Location 26 – 120 sq. ft. Location 27 – 40 sq. ft. Location 29 – 120 sq. ft. Location 30 – 145 sq. ft. Location 31 – 145 sq. ft. Location 32 – 195 sq. ft. Location 33 – 220 sq. ft.	<i>Sample ID:</i> 0006A-C <sup>5</sup> <i>Concentration:</i> 1-5% Chrysotile <i>Material:</i> Non-Friable <i>Accessibility:</i> A – Area of the building within reach of all building users. <i>Condition:</i> Good	Action 7 – Routine surveillance of ACM in good condition.  Removal or disturbance of this material should be completed following Type 2 procedures if the work is performed without damaging the tiles.
Vinyl Floor Tiles, 12" x 12", white with blue flecks <sup>4</sup>	Location 4 – 145 sq. ft. Location 11 – 705 sq. ft. (concealed beneath carpet).	<i>Sample ID:</i> 0010A-C <sup>5</sup> , 0010A <sup>6</sup> <i>Concentration:</i> 1.8% Chrysotile <i>Material:</i> Non-Friable <i>Accessibility:</i> A – Area of the building within reach of all building users. <i>Condition:</i> Good	Action 7 – Routine surveillance of ACM in good condition.  Removal or disturbance of this material should be completed following a minimum of Type 1 procedures.
Vinyl Floor Tiles, 12" x 12", white with black flecks <sup>4</sup>	Location 3 – 40 sq. ft. Location 8 – 145 sq. ft. Location 9 – 145 sq. ft.	<i>Sample ID:</i> 0012A-C <sup>5</sup> , 00012A <sup>6</sup> <i>Concentration:</i> 4.7% Chrysotile <i>Material:</i> Non-Friable <i>Accessibility:</i> A – Area of the building within reach of all building users. <i>Condition:</i> Good	Action 7 – Routine surveillance of ACM in good condition.  Removal or disturbance of this material should be completed following a minimum of Type 1 procedures.

MATERIAL	OBSERVED LOCATIONS AND QUANTITIES <sup>7</sup>	ASSESSMENT <sup>1,2,3</sup>	ACTION <sup>3</sup>
Vermiculite	<p>Previously determined to be present within perimeter concrete block walls, and exterior concrete block columns on exterior cladding.</p> <p>Loose vermiculite may also be present in the 3<sup>rd</sup> floor ceiling, and in locations where steel structural beams meet the concrete block walls throughout the building.</p> <p>In Location 18, ten (10) bags of asbestos-containing waste from a previous vermiculite spill are stored. The bags are double-bagged and sealed in yellow asbestos waste bags as per O. Reg. 278/05 and must be disposed of prior to demolition of the building.</p>	<p><i>Sample ID:</i> Confirmed by Pinchin 2013 Report <sup>5</sup></p> <p><i>Asbestos:</i> Contains Libby Asbestiform Amphibole <sup>5</sup></p> <p><i>Material:</i> Friable</p> <p><i>Accessibility:</i> D – Areas of the building behind inaccessible solid ceiling systems, walls, or mechanical equipment (i.e. within perimeter concrete block walls).</p> <p><i>Condition:</i> Good to Poor</p>	<p>Action 7 – Routine surveillance of ACM in good condition.</p> <p>Removal or disturbance of this material should be completed following Type 3 procedures.</p> <p>Access to all ceiling spaces requires a minimum of Type 2 procedures.</p> <p>In order to prevent accidental release, bagged vermiculite should be stored in a locked room or removed and disposed in accordance with O.Reg. 278/05.</p>
Transite™ Cement Pipe	<p>Presumed to be present as sanitary sewer lines. Material was reportedly used throughout Saint-Regis.</p>	<p><i>Sample ID:</i> N/A</p> <p><i>Asbestos:</i> Presumed</p> <p><i>Material:</i> Non-Friable</p> <p><i>Accessibility:</i> D – Areas of the building behind inaccessible solid ceiling systems, walls, or mechanical equipment (i.e. within perimeter concrete block walls).</p> <p><i>Condition:</i> Unknown</p>	<p>Action 7 – Routine surveillance of ACM in good condition.</p> <p>Removal or disturbance of this material should be completed following a minimum of Type 1 procedures.</p>

**Notes:**

1. Refer to Appendix A “Analytical Results”.
2. Refer to Appendix B “Site Photographs”.
3. Refer to Appendix C “Asbestos-Containing Material Evaluation Criteria” for condition, accessibility and action definitions.
4. Asbestos-containing vinyl floor tiles and/or vinyl sheet flooring may extend beneath other flooring or wall materials (i.e. wood, ceramic, carpet, partition walls, millwork, etc.) in adjacent areas.
5. Refer to the Pinchin 2013 report for additional details.
6. Refer to the Gesfor Pinchin 2017 report for additional details.
7. Quantities included in this report are approximations only based on site conditions at the time of the assessment, and should be confirmed prior to bidding or tendering work.

## 5.1.2 SUSPECTED ASBESTOS-CONTAINING MATERIALS

Reasonable efforts were made to access and inspect all areas of the building; however, sampling or identification of asbestos-containing materials may have been limited. Limitations include:

- Concealed areas that are not accessible, including the possibility of other concealed vermiculite insulation;
- Facility owned or stored items such as furniture, appliances, etc.;
- Internal components of electrical or mechanical systems (e.g. wiring, gaskets, boilers, chimney stacks, etc.);
- Materials not associated with building construction, building materials or base building systems; and
- Underground or subsurface pipes, systems or materials.

If work, renovation, alteration or demolition to any part of the building reveals materials which are suspected to contain asbestos, all work must stop until that material is inspected/tested by a qualified person.

### 5.1.3 SUMMARY OF BULK SAMPLES IDENTIFIED AS “NON-ASBESTOS”

The table below summarizes the results of bulk material samples collected from suspect asbestos-containing materials during the course of the DSHMA, which had either no detectable concentrations of asbestos, or had asbestos concentrations less than the regulated threshold limit of 0.5% asbestos (by dry weight). These materials can therefore be considered as “non-asbestos” in accordance with O. Reg. 278/05.

**Table 5.2 Summary of Bulk Samples Identified as "Non-Asbestos"**

MATERIAL DESCRIPTION	LOCATION	SAMPLE ID <sup>1</sup>
Drywall Joint Compound	Observed on walls throughout the building	01-DJC-A-G, 0007A-C <sup>2</sup> , 3 <sup>3</sup> , and 16 <sup>3</sup>
Drywall Joint Compound	Observed on bulkheads throughout the building	02-BDJC-A-C
Black Mastic	Observed beneath asbestos-containing, and non-asbestos vinyl floor tiles throughout the building	03-MAS-A-C, 0002A-C; Phase B <sup>2</sup> , 0008A-C; Phase B <sup>2</sup> , 0009A-C; Phase B <sup>2</sup> , 0010A-C; Phase B <sup>2</sup> , 0011A-C; Phase B <sup>2</sup> , and 0012A-C; Phase B <sup>2</sup>
Wood Pattern Laminate	Observed in various locations throughout the building	04-VF-A-C, and 11A-B <sup>3</sup>
Yellow Mastic	Associated with carpet throughout the building	05-MAS-A-C
Asphalt	Exterior of the building	06-ASP-A-C
Built-up Roofing	Roof	07-RC-A-E
Mortar on Concrete Block Wall	Observed in various locations within the interior and exterior of the building	08-BM-A-E
White Caulking	Observed on exterior window frames	10-CLK-A-C
Grey Caulking	Observed on exterior window frames	11-CLK-A-C <sup>4</sup> and 14 <sup>3</sup>
Vinyl Floor Tiles, 12" x 12", Black with White Flecks	Observed in various locations within the building	0002A-C <sup>2</sup> , 0002A <sup>3</sup>
Acoustic Ceiling Tiles, 24" x 48", pinholes with medium fissures	Observed in various locations within the building	0003A-C <sup>2</sup>
Acoustic Ceiling Tiles, 24" x 48", pinholes with small fissures	Observed in various locations within the building	0004A-C <sup>2</sup>
Acoustic Ceiling Tiles, 24" x 48", pinholes with small and medium width-wise fissures	Observed in various locations within the building	0005A-C <sup>2</sup>
Vinyl Floor Tiles, 12" x 12", brown and white streaks	Observed in various locations within the building	0008A-C <sup>2</sup> , 0008A <sup>3</sup>
Vinyl Floor Tiles, 12" x 12", purple	Observed in various locations within the building	0009A-C <sup>2</sup> , 0009A <sup>3</sup>

MATERIAL DESCRIPTION	LOCATION	SAMPLE ID <sup>1</sup>
Vinyl Floor Tiles, 12" x 12", red	Observed in various locations within the building	0011A-C <sup>2</sup> , 0011A <sup>3</sup>
Drywall (gypsum) Board	Observed in various locations within the building	2 <sup>3</sup> , and 15 <sup>3</sup>
Prefabricated Panel, ceramic tile finish	Observed in various locations within the building	9A <sup>3</sup> , and 10A <sup>3</sup>

**Notes:**

1. Refer to Appendix A "Analytical Results".
2. Refer to the Pinchin 2013 report for additional details.
3. Refer to the Gesfor Pinchin 2017 report for additional details.
4. Based on the laboratory results, trace asbestos was identified in the sample. However, since the concentration was found to be below the regulatory limit of 0.5%, it is not considered asbestos-containing as per O. Reg. 278/05. Dust suppression should be implemented during the removal of these materials to minimize any potential fibre release. In addition, workers can wear appropriate PPE such as a half-face respirator with P100 filters during the removal.

## 5.2 LEAD

### 5.2.1 FINDINGS

The following table summarizes the results of laboratory analyses for bulk paint samples collected during the assessment, which were analysed for lead content.

**Table 5.3 Summary of Lead Concentrations in Bulk Paint Samples**

PAINT COLOUR	OBSERVED LOCATIONS & APPROXIMATE QUANTITIES <sup>2</sup>	FINDINGS <sup>1</sup>	CLASSIFICATION
Beige	Location 33	Sample ID: L001 Concentration: <80 ppm Condition: Good	Not Detected
Grey	Location 21	Sample ID: L002 Concentration: <80 ppm Condition: Good	Not Detected
Light Green	Location 24	Sample ID: L003 Concentration: <81 ppm Condition: Good	Not Detected
Purple	Location 25	Sample ID: L004 Concentration: <80 ppm Condition: Good	Not Detected
Orange	Location 26	Sample ID: L005 Concentration: <80 ppm Condition: Good	Not Detected
Yellow	Location 27	Sample ID: L006 Concentration: <80 ppm Condition: Good	Not Detected
Olive	Location 27	Sample ID: L007 Concentration: <140 ppm Condition: Good	Not Detected

PAINT COLOUR	OBSERVED LOCATIONS & APPROXIMATE QUANTITIES <sup>2</sup>	FINDINGS <sup>1</sup>	CLASSIFICATION
White	Location 29	Sample ID: L008 Concentration: <80 ppm Condition: Good	Not Detected
Red	Location 30	Sample ID: L009 Concentration: <80 ppm Condition: Good	Not Detected
Brown	Location 20	Sample ID: L010 Concentration: <80 ppm Condition: Good	Not Detected
Light Beige	Location 20	Sample ID: L011 Concentration: <80 ppm Condition: Good	Not Detected
Blue	Location 15	Sample ID: L012 Concentration: <80 ppm Condition: Good	Not Detected
<b>Grey</b>	Location 5 – 65 sq. ft. Location 16 – 40 sq. ft. Location 22 – 65 sq. ft. Location 27 – 40 sq. ft.	Sample ID: L013 Concentration: 21,000 ppm Condition: Good	<b>Lead-Containing</b>
Light Blue	Location 8	Sample ID: L014 Concentration: <80 ppm Condition: Good	Not Detected
<b>Black</b>	Location 11 - Structural columns (20 sq. ft.); and Door frames throughout the building (20 sq. ft. per door frame).	Sample ID: L015 Concentration: 8,400 ppm Condition: Good	<b>Lead-Containing</b>
<b>Brown</b>	Present on the steel overhang on the exterior of the building – 100 sq. ft.	Sample ID: L016 Concentration: 8,400 ppm Condition: Good	<b>Lead-Containing</b>
Blue	Observed on window sills and concrete block columns on the exterior of the building	Sample ID: L017 Concentration: <80 ppm Condition: Good	Not Detected
Grey	Observed on the exterior concrete slab at the building entrance	Sample ID: L018 Concentration: <80 ppm Condition: Good	Not Detected

Notes:

1. Refer to Appendix A “Analytical Results”.
2. Quantities included in this report are approximations only based on site conditions at the time of the assessment, and should be confirmed prior to bidding or tendering work.

Lead is also presumed within the following materials/components which may be present within the building:

- Batteries in emergency lighting;
- Powder coatings on structural beams and joists throughout the building;
- Flashings; and
- Solder (plumbing and electrical).

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## 5.2.2 RECOMMENDATIONS

Any work that will disturb these materials must also be conducted in accordance with other relevant lead regulations and guidelines including the Ontario Ministry of Labour’s (MOL) “Lead on Construction Projects” guideline, Ontario Regulation 490/09 “Designated Substances”, and Regulation 833 “Control of Exposure to Biological or Chemical Agents”.

The most commonly used construction techniques/procedures for removing or disturbing lead-containing paints/surface coatings/materials have been classified according to their respective “lead work operations” outlined as follows:

### CLASS 1 (OR TYPE 1):

- Removal of lead-containing paints/surface coatings/materials with chemical gels/strippers or pastes.
- Operating construction or demolition equipment (e.g. excavator, bulldozer) during building demolition where lead-containing surface coatings are present on building materials.

### CLASS 2A (OR TYPE 2A):

- Removal of lead-containing paints/surface coatings/materials using a power tool that has an effective dust collection system equipped with a HEPA filter.
- Welding, torching or high temperature cutting of lead-containing materials indoors when using an effective fume collector or smoke eater that filter and exhausts lead fumes and expel them directly outdoors (away from occupants, entrances, walkways, rest areas, etc.).
- Welding, torching or high temperature cutting of lead-containing paints/surface coatings/materials outdoors.
- Removal of lead-containing paints/surface coatings/materials by scraping or sanding (including wet sanding) using non-powered hand tools.
- Demolition of plaster or building components that crumble, pulverize or powder and are covered with lead-containing paints/surface coatings/materials.

### CLASS 3A (OR TYPE 3A):

- Removal of lead-containing paints/surface coatings/materials using a power tool without an effective dust collection system equipped with a HEPA filter.
- Welding, torching or high temperature cutting of lead-containing materials indoors or in a confined space.

### CLASS 3B (OR TYPE 3B):

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

The application of a physical barrier (e.g. an encapsulant or new coat of paint) to a stabilized lead-containing paint/surface coating/material, is not considered a “Lead Operation” regardless of the concentration of lead in the underlying material. This also includes applying new low-lead level paints/surface coatings onto existing lead-containing paints/surface coatings/materials. (e.g. repainting).

The type of work must be classified prior to any aggressive or non-aggressive disturbance of these materials, and the corresponding precautions/safety measures must be followed. If lead-containing paint applications and surface coatings are not removed prior to demolition, ensure that the disposal of demolition waste complies with the requirements of General – Waste Management Regulation, R.R.O. 1990, Regulation 347.

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## 5.3 OTHER DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS

The following table summarizes the other DSHM which were also included in the assessment. Identification of these materials/substances were based on visual observations only, and where appropriate, recommendations and necessary actions are provided.

Designated Substances must be handled in accordance with their appropriate guidelines and regulations. Designated Substance and hazardous material information will require updating as corrective measures are instituted and materials are removed from various areas of the building.

**Table 5.4 Summary of Other Designated Substances and Hazardous Materials**

SUBSTANCE / MATERIAL	DESCRIPTION	FINDINGS	ACTION
Acrylonitrile	Acrylonitrile is mostly used as a feedstock or chemical aid in the production of nitrile-butadiene rubber and in acrylonitrile-butadiene-styrene and styrene-acrylonitrile polymers. Acrylonitrile is also used to make other chemicals such as plastics, synthetic rubber, and acrylic fibre (e.g. clothing, blankets, carpeting) and nitrile rubber for oil-resistant hoses.	Acrylonitrile is not expected to be present in the building.	Not Applicable.
Arsenic	Arsenic is used with other metals (chiefly copper, lead and zinc) to make alloys. Arsenic compounds are also used in pigments, animal poisons, insecticides, paints, wallpaper, ceramics, and poison gases for chemical warfare, glass making, in calico and indigo printing, pyrotechnics, integrated circuits and transistors. Arsenic is also a major waste material from the gold mining industry.	Trace concentrations of arsenic may be present in some paints manufactured prior to 1980.	The controls/ precautions required for the disturbance of paints which might contain Arsenic would be superseded by those required for lead. Therefore, the disturbance of any painted surface must first be classified according to its lead content and follow the controls/ precautions required for the type of disturbance being undertaken (i.e. aggressive or non-aggressive).
Benzene	Benzene is widely used in the chemical industry as a starting material and solvent. Benzene occurs naturally in crude oil and is present in all gasoline products, automobile emissions and cigarette smoke. Benzene is highly volatile and will release into the atmosphere over a short time.	Benzene is not expected to be present in the assessed area.	Not Applicable.

SUBSTANCE /  
MATERIAL

DESCRIPTION

FINDINGS

ACTION

Coke Oven Emissions	Coke oven emissions are complex mixtures of coal and coke particles, various vapors, gases and tars emitted during carbonization of coal to produce coke. The primary use of coke (pure carbon) is in the manufacture of iron and steel. Coke is also used to synthesize calcium carbide and to manufacture graphite and electrodes.	Coke oven emissions are not expected to be present in the building.	Not Applicable.
Ethylene Oxide	Ethylene Oxide is an extremely flammable gas used in the manufacture of several industrial chemicals including textiles, detergents, polyurethane foam, antifreeze (especially ethylene glycol), solvents, medicinal products, adhesives, and other related products. It is also used as a fumigant and as a sterilizing agent for food (spices), cosmetics, and surgical tool and plastic devices in hospitals as an alternative to steam.	Ethylene Oxide is not expected to be present in the building.	Not Applicable.
Isocyanates	Isocyanates are the raw materials from which all polyurethane products are made. Isocyanates are widely used in the manufacture of flexible and rigid foams, fibres, coatings such as paints and varnishes, elastomers, and also in materials used in auto body repair and building insulation.	Isocyanates are not expected to be present in the building.	Not Applicable.

SUBSTANCE / MATERIAL	DESCRIPTION	FINDINGS	ACTION
Mercury	<p>Mercury is used in thermometers, batteries and some electrical switches. It is also used in dental fillings and in latex paint to protect against fungal attack and mildew.</p> <p>Mercury vapour is also present as a vapour in fluorescent lights, metal halide lights and mercury vapour lights.</p>	<p>Mercury (vapour) is present in fluorescent lamps and CFL light bulbs observed in building.</p> <p>Thermostats inspected did not contain liquid (elemental) mercury ampules.</p>	<p>The presence of mercury within assembled units (e.g. fluorescent light bulbs) are not considered a hazard provided that the assembled units remain sealed and intact. Avoid direct skin contact with mercury and avoid inhalation of mercury vapour.</p> <p>Dispose of mercury following applicable legislative requirements.</p>
Mould	<p>Mould is a group of various species of simple, microscopic organisms found in every ecological niche, indoors and outdoors. Moulds are necessary for recycling of organic materials in nature.</p> <p>To grow, mould needs:</p> <ul style="list-style-type: none"> <li>– A mould spore</li> <li>– An organic food source (i.e. paper, drywall, wood, dirt, paint, etc.)</li> <li>– Moisture</li> </ul> <p>Time (this will vary depending on the site-specific conditions, including the cleanliness of the water source).</p>	<p>Suspected mould growth was observed on asbestos-containing acoustic ceiling tiles in the following locations:</p> <p>Location 26 – 20 sq. ft. Location 27 – 10 sq. ft.</p> <p>In addition to the suspected mould-impacted building materials, water-damaged building materials (asbestos-containing acoustic ceiling tiles), which are conducive to mould growth were observed in various locations on the 3<sup>rd</sup> Floor.</p>	<p>Suspected mould-impacted materials should be removed/handled in accordance with the Canadian Construction Association document CCA 82/2004.</p> <p>Access to such areas should be limited.</p> <p>Contractors should be warned of the presence of mould and every precaution should be taken to prevent airborne exposure to workers where mould is present and where workers are likely to inhale or ingest mould.</p>
Ozone-Depleting Substances (ODSs)	<p>It is the intention of the federal government to phase out the use of ODSs by the year 2030 in order to protect the upper atmosphere. The MOE has issued Regulation 356 regarding the use, disposal and recycling of ODSs. Recapturing of ODSs during servicing must be done by certified personnel.</p>	<p>Equipment containing ODS was not observed in the building at the time of the assessment.</p>	<p>Not Applicable.</p>

SUBSTANCE /  
MATERIAL

DESCRIPTION

FINDINGS

ACTION

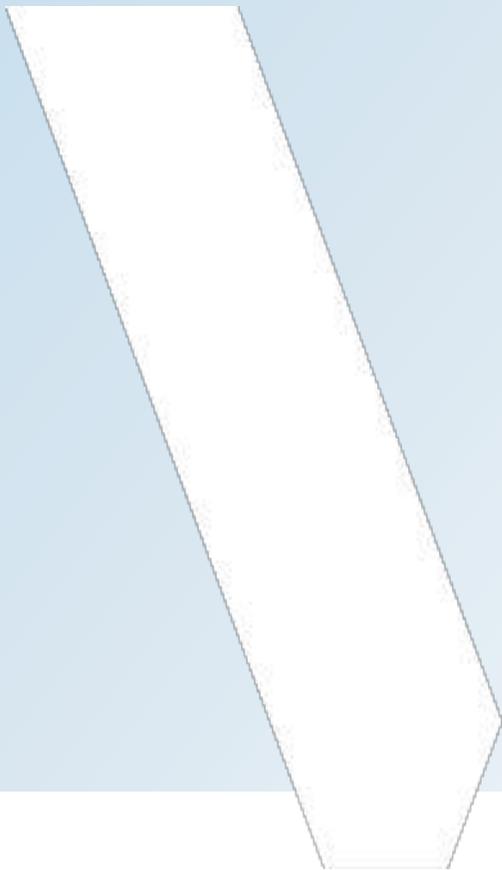
<p>Polychlorinated Biphenyls (PCBs)</p>	<p>The federal Regulation SOR/2008-273 (September 5, 2008) states that any solid material containing 50 parts per million (ppm) or more of PCBs must be handled as a PCB-containing material in accordance with all applicable regulations.</p> <p>Fluorescent lamp ballasts manufactured prior to 1980 are generally known to contain PCBs. Each lamp ballast must be inspected prior to its disposal, otherwise it must be treated as though it contains PCBs. The PCB content of lamp ballasts is typically verified through manufacturer's date/product codes, however, some ballasts are clearly labeled with "No PCBs".</p>	<p>Individual fluorescent light ballasts were not inspected for the presence of PCBs as they were energized at the time of the site visit and therefore inaccessible to the assessor. Fluorescent lamp ballasts manufactured prior to 1980 are generally known to contain PCBs. Each lamp ballast must be inspected prior to its disposal, otherwise it must be treated as though it contains PCBs. The PCB content of lamp ballasts is typically verified through manufacturer's date/product codes, however, some ballasts are clearly labeled with "No PCBs".</p>	<p>If decommissioned, ballasts which do not have a "No PCBs" indicator on the label, must be presumed to contain PCB's. Manufacturer's codes should be evaluated and compared with Environment Canada's, "Identification of Lamp Ballasts Containing PCBs EPS 2/CC/2 (revised) August 1991" to verify their content.</p> <p>Handle, store and dispose of PCB-containing materials in accordance with Federal PCB Regulation SOR/92-507 and R.R.O. 1990 – Reg. 347 – General – Waste Management regulations.</p>
<p>Radioactive Materials</p>	<p>Ionizing chamber type smoke detectors may contain small quantities of radioactive materials (i.e. Americium-241).</p>	<p>Smoke detectors were observed in the building but were not individually inspected. Therefore, they should be presumed to contain radioactive materials until proven otherwise.</p>	<p>According to the Canadian Nuclear Safety Commission (CNSC), the amount of radiation emitted from these types of smoke detectors is negligible and does not pose a health risk provided they are undamaged and untampered with. Detectors may be disposed of as part of regular municipal waste.</p>
<p>Radon</p>	<p>Radon is a radioactive gas naturally emitted from the earth through the breakdown of uranium in soil. It enters buildings by seeping in through cracks, pipes, windows and the foundation etc., and can accumulate in indoor spaces.</p>	<p>Air testing is the only method to determine if Radon is present within the building and at what concentrations. Air testing was not conducted as part of this assessment.</p>	<p>The presence of Radon is presumed until proven otherwise through sampling.</p>

SUBSTANCE / MATERIAL	DESCRIPTION	FINDINGS	ACTION
Silica	Silica, or silicon dioxide (SiO <sub>2</sub> ), is the basic component of sand, quartz and granite rock. Crystalline Silica (the designated substance) is encountered in industry in three forms: quartz, tridymite, and cristobalite.	Crystalline Silica should be assumed to be present in materials such as quartz, brick, cement, mortar, and plaster.	<p>Every precaution and procedure should be taken during demolition or renovation activities to control the time-weighted exposure of a worker to airborne silica and exposure should not exceed 0.05 milligrams Cristobalite per cubic meters of air, or 0.1 milligrams Quartz or Tripoli per cubic meters of air.</p> <p>Coring, sawing, or breaking up the materials containing silica should be completed only with appropriate dust suppression methods, proper respiratory protection and general worker safety precautions as outlined in the MOL Guidance document and in the Occupational Health and Safety Act.</p>
Vinyl Chloride	Vinyl chloride is the parent compound of polyvinyl chloride (PVC) which is a widely used plastic. Vinyl chloride is also used in various resins (e.g. plastic food wrap), and in the glass, rubber, and paper industries. Vinyl chloride is also formed by the degradation of the chlorinated solvents trichloroethylene (TCE), 1,1,1-trichloroethane (111TCA) and tetrachloroethylene (also known as perchloroethylene or dry-cleaning solvent), especially in soil or groundwater that has been contaminated with these solvents.	No solvents, tanks or process operations that use vinyl chloride were observed or appear to have been present in the building. Vinyl chloride could be present within plastic components of the plumbing system, vinyl flooring and countertops, etc.	Not Applicable.

# APPENDIX

# A

## ANALYTICAL RESULTS





# EMSL Canada Inc.

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EMSL Canada Order 552003039  
Customer ID: 55WPTH42  
Customer PO: 181-09302-15  
Project ID:

**Attn:** Stephen Heikkila  
WSP Canada, Inc.  
100 Commerce Valley Road  
Thornhill, ON L3T 0A1  
**Phone:** (905) 882-1100  
**Fax:**  
**Collected:** 3/11/2020  
**Received:** 3/13/2020  
**Analyzed:** 3/17/2020  
**Proj:** 181-09302-15

## Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

**Client Sample ID:** 01-DJC-A **Lab Sample ID:** 552003039-0001

**Sample Description:** Drywall Joint Compound on Walls

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	White	0.0%	100.0%	None Detected	

**Client Sample ID:** 01-DJC-B **Lab Sample ID:** 552003039-0002

**Sample Description:** Drywall Joint Compound on Walls

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	White	0.0%	100.0%	None Detected	

**Client Sample ID:** 01-DJC-C **Lab Sample ID:** 552003039-0003

**Sample Description:** Drywall Joint Compound on Walls

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	White	0.0%	100.0%	None Detected	

**Client Sample ID:** 01-DJC-D **Lab Sample ID:** 552003039-0004

**Sample Description:** Drywall Joint Compound on Walls

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	White	0.0%	100.0%	None Detected	

**Client Sample ID:** 01-DJC-E **Lab Sample ID:** 552003039-0005

**Sample Description:** Drywall Joint Compound on Walls

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	White	0.0%	100.0%	None Detected	

**Client Sample ID:** 01-DJC-F **Lab Sample ID:** 552003039-0006

**Sample Description:** Drywall Joint Compound on Walls

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	White	0.0%	100.0%	None Detected	

**Client Sample ID:** 01-DJC-G **Lab Sample ID:** 552003039-0007

**Sample Description:** Drywall Joint Compound on Walls

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	White	0.0%	100.0%	None Detected	



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Project ID:

## Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

**Client Sample ID:** 02-BDJC-A **Lab Sample ID:** 552003039-0008  
**Sample Description:** Drywall Joint Compound on Bulkheads

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	White	0.0%	100.0%	None Detected	

**Client Sample ID:** 02-BDJC-B **Lab Sample ID:** 552003039-0009  
**Sample Description:** Drywall Joint Compound on Bulkheads

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	White	0.0%	100.0%	None Detected	

**Client Sample ID:** 02-BDJC-C **Lab Sample ID:** 552003039-0010  
**Sample Description:** Drywall Joint Compound on Bulkheads

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	White	0.0%	100.0%	None Detected	

**Client Sample ID:** 03-MAS-A **Lab Sample ID:** 552003039-0011  
**Sample Description:** Mastic associated with Vinyl Floor Tiles

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Black	0.0%	100.0%	None Detected	

**Client Sample ID:** 03-MAS-B **Lab Sample ID:** 552003039-0012  
**Sample Description:** Mastic associated with Vinyl Floor Tiles

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Black	0.0%	100.0%	None Detected	

**Client Sample ID:** 03-MAS-C **Lab Sample ID:** 552003039-0013  
**Sample Description:** Mastic associated with Vinyl Floor Tiles

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Black	0.0%	100.0%	None Detected	

**Client Sample ID:** 04-VF-A **Lab Sample ID:** 552003039-0014  
**Sample Description:** Vinyl Flooring - Wood Pattern

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Tan	0.0%	100.0%	None Detected	

**Client Sample ID:** 04-VF-B **Lab Sample ID:** 552003039-0015  
**Sample Description:** Vinyl Flooring - Wood Pattern

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Brown	0.0%	100.0%	None Detected	



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Project ID:

## Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

**Client Sample ID:** 04-VF-C **Lab Sample ID:** 552003039-0016  
**Sample Description:** Vinyl Flooring - Wood Pattern

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Brown/Gray	0.0%	100.0%	None Detected	

**Client Sample ID:** 05-MAS-A **Lab Sample ID:** 552003039-0017  
**Sample Description:** Mastic associated with Carpet

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Yellow	0.0%	100.0%	None Detected	

**Client Sample ID:** 05-MAS-B **Lab Sample ID:** 552003039-0018  
**Sample Description:** Mastic associated with Carpet

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Yellow	0.0%	100.0%	None Detected	

**Client Sample ID:** 05-MAS-C **Lab Sample ID:** 552003039-0019  
**Sample Description:** Mastic associated with Carpet

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Yellow	0.0%	100.0%	None Detected	

**Client Sample ID:** 07-RC-A-Shingle **Lab Sample ID:** 552003039-0023  
**Sample Description:** Roof Cores

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Brown/Black	20.0%	80.0%	None Detected	

**Client Sample ID:** 07-RC-A-Tar **Lab Sample ID:** 552003039-0023A  
**Sample Description:** Roof Cores

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Black	0.0%	100.0%	None Detected	

**Client Sample ID:** 07-RC-A-Tar Paper **Lab Sample ID:** 552003039-0023B  
**Sample Description:** Roof Cores

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Brown/Black	70.0%	30.0%	None Detected	

**Client Sample ID:** 07-RC-B-Shingle **Lab Sample ID:** 552003039-0024  
**Sample Description:** Roof Cores

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Brown/Black	20.0%	80.0%	None Detected	



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## Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

**Client Sample ID:** 07-RC-B-Tar **Lab Sample ID:** 552003039-0024A  
**Sample Description:** Roof Cores

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Black	0.0%	100.0%	None Detected	

**Client Sample ID:** 07-RC-B-Tar Paper **Lab Sample ID:** 552003039-0024B  
**Sample Description:** Roof Cores

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Brown/Black	65.0%	35.0%	None Detected	

**Client Sample ID:** 07-RC-C-Shingle **Lab Sample ID:** 552003039-0025  
**Sample Description:** Roof Cores

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Brown/Black	25.0%	75.0%	None Detected	

**Client Sample ID:** 07-RC-C-Tar **Lab Sample ID:** 552003039-0025A  
**Sample Description:** Roof Cores

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Black	0.0%	100.0%	None Detected	

**Client Sample ID:** 07-RC-C-Tar Paper **Lab Sample ID:** 552003039-0025B  
**Sample Description:** Roof Cores

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Brown/Black	70.0%	30.0%	None Detected	

**Client Sample ID:** 07-RC-D-Shingle **Lab Sample ID:** 552003039-0026  
**Sample Description:** Roof Cores

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Brown/Black	20.0%	80.0%	None Detected	

**Client Sample ID:** 07-RC-D-Tar **Lab Sample ID:** 552003039-0026A  
**Sample Description:** Roof Cores

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Black	0.0%	100.0%	None Detected	

**Client Sample ID:** 07-RC-D-Tar Paper **Lab Sample ID:** 552003039-0026B  
**Sample Description:** Roof Cores

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Brown/Black	65.0%	35.0%	None Detected	



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## Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

**Client Sample ID:** 07-RC-E-Shingle **Lab Sample ID:** 552003039-0027  
**Sample Description:** Roof Cores

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Black	3.0%	97.0%	None Detected	

**Client Sample ID:** 07-RC-E-Tar **Lab Sample ID:** 552003039-0027A  
**Sample Description:** Roof Cores

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Black	0.0%	100.0%	None Detected	

**Client Sample ID:** 07-RC-E-Tar Paper **Lab Sample ID:** 552003039-0027B  
**Sample Description:** Roof Cores

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Brown/Black	20.0%	80.0%	None Detected	

**Client Sample ID:** 08-BM-A **Lab Sample ID:** 552003039-0028  
**Sample Description:** Brick Mortar

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Gray	0.0%	100.0%	None Detected	

**Client Sample ID:** 08-BM-B **Lab Sample ID:** 552003039-0029  
**Sample Description:** Brick Mortar

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Gray	0.0%	100.0%	None Detected	

**Client Sample ID:** 08-BM-C **Lab Sample ID:** 552003039-0030  
**Sample Description:** Brick Mortar

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Gray	0.0%	100.0%	None Detected	

**Client Sample ID:** 08-BM-D **Lab Sample ID:** 552003039-0031  
**Sample Description:** Brick Mortar

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Gray	0.0%	100.0%	None Detected	

**Client Sample ID:** 08-BM-E **Lab Sample ID:** 552003039-0032  
**Sample Description:** Brick Mortar

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Gray	0.0%	100.0%	None Detected	



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## Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

**Client Sample ID:** 09-CLK-A

**Lab Sample ID:** 552003039-0033

**Sample Description:** Exterior White Caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Red	0.0%	100.0%	None Detected	

**Client Sample ID:** 09-CLK-B

**Lab Sample ID:** 552003039-0034

**Sample Description:** Exterior White Caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Gray	0.0%	100.0%	None Detected	

**Client Sample ID:** 09-CLK-C

**Lab Sample ID:** 552003039-0035

**Sample Description:** Exterior White Caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	White	0.0%	100.0%	None Detected	

**Client Sample ID:** 10-CLK-A

**Lab Sample ID:** 552003039-0036

**Sample Description:** Exterior Grey Caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Gray	0.0%	100.0%	<1% Chrysotile	
PLM Grav. Reduction	3/16/2020	Gray	0.0%	99.7%	0.33% Chrysotile	

**Client Sample ID:** 10-CLK-B

**Lab Sample ID:** 552003039-0037

**Sample Description:** Exterior Grey Caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Gray	0.0%	100.0%	<1% Chrysotile	
PLM Grav. Reduction	3/16/2020	Gray	0.0%	100%	<0.25% Chrysotile	

**Client Sample ID:** 10-CLK-C

**Lab Sample ID:** 552003039-0038

**Sample Description:** Exterior Grey Caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/16/2020	Gray	0.0%	100.0%	<1% Chrysotile	
PLM Grav. Reduction	3/17/2020	Gray	0.0%	99.7%	0.32% Chrysotile	



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Customer PO: 181-09302-15  
Project ID:

**Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via  
EPA600/R-93/116 Method**

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**Analyst(s):**

---

Michelle Lung PLM (31)  
PLM Grav. Reduction (1)  
Natalie D'Amico PLM (14)  
Stephanie Achaiya PLM Grav. Reduction (2)

**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. 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. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. This report must not be used to claim product endorsement by NVLAP of any agency or the U.S. Government

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

Initial report from: 03/17/202009:20:03



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EMSL Canada Or 552003039  
CustomerID: 55WPTH42  
CustomerPO: 181-09302-15  
ProjectID:

Attn: **Stephen Heikkila**  
**WSP Canada, Inc.**  
**100 Commerce Valley Road**  
**Thornhill, ON L3T 0A1**

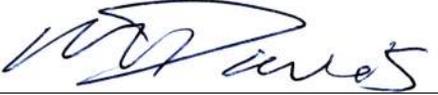
Phone: (905) 882-1100  
Fax:  
Received: 03/13/20 9:56 AM  
Analysis Date: 3/16/2020  
Collected: 3/11/2020

Project: 181-09302-15

**Test Report: Polarized Light Microscopy (PLM) - Point Count Performed by EPA 600/R-93/116 Method with Gravimetric Reduction and 400 Point Count**

SAMPLE ID	DESCRIPTION	APPEARANCE	(% Matrix Organic Acid		NON- ASBESTOS	NON- ASBESTOS	ASBESTOS
					% Fibrous	% NON-FIBROUS	% TYPES
06-ASP-A 552003039-0020	Exterior Asphalt	Black Non-Fibrous Homogeneous	7.3	19.3		73.5 Non-fibrous (other)	None Detected
06-ASP-B 552003039-0021	Exterior Asphalt	Black Non-Fibrous Homogeneous	6.4	26.1		67.5 Non-fibrous (other)	None Detected
06-ASP-C 552003039-0022	Exterior Asphalt	Black Non-Fibrous Homogeneous	6.0	16.3		77.8 Non-fibrous (other)	None Detected

Analyst(s)  
Stephanie Achaiya (3)

  
Matthew Davis or other approved signatory  
or other approved signatory

Some samples may contain asbestos fibers present in dimensions below PLM resolution limits. The limit of detection as stated in the method is 0.25%. EMSL Analytical Inc. suggests that samples reported as <0.25% or none detected undergo additional analysis via TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical Inc.. This report must not be used to claim product endorsement by NVLAP or any agency of the United States Government. EMSL Analytical Inc. bears no responsibility for sample collection activities, analytical method limitations, or the accuracy of results when requested to separate layer samples. EMSL Analytical Inc. liability is limited to the cost of sample analysis. The test results contained within this report meet the requirements of NELAC unless otherwise noted. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.  
Samples analyzed by EMSL Canada Inc. Mississauga, ON

Initial report from 03/17/2020 09:20:03

**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](mailto:torontolab@emsl.com)

EMSL Canada Or	552003042
CustomerID:	55WPTH42
CustomerPO:	181-09302-15
ProjectID:	

Attn: **Meredith Cake**  
**WSP Canada, Inc.**  
**100 Commerce Valley Road**  
**Thornhill, ON L3T 0A1**

Phone: (905) 882-1100  
 Fax:  
 Received: 03/13/20 9:56 AM  
 Collected: 3/11/2020

Project: **181-09302-15 Administrative Building #2, Akwesasne****Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)\***

<i>Client Sample Description</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Weight</i>	<i>RDL</i>	<i>Lead Concentration</i>
L001 552003042-0001	3/11/2020	3/13/2020	0.2485 g	80 ppm	<80 ppm
	Site: Location 33 Desc: Beige Paint on Wall				
L002 552003042-0002	3/11/2020	3/13/2020	0.2496 g	80 ppm	<80 ppm
	Site: Location 21 Desc: Grey Paint on Wall				
L003 552003042-0003	3/11/2020	3/13/2020	0.2467 g	81 ppm	<81 ppm
	Site: Location 24 Desc: Light Green Paint on Wall				
L004 552003042-0004	3/11/2020	3/13/2020	0.2504 g	80 ppm	<80 ppm
	Site: Location 25 Desc: Purple Paint on Wall				
L005 552003042-0005	3/11/2020	3/13/2020	0.2496 g	80 ppm	<80 ppm
	Site: Location 26 Desc: Orange Paint on Wall				
L006 552003042-0006	3/11/2020	3/13/2020	0.2502 g	80 ppm	<80 ppm
	Site: Location 27 Desc: Yellow Paint on Wall				
L007 552003042-0007	3/11/2020	3/13/2020	0.1459 g	140 ppm	<140 ppm
	Site: Location 27 Desc: Olive Paint on Wall Insufficient sample to reach reporting limit.				
L008 552003042-0008	3/11/2020	3/13/2020	0.2514 g	80 ppm	<80 ppm
	Site: Location 29 Desc: White Paint on Wall				

Rowena Fanto, Lead Supervisor  
 or other approved signatory

\*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. 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. When the information supplied by the customer can affect the validity of the results, it will be noted on the report. "<" (less than) result signifies the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

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

Report Amended: 03/17/2020 09:41:54 Replaces the Initial Report 03/17/2020 09:21:08. Reason Code: Client-Other (see report comment)

**EMSL Canada Inc.**

2756 Slough Street, Mississauga, ON L4T 1G3

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EMSL Canada Or	552003042
CustomerID:	55WPTH42
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Attn: **Meredith Cake**  
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Phone: (905) 882-1100  
 Fax:  
 Received: 03/13/20 9:56 AM  
 Collected: 3/11/2020

Project: **181-09302-15 Administrative Building #2, Akwesasne****Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)\***

<i>Client SampleDescription</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Weight</i>	<i>RDL</i>	<i>Lead Concentration</i>
L009 552003042-0009	3/11/2020	3/13/2020	0.2501 g	80 ppm	<80 ppm
	Site: Location 30 Desc: Red Paint on Wall				
L010 552003042-0010	3/11/2020	3/13/2020	0.2509 g	80 ppm	<80 ppm
	Site: Location 20 Desc: Brown Paint on Wall				
L011 552003042-0011	3/11/2020	3/13/2020	0.2504 g	80 ppm	<80 ppm
	Site: Location 20 Desc: Light Beige Paint on Wall				
L012 552003042-0012	3/11/2020	3/13/2020	0.2513 g	80 ppm	<80 ppm
	Site: Location 15 Desc: Blue Paint on Wall				
L013 552003042-0013	3/11/2020	3/13/2020	0.2509 g	800 ppm	21000 ppm
	Site: Location 5 Desc: Grey Paint on Concrete Floor				
L014 552003042-0014	3/11/2020	3/13/2020	0.2513 g	80 ppm	<80 ppm
	Site: Location 8 Desc: Light Blue Paint on Wall				
L015 552003042-0015	3/11/2020	3/13/2020	0.2509 g	400 ppm	8400 ppm
	Site: Location 11 Desc: Black Paint on Door Frames, and Structural Columns				
L016 552003042-0016	3/11/2020	3/13/2020	0.2508 g	160 ppm	5000 ppm
	Site: Exterior Desc: Brown Paint on Overhang (Steel)				
L017 552003042-0017	3/11/2020	3/13/2020	0.2504 g	80 ppm	<80 ppm
	Site: Exterior Desc: Blue Paint on Window Sills				

Rowena Fanto, Lead Supervisor  
 or other approved signatory

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

Report Amended: 03/17/2020 09:41:54 Replaces the Initial Report 03/17/2020 09:21:08. Reason Code: Client-Other (see report comment)



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EMSL Canada Or 552003042  
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Phone: (905) 882-1100  
Fax:  
Received: 03/13/20 9:56 AM  
Collected: 3/11/2020

Project: **181-09302-15 Administrative Building #2, Akwesasne**

**Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)\***

<i>Client SampleDescription</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Weight</i>	<i>RDL</i>	<i>Lead Concentration</i>
L018 552003042-0018	3/11/2020	3/13/2020	0.2511 g	80 ppm	<80 ppm
	Site: Exterior Desc: Grey Paint on Concrete Slab				

Rowena Fanto, Lead Supervisor  
or other approved signatory

\*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. 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. When the information supplied by the customer can affect the validity of the results, it will be noted on the report. "<" (less than) result signifies the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

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

Report Amended: 03/17/2020 09:41:54 Replaces the Inital Report 03/17/2020 09:21:08. Reason Code: Client-Other (see report comment)

# APPENDIX

# B

## SITE PHOTOGRAPHS

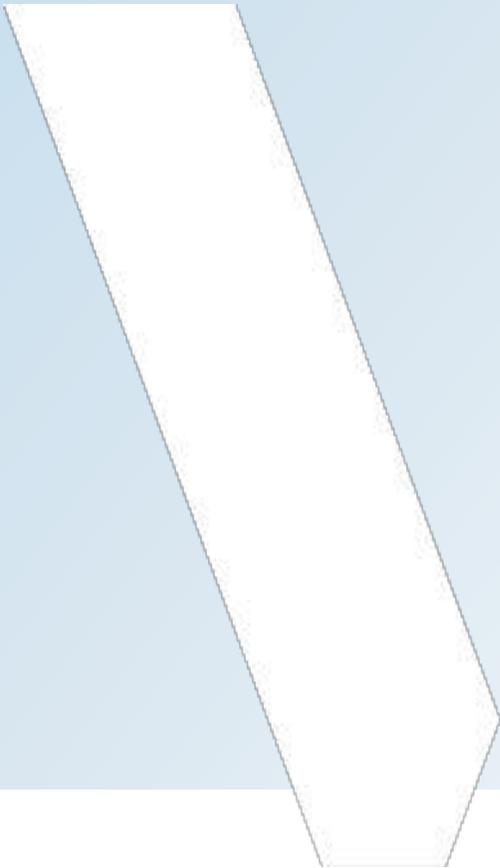


PHOTO NO.	MATERIAL DESCRIPTION & LOCATION	PHOTO
1	View of Administrative Building #2.	
2	Asbestos-containing vinyl floor tiles, 12" x 12" white with black streak, Location #2.  <u>Sample ID:</u> 0001A-C (Pinchin, 2013)	

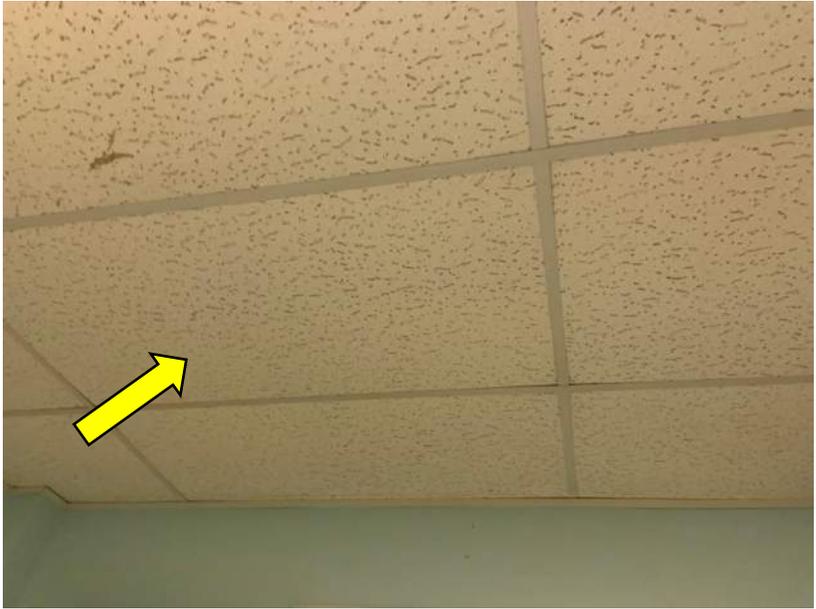
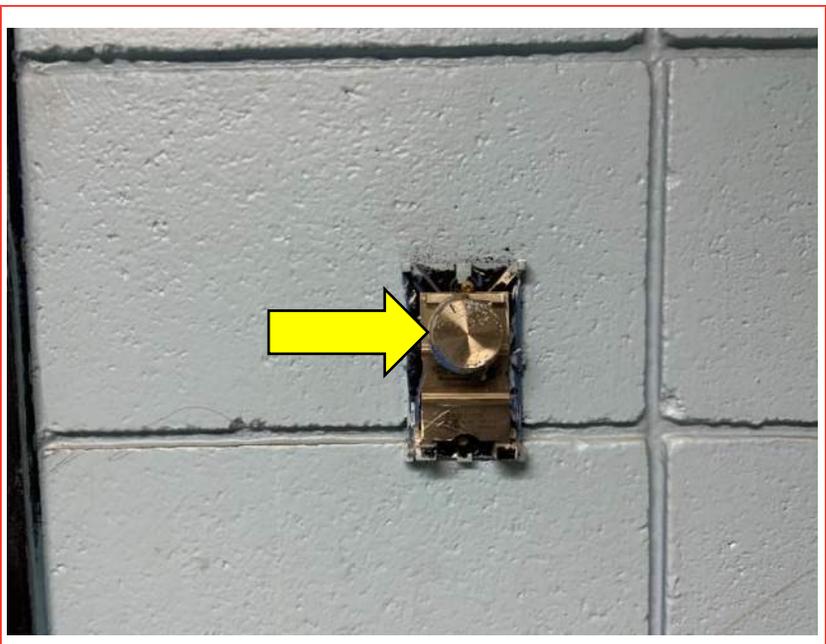
PHOTO NO.	MATERIAL DESCRIPTION & LOCATION	PHOTO
<p><u>3</u></p>	<p>Asbestos-containing acoustic ceiling tiles, 24" x 48", pinhole and lengthwise fissures, Location #8</p> <p><u>Sample ID:</u> 0006A-C (Pinchin, 2013)</p>	 <p>A photograph showing a grid of acoustic ceiling tiles. A yellow arrow points to a small, dark pinhole on the surface of one of the tiles. The tiles are light-colored with a mottled texture.</p>
<p><u>4</u></p>	<p>Asbestos-containing vinyl floor tiles, 12" x 12", white with blue flecks concealed beneath carpet finishes, Location 11.</p> <p><u>Sample ID:</u> 0010A-C (Pinchin 2013), 0010A (Pinchin, 2017).</p>	 <p>A close-up photograph of a floor tile edge. A yellow arrow points to the edge of a white tile with blue flecks, which is partially covered by a dark grey carpet. The tile is set in a wooden subfloor.</p>

PHOTO NO.	MATERIAL DESCRIPTION & LOCATION	PHOTO
5	<p>Asbestos-containing vinyl floor tiles, 12" x 12", white with black flecks, Location 3.</p> <p><u>Sample ID:</u> 0012A-C (Pinchin, 2013), 0012A (Pinchin, 2017).</p>	 A photograph showing a close-up of a white vinyl floor tile with black flecks. A yellow arrow points to the tile. A red fire hydrant is visible in the background.
6	<p>View of asbestos-containing vermiculite from a previous spill (according to the Client) being stored in Location 18.</p> <p><u>Sample ID:</u> N/A</p>	 A photograph showing several large yellow bags of vermiculite stored in a room with tiled walls and a window. A yellow arrow points to one of the bags.

PHOTO NO.	MATERIAL DESCRIPTION & LOCATION	PHOTO
7	<p>Lead-containing grey paint on concrete flooring, Location 5.</p> <p><u>Sample ID:</u> L013</p> <p>Also, view of multiple patched cinder block locations where loose-fill vermiculite insulation was previously sampled.</p>	
8	<p>Typical view of locations where structural beams penetrate the cinder block walls. Vermiculite is presumed to be present throughout cinder block walls. Majority of penetrations have been patched.</p>	

PHOTO NO.	MATERIAL DESCRIPTION & LOCATION	PHOTO
9	Lead-containing black paint on structural column, Location 11. <u>Sample ID: L015</u>	 An interior photograph showing a black-painted structural column. A yellow arrow points to the column. In the background, there is a poster on the wall that says "Eyes on Lives" and a doorway.
10	Lead-containing brown paint on the exterior overhang. <u>Sample ID: L016</u>	 An exterior photograph of a building with a brown overhang. The building is covered in graffiti. A yellow arrow points to the overhang. A black car is partially visible on the left.

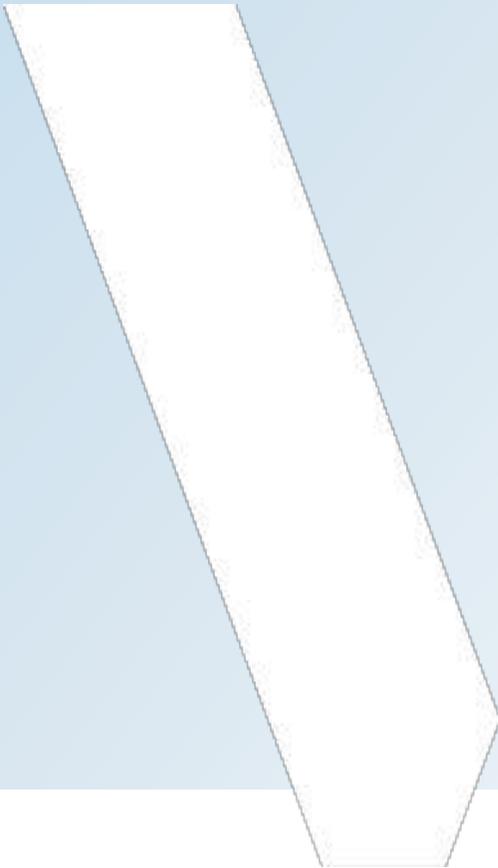
PHOTO NO.	MATERIAL DESCRIPTION & LOCATION	PHOTO
<u>11</u>	Visible mould growth on asbestos-containing acoustic ceiling tiles and water staining, Location 26. <u>Sample ID: N/A</u>	
<u>12</u>	Visible mould growth on asbestos-containing acoustic ceiling tiles, Location 27. <u>Sample ID: N/A</u>	

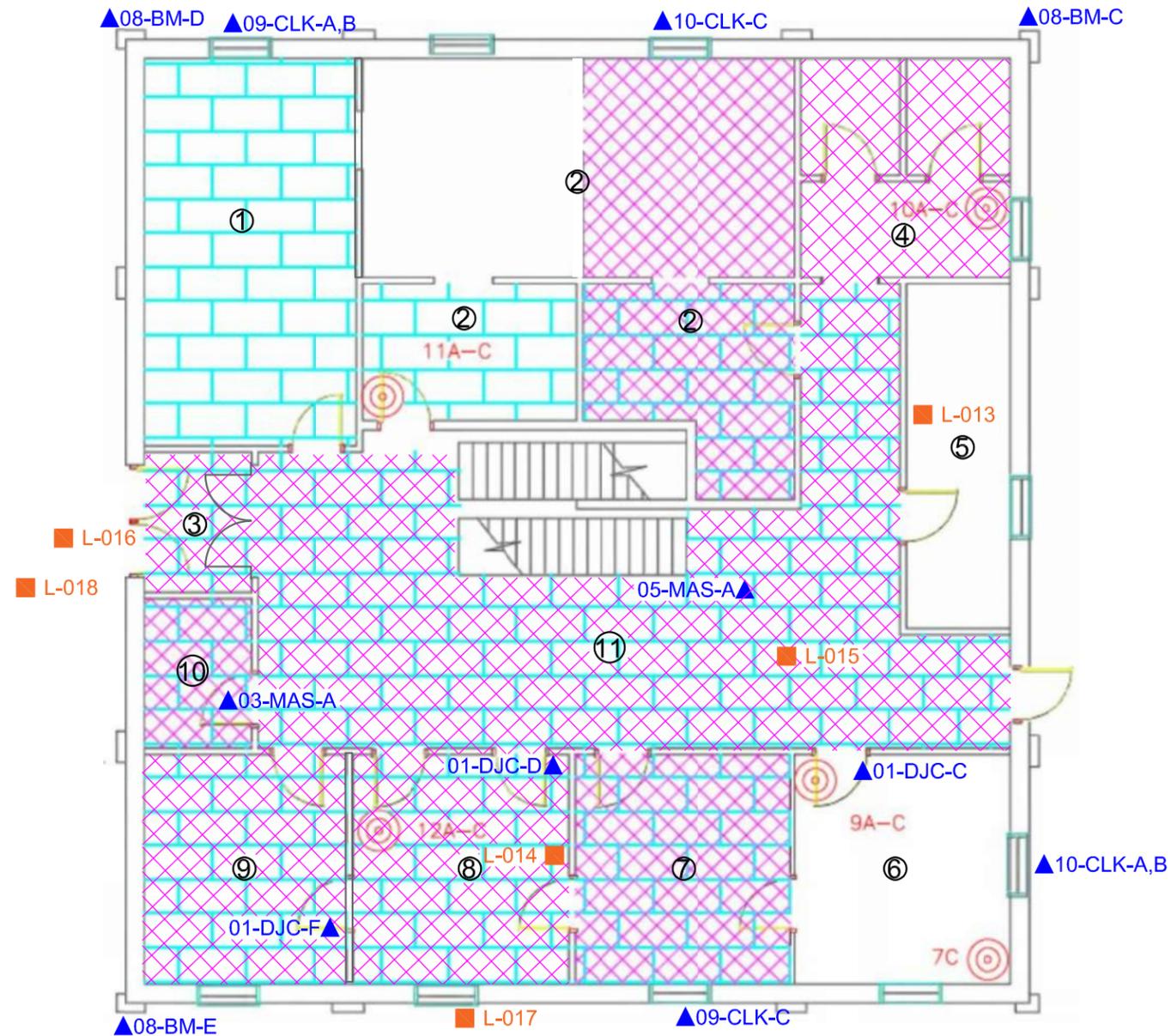
PHOTO NO.	MATERIAL DESCRIPTION & LOCATION	PHOTO
<u>13</u>	Thermostat with no mercury ampules.	 A close-up photograph of a thermostat mounted on a light-colored, textured wall. The thermostat is a small, rectangular device with a circular dial. A yellow arrow points to the center of the dial.
<u>14</u>	Batteries in emergency lighting presumed to contain lead-acid.	 A photograph of an emergency exit sign mounted on a wall. The sign is rectangular with the word "EXIT" in red letters. Above the sign are two circular emergency lights. A yellow arrow points to the batteries located above the sign.

# APPENDIX

# C

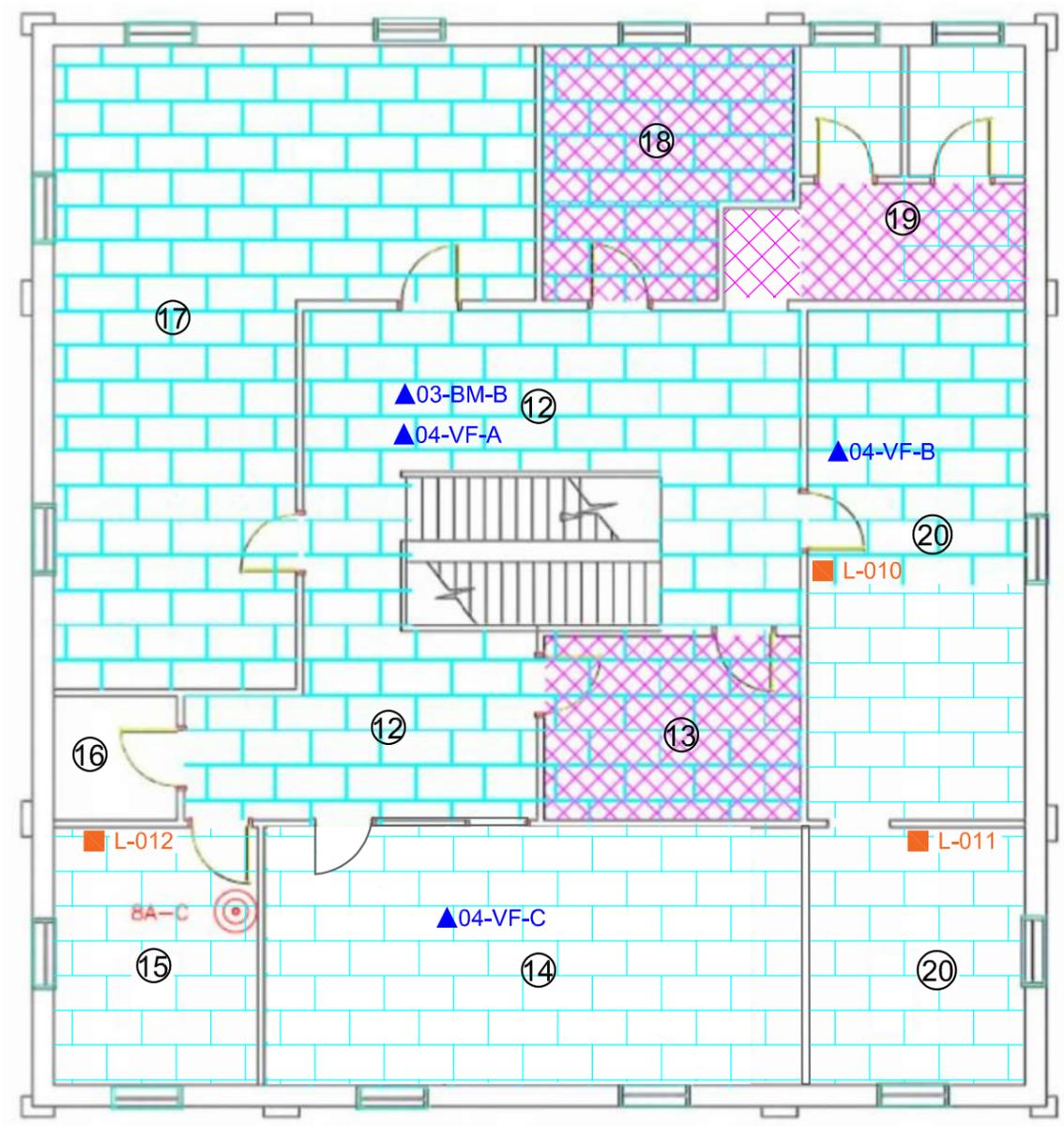
## DRAWINGS





NOTE:  
 1) ASBESTOS-CONTAINING VERMICULITE IS PRESENT WITHIN PERIMETER CONCRETE BLOCK WALLS AT THE SUBJECT BUILDING.  
 2) NON ASBESTOS-CONTAINING ROOF CORE AND ASPHALT SAMPLE LOCATIONS ARE NOT SHOWN ON THIS FIGURE.  
 3) OTHER DESIGNATED SUBSTANCES OR HAZARDOUS MATERIALS MAY BE PRESENT WITHIN CONCEALED BUILDING SPACES.

<b>Legend</b> 	Project No: 181-09302-15	Client: PUBLIC SERVICES AND PROCUREMENT CANADA	<b>LOCATIONS OF ASBESTOS &amp; LEAD BULK SAMPLES AND ASBESTOS-CONTAINING MATERIALS</b>  <b>ADMINISTRATION BUILDING NO. 2 - MAIN FLOOR</b>	Figure No: <b>C-1</b>
	Date: MARCH 2020	Site Address:		
	Drawn By: CG	SAINT-RÉGIS, AKWESASNE		
	App'd By: MC/SWH			



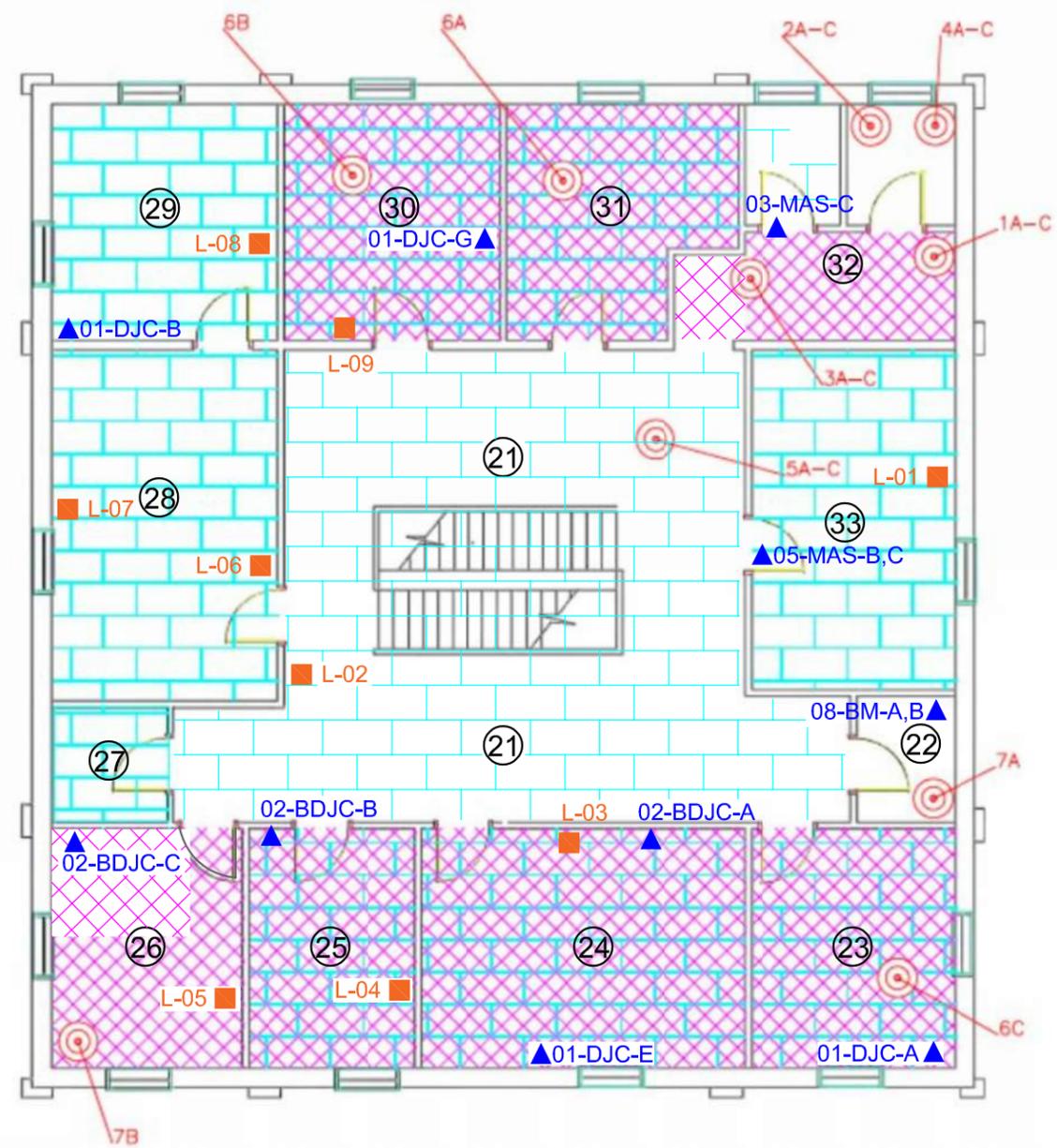
NOTE:  
 1) ASBESTOS-CONTAINING VERMICULITE IS PRESENT WITHIN PERIMETER CONCRETE BLOCK WALLS AT THE SUBJECT BUILDING.  
 2) TEN (10) BAGS OF ASBESTOS-CONTAINING WASTE FROM A PREVIOUS VERMICULITE SPILL ARE CURRENTLY BEING STORED WITHIN LOCATION 18. THE BAGS ARE DOUBLE-BAGGED AND SEALED IN YELLOW ASBESTOS WASTE BAGS AS PER O. REG. 278/05.  
 3) NON ASBESTOS-CONTAINING ROOF CORE AND ASPHALT SAMPLE LOCATIONS ARE NOT SHOWN ON THIS FIGURE.  
 4) OTHER DESIGNATED SUBSTANCES OR HAZARDOUS MATERIALS MAY BE PRESENT WITHIN CONCEALED BUILDING SPACES.

Legend	
⓪	LOCATION ID
▲	ASBESTOS BULK SAMPLE LOCATION
■	LEAD BULK SAMPLE LOCATION
▤	ASBESTOS-CONTAINING ACOUSTIC CEILING TILES
▨	ASBESTOS-CONTAINING VINYL FLOOR TILES
⊙	PINCHIN ASBESTOS BULK SAMPLE LOCATION

Project No: 181-09302-15
Date: MARCH 2020
Drawn By: CG
App'd By: MC/SWH

Client: PUBLIC SERVICES AND PROCUREMENT CANADA
Site Address: SAINT-RÉGIS, AKWESASNE

**LOCATIONS OF ASBESTOS & LEAD BULK SAMPLES  
 AND ASBESTOS-CONTAINING MATERIALS  
 ADMINISTRATION BUILDING NO. 2 -  
 SECOND FLOOR**



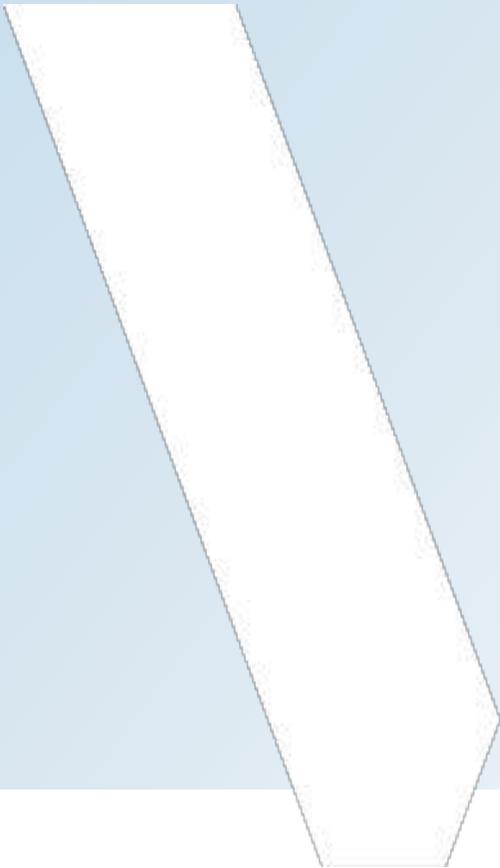
NOTE:  
 1) ASBESTOS-CONTAINING VERMICULITE IS PRESENT WITHIN PERIMETER CONCRETE BLOCK WALLS AT THE SUBJECT BUILDING.  
 2) NON ASBESTOS-CONTAINING ROOF CORE AND ASPHALT SAMPLE LOCATIONS ARE NOT SHOWN ON THIS FIGURE.  
 3) OTHER DESIGNATED SUBSTANCES OR HAZARDOUS MATERIALS MAY BE PRESENT WITHIN CONCEALED BUILDING SPACES.

<b>Legend</b> LOCATION ID ASBESTOS BULK SAMPLE LOCATION LEAD BULK SAMPLE LOCATION ASBESTOS-CONTAINING ACOUSTIC CEILING TILES ASBESTOS-CONTAINING VINYL FLOOR TILES PINCH ASBESTOS BULK SAMPLE LOCATION	Project No: 181-09302-15	Client: PUBLIC SERVICES AND PROCUREMENT CANADA	<b>LOCATIONS OF ASBESTOS &amp; LEAD BULK SAMPLES          AND ASBESTOS-CONTAINING MATERIALS</b>  <b>ADMINISTRATION BUILDING NO. 2 -          THIRD FLOOR</b>	Figure No: <b>C-3</b>
	Date: MARCH 2020	Site Address:		
	Drawn By: CG	SAINT-RÉGIS, AKWESASNE		
	App'd By: MC/SWH			

# APPENDIX

# D

## GLOSSARY OF TERMS



## GLOSSARY OF TERMS

**Accessibility:** The terms easily accessible, less accessible, and inaccessible are used to describe the ease with which asbestos can be accessed by tenants, the public, employees and contractors in the building. **Easily accessible** indicates that ACM is visible from the floor and can be touched by building occupants, and therefore has a potential for significant damage. **Less accessible** indicates that ACM is not visible from the floor, or if it is visible, it is high enough not to be touched by building occupants, and has a potential for damage. **Inaccessible** indicates that ACM is located behind masonry, drywall, or other types of solid enclosures and is only accessible after destruction of the enclosure, and has a low potential for damage.

**ACM:** Asbestos-Containing Material. A material that contains greater than 0.5% asbestos by dry weight as per Ontario Regulation 278/05 and is used to refer to the vastly different types of such material.

**Amosite:** The technical name for ‘brown’ asbestos.

**AMP:** Asbestos Management Plan

**Asbestos:** A group of naturally occurring fibrous minerals with current or historical commercial usefulness due to their extraordinary tensile strength, poor heat conduction, and relative resistance to chemical attack.

**Asbestos Abatement:** Procedures to control fiber release from asbestos-containing materials in a building or to remove them entirely, including removal, encapsulation, repair, enclosure, encasement, and operations and maintenance programs.

**Asbestos Cement:** A hard product that contains up to 15% asbestos fibres which can be any of the three main types. This is a relatively safe material provided it remains intact as the cement binds the asbestos fibres; breakage will lead to fibre release.

**Asbestos Control:** Minimizing the generation of airborne asbestos fibres until a permanent solution is developed.

**Asbestos Debris:** Pieces of an ACM that can be identified by color, texture, or composition, or means dust, if the dust is determined by an accredited inspector to be ACM.

**Asbestos Fibres:** Fibres with their length being greater than five microns (length to width ratio of 3:1), generated from an asbestos-containing material.

**BAS:** Building Asbestos Supervisor.

**Bulk Sample:** A sample of material such as boarding, insulation or debris taken by an accredited surveyor to be tested for asbestos fibre content by an accredited laboratory.

**Chrysotile:** The technical name for ‘white’ asbestos.

**Condition:** The condition of ACM is described using the designations: good, fair and poor. **Good** refers to ACM with no visible damage or deterioration, or showing only very limited damage or deterioration. **Fair** refers to ACM with some damage or deterioration (less than 10% of the material). **Poor** refer to ACM that is significantly damaged or deteriorated (at least 10% of the material).

**Crocidolite:** The technical name for ‘blue’ asbestos.

**Designated Substances Regulations:** A series of Regulations made by the Ministry of Labour under the Occupational Health and Safety Act. The regulations provide management protocols and guidelines to the following eleven substances: acrylonitrile, arsenic, asbestos, benzene, coke oven emissions, ethylene oxide, isocyanates, lead, mercury, silica and vinyl chloride.

**Demolition:** Complete dismantling or the complete or partial destruction of a building, structure, ship or plant such that it cannot be used in that form again.

**Friable ACM:** Any material that contains more than 0.5% asbestos by weight and can be crumbled, pulverized, or reduced to powder by the pressure of an ordinary human hand.

**HEPA Filter:** High Efficiency Particulate Air Filter.

**Homogeneous Area:** Defined by the US EPA as containing material that is uniform in texture and appearance, was installed at one time and is unlikely to consist of more than one type or formulation of material.

**Major Action:** All response actions requiring Type 3 ACM Removal Procedures, or Type 2 Removal Procedures involving the removal of friable ACM and provisions of an enclosure.

**Management Assessment:** A assessment carried out without disturbing any part of the fabric, components or finishes. Samples may be taken.

**MOL:** Ministry of Labour.

**O&M:** Operations and Maintenance Program.

**O. Reg.:** Ontario Regulations.

**Non-Friable ACM:** Any material that contains more than 0.5% asbestos by weight but cannot be pulverized under hand pressure.

**PACM:** Presumed Asbestos-Containing Materials. All thermal system insulation, surfacing material and asphalt/vinyl flooring in a building constructed prior to 1981 that has not been appropriately tested are presumed asbestos-containing materials.

**PPE:** Personal Protective Equipment such as overalls, masks, gloves etc.

**Pre-Demolition Assessment:** A assessment similar to the Refurbishment Assessment but also taking core samples from partitions, lifting floorboards and investigating back to the structure where possible.

**Refurbishment Assessment:** A assessment similar to the Management Assessment but also involves entering into accessible ducts, suspended ceilings and other accessible voids. Samples are almost always taken.

**RPE:** Respiratory Protective Equipment. The different types of face masks worn appropriate to the risk. Where the risk assessment shows that the Control Limit will be exceeded RPE must be worn.

**Surveyor:** Any person who provides professional health and safety services relating to asbestos- containing construction material. The activities of a surveyor include building inspection, abatement project design, project administration, sample collection, preparation of asbestos management plans, clearance monitoring, and supervision of site surveillance technicians.

**Type 1:** Asbestos Abatement Operation with ACM as an operation described by O. Reg. 278/05 in subsection 12 (2), generally an operation that does not cause asbestos fibres to become airborne.

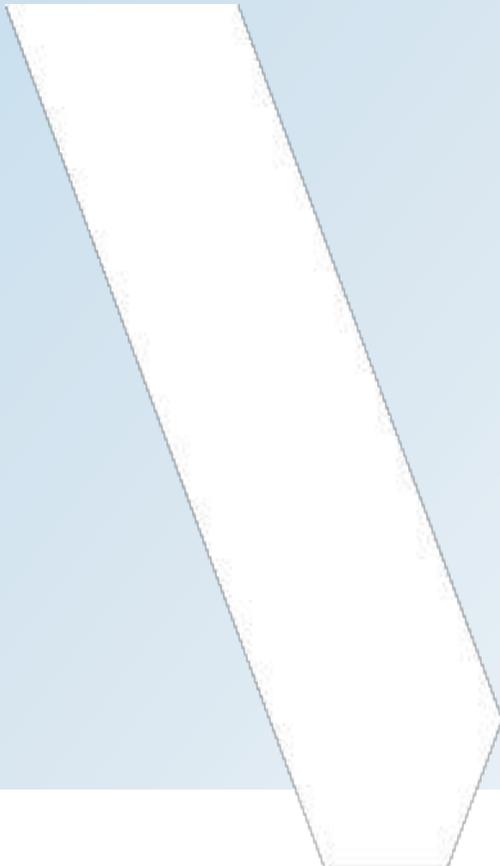
**Type 2:** Asbestos Abatement Operation with ACM as an operation described by O. Reg. 278/05 in subsection 12 (3), generally a major operation with limited scope of work.

**Type 3:** Asbestos Abatement Operation with ACM as an operation described by O. Reg. 278/05 in subsection 12 (4), generally a major operation.

# APPENDIX

# E

PSPC ASBESTOS  
MANAGEMENT STANDARD





## Title: Asbestos Management Standard

1. **Effective date:** June 5, 2017

### 2. Authority

This standard is issued under the authority of the Assistant Deputy Minister (ADM), Real Property Branch (RPB), Public Services and Procurement Canada (PSPC).

### 3. Context

This standard enhances and supplements Part II of the *Canada Labour Code - Occupational Health and Safety*, as well as the *Canada Occupational Health and Safety Regulations* (COHSR) Part X - Hazardous Substances, subsection 10.19 Control of Hazards, and should be read in that context.

This standard should also be read in conjunction with the National Joint Council *Occupational Health and Safety Directive*, Part XI - Hazardous Substances, and the PSPC *Standard on Hazardous Substances*, which is part of the departmental occupational health and safety policy suite.

### 4. Scope

This standard applies to buildings and engineering assets, both Crown-owned and leased (including lease-purchase, and sale leaseback), where PSPC is the custodian, in which either:

- asbestos-containing material has been found to be present; or
- no professional certification attesting that the building does not include any known asbestos-containing material can be obtained.

This includes buildings and engineering assets that are managed internally, as well as those managed on behalf of PSPC by real property contractors.

### 5. Purpose

This standard sets out Real Property Branch's requirements regarding the operational and technical activities required to be carried out for the management of asbestos-containing material.

## **6. Details on Asbestos Management, Maintenance and Repair Work Processes**

Each building that contains asbestos-containing material shall have in place an Asbestos Management Plan that must be kept onsite, and be available to building systems technicians, building operator maintainers, and service providers through the Asset Manager, or Property and Facility Manager, as well as departmental employees through the Employer representatives. Annual reassessment of asbestos-containing material, work records, and sampling results must be part of the Asbestos Management Plan.

An Asbestos Management Plan is required for all buildings unless a professional certification confirming that the building does not include any known asbestos-containing materials is obtained. The certification must be kept onsite and be available to all building occupants upon request.

The asbestos management requirements for leased buildings are subject to the existing lease clauses, in addition to the requirements named in this standard.

Processes regarding the contents and preparation of the Asbestos Management Plan are provided in Section 6.1, Asbestos Management Plan.

Maintenance and renovation work performed in a building known to contain asbestos-containing material shall be conducted as per the processes outlined in Section 6.2, Maintenance, renovations and construction processes involving asbestos-containing materials.

### **6.1. Asbestos Management Plan**

#### **6.1.1. Background information**

An Asbestos Management Plan is required to ensure that asbestos-containing material is managed and controlled in PSPC custodial buildings and engineering assets, both Crown-owned and leased (including lease-purchase, and sale leaseback), to reduce the risk of damaging asbestos-containing material, and potential occupant exposure to airborne asbestos fibers. The Asbestos Management Plan is to be reviewed and updated to reflect changes in policy and regulations at least every 5 years, or more frequently if required. Whenever reviewed or updated, the Asbestos Management Plan must be provided to the Employer representatives and retained in accordance with section 6.2.11. A record must be kept reflecting when and to whom the report was presented.

The Asbestos Management Plan performs the following functions:

- At the building level, it is a central repository of all information related to the management of asbestos for each facility.
- It acts as a control mechanism to ensure compliance.
- It communicates roles and responsibilities of those required to work with or around asbestos-containing materials.
- It describes work classification for disturbances of asbestos-containing materials.

- It communicates the departmental processes for working with asbestos-containing materials.
- It acts as common terms of reference for the safe operation and management of a building or engineering asset with asbestos-containing materials.

The Asbestos Management Plan includes the following elements at a minimum:

- a list of applicable regulatory requirements
- a brief summary of locations and types of material that contain asbestos present in the building
- a survey and inventory of asbestos-containing materials, and assessment of material condition
- annual asbestos-containing material reassessment
- notification of location, quantity, and condition of asbestos-containing materials and the potential for disturbance
- training and awareness requirements
- notification of Employer representatives when work will be performed that disturbs asbestos
- repair and maintenance procedures
  - classification
  - sample collection and analysis
  - processes
  - project inspection
  - air monitoring
- emergency work procedure(s)
- laboratory results for all materials tested (to be included whether samples are positive or negative for asbestos content)

## **6.1.2. Crown-owned Buildings and Engineering Assets' asbestos-containing material inspection, assessment, and inventory**

### **6.1.2.1. Inspection**

In order to determine the presence of asbestos-containing material in buildings and engineering assets, and to ensure the maintenance of a complete inventory of asbestos-containing materials, an initial baseline survey must be completed by a qualified person on all buildings and engineering assets which have the potential to contain asbestos. An annual reassessment must be performed by a qualified person on all asbestos-containing materials identified in the baseline asbestos survey, and on those materials which may have subsequently been identified during maintenance, renovations, or other construction activities at the site.

The baseline survey must include:

- identification, location, condition, accessibility, and quantity of suspected and confirmed friable and non-friable asbestos-containing material; and

- an action matrix (as described in Annex A, Section 1.4.3.), which establishes recommended asbestos control action(s).

Any material suspected of containing asbestos must have its status confirmed through laboratory analysis; until confirmed, it is assumed to be asbestos-containing material.

#### **6.1.2.2. Laboratory material analysis**

The collection of material samples shall be carried out as randomly-collected bulk samples, and be representative of the homogeneous surfaces, areas, and types of material present. Samples are to be collected following the procedures outlined in Section 6.2.6.

The analysis of bulk samples shall be 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 Annex A, Section 1.2. 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).

#### **6.1.3. Assessment of asbestos-containing materials**

Asbestos-containing materials that are identified as a result of the survey and laboratory analysis shall be assessed for their condition and accessibility. Annex A - *Evaluation of Asbestos-Containing Materials and Recommendations for Control*, provides specific criteria for the assessment of asbestos-containing materials based on condition and accessibility, as well as mandatory Asbestos Management Program response(s) relative to health risk. It also provides an action matrix, which is used to determine the recommended action to control asbestos-containing materials based on the particular circumstances. Detailed information regarding the requirements to properly undertake each action is also provided.

#### **6.1.4. Inventory of asbestos-containing materials**

An inventory of asbestos-containing materials must be maintained, and the inventory shall contain information for the specific building or engineering asset. The inventory record shall remain in the building or engineering asset. The inventory shall contain a list of all known asbestos-containing materials and their locations. If access to an area is not permitted due to security or other reasons, it will be noted in the inventory.

In general, inventories are in table format and include the following:

- type of building material that contains asbestos (example: floor tile)
- asbestos location
- asbestos type and percent content (example: amosite 3%)

- asbestos friability (friable or non-friable)
- quantity of building material
- asbestos condition
- accessibility of the asbestos

Floor plans indicating the location(s) of asbestos-containing materials may be included.

It must be ensured that a copy of the current inventory is maintained onsite at a location that is accessible, and provided to the Employer representatives, and facility maintenance staff.

#### **6.1.5. Annual asbestos-containing material reassessment**

On a yearly basis, the building or engineering asset's asbestos-containing material inventory information is to be updated through a reassessment based primarily on change in condition and quantity (refer to Annex B), and outdated versions of the inventory records must be archived and retained in accordance with section 6.2.11. The Asbestos Management Plan shall be updated with new inventory information as changes are made at the various locations, or where new information identifies the existence of asbestos-containing material not previously identified.

The reassessment must be signed by, and conducted under the direction of, a person qualified in asbestos management. The results of this assessment are to be added to the building Asbestos Management Plan as described in section 6.1.1.

In a timely fashion, the annual re-assessment, along with a summary of the report in plain language, must be provided to the Employer representatives and Regional Asbestos Coordinator. A record must be kept reflecting when and to whom the report was presented.

#### **6.1.6. Leased Space**

If a building is known to contain asbestos-containing materials, then before leased space is occupied, an Asbestos Management Plan must be obtained from the Lessor that identifies all friable and non-friable asbestos-containing materials located within the building and on the property. Otherwise, a professional certification confirming that the building does not include any known asbestos-containing materials is required.

The Asset Manager, or Property and Facility Manager will keep an electronic copy of the Asbestos Management Plan available to be distributed upon request.

For detail on lease clauses, refer to *PWGSC's Invitation to Offer document*, owned by the Real Estate Services Service Line.

### **6.2. Maintenance, renovations and construction processes involving asbestos-containing materials**

#### **6.2.1. Classification of asbestos-related work**

The following criteria shall be used in determining the classification of asbestos work.

### 6.2.1.1. Low risk work

Low risk work includes:

- non-destructive (i.e. without breaking, cutting, drilling, abrading) removal of non-friable asbestos-containing material;
- destructive work (i.e. breaking, cutting, drilling, abrading) on wetted non-friable asbestos-containing material with non-powered hand-held tools;
- removal of one square meter or less of drywall in which joint compounds contain asbestos-containing materials;
- removal or replacement of 7.5 square metres or less of asbestos-containing compressed-mineral-fibre-type ceiling tiles; and
- collecting samples of materials suspected of containing friable asbestos.

### 6.2.1.2. Intermediate risk work

Intermediate risk work includes:

- entry into ceiling spaces, crawlspaces, pipe tunnels, etc., where friable asbestos debris is or may be present;
- removing more than 7.5 square meters of asbestos-containing suspended ceiling tiles;
- removal of more than one square metre 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 hand held 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) filters;
- minor removal or disturbance of friable asbestos-containing material. Minor is defined as follows:
  - in British Columbia: up to 0.1 m<sup>2</sup> surface area, or 3 linear metres of pipe insulation
  - in Quebec: up to 0.03 m<sup>3</sup> of debris
  - all others: up to 1 m<sup>2</sup> of surface area
- enclosing friable asbestos-containing material;
- applying tape or cover to asbestos-containing insulation;
- glove bag removal of asbestos-containing material from a pipe, duct or similar structure;
- removing filters in an air handling unit in a building that has sprayed-on asbestos-containing fireproofing; and
- work not otherwise classified as either low or high risk.

### 6.2.1.3. High risk work

High risk work includes:

- major removal or disturbance of friable asbestos-containing material (greater than quantities defined under intermediate work);

- 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;
- cleaning or removal of ductwork and air handling equipment serving or passing through areas of buildings with sprayed, friable asbestos-containing material; and
- repair, alteration or demolition of a boiler, furnace, kiln, or similar equipment made of asbestos-containing refractory materials.

### **6.2.2. Asbestos work processes**

Written processes for performing low, intermediate, and high risk work are to be developed for the work to be undertaken, based on the friability of the asbestos-containing material, processes to be used, and the worksite. 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 - Intermediate Precautions), or 02 82 00.03 (Asbestos Abatement - Maximum Precautions).

### **6.2.3. Notification**

Written notification must be given to the Asset Manager, or Property and Facility Manager of the potential disturbance of asbestos-containing materials during repair, maintenance and construction projects.

### **6.2.4. Control prior to maintenance work**

All maintenance work shall be reviewed for the possibility of disturbance of asbestos-containing material when work is required.

Before undertaking any work that may disturb asbestos-containing materials, a report shall be prepared stating the type(s) of asbestos and the condition of the asbestos-containing material, and the location of the asbestos-containing material.

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 considered asbestos-related work, and the risk level classified by a qualified person in accordance with the work to be performed.

Prior to the start of work, the Asset Manager, or Property and Facility Manager will inform the Employer representatives.

Arrangements shall be made for specifications to be prepared for asbestos work by a qualified person, following the appropriate specifications according to *Canadian National Master Construction Specification (NMS)* format mentioned in Section 6.2.2. Alterations to specifications, in order to accommodate specific federal and provincial requirements, shall be determined based on work requirements.

When there are asbestos-containing materials in the maintenance area, and it has been determined that these materials could be disturbed by the work, the maintenance staff or the service provider must be notified.

Before asbestos abatement work is started, the following documentation must be provided by the service provider as proof of competency as per provincial/territorial regulations:

- third-party liability insurance
- fit test certificate
- service provider's site-specific safety plan
- Notice of Project
- copy of Workplace Safety and Insurance Board / Ministry of Labour clearance
- copy of trade certificates / competency cards
- other certificates where required (fall protection, confined space, man lift, etc.)

Also prior to the commencement of asbestos abatement work, the following precautions must be ensured:

- management has received proof of adequate training for employees performing asbestos work and approved personal protective equipment is provided;
- containers for asbestos waste shall be labeled as asbestos waste and are held at a pre-determined, secure location in the building; and
- the collection and disposal of asbestos-containing material waste is performed in accordance with the applicable provincial regulations.

In the event of a suspected release of asbestos-containing material outside of the contained work area, the processes detailed in the building Asbestos Management Plan concerning emergency work procedures must be complied with.

#### **6.2.5. Control prior to renovation and construction work**

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 maintained on site as per Section 6.2.11.

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.

In a timely fashion, a summary report, written in plain language, concerning the asbestos work must be provided to the Employer representatives. A record must be kept reflecting when and to whom the report was provided.

Arrangements shall be made for specifications to be prepared for asbestos work by a qualified person, following the appropriate *Canadian National Master Construction Specification (NMS)* format mentioned in Section 6.2.2. Alterations to specifications, in order to accommodate specific federal and provincial requirements, shall be determined based on work requirements.

Services related to the design and preparation of specifications shall be performed by a qualified person with the appropriate training, experience, and insurance for asbestos-related work.

When there are asbestos-containing materials in the renovation area, and it has been determined that these materials could be disturbed by the work, the maintenance staff and/or the service provider must be notified of the presence of asbestos-containing material.

Prior to the start of asbestos abatement work, documentation and work precautions must be ensured as per section 6.2.4.

In the event of a suspected release of asbestos-containing material outside of the contained work area, the processes detailed in the building Asbestos Management Plan concerning emergency work procedures must be followed.

Upon completion of any project work which alters the amount or condition of asbestos-containing material in the building or engineering asset, a report will be prepared that indicates the work that has been completed. The inventory shall be updated, and this information is to be retained in accordance with Section 6.2.11.

#### **6.2.6. Bulk sample procedures**

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. Bulk material sampling is 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 pre-formed insulation, and the insulating cement typically present at elbows, fittings, etc. (unless visually identified as fibreglass) must be sampled. 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 6.1.2.2, Laboratory material analysis).
11. The minimum number of bulk material samples to be collected for each type of test material is 3. When sampling homogeneous materials such as plaster, or materials applied by troweling, 5 samples are required when the area is greater than 90 square meters, 7 samples are required when the area exceeds 450 square meters.

#### **6.2.7. Respirator fitting, inspection and maintenance**

For matters pertaining to respiratory protection, refer to the departmental *Procedure on Respiratory Protection* which is under the *Standard on Personal Protective Equipment and Clothing for Employees*.

## **6.2.8. Asbestos work inspection and air quality monitoring**

### **6.2.8.1. Low risk work**

Work classified as low risk shall be subject to the standard maintenance or project inspection requirements, ensuring all asbestos-containing material has been removed and the area cleaned of dust and debris. Air monitoring is not required during or after work.

### **6.2.8.2. Intermediate risk work**

Work classified as intermediate risk shall be inspected by a qualified person during the work. Air monitoring for total fibre concentration outside of work areas will be conducted adjacent to the work area daily by a qualified person. Upon completion of work, with acceptable results attained by the inspection and air monitoring, asbestos precautions in the area are no longer required.

The air samples will be analyzed by phase contrast microscopy 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/cm<sup>3</sup>. This order is in effect until work processes are corrected and subsequent tests are less than 0.05 fibres/cm<sup>3</sup>.

### **6.2.8.3. High risk work**

Arrangements shall be made for a qualified person to inspect and perform daily air monitoring for total fibre concentration outside of work areas classified as high risk. If required, additional monitoring shall be performed to meet provincial/territorial regulations.

The air samples are to be analyzed by phase contrast microscopy 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/cm<sup>3</sup>. This order is in effect until work processes are corrected and subsequent tests are less than 0.05 fibres/cm<sup>3</sup>.

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/cm<sup>3</sup>) of air, as determined by NIOSH, Method 7400, or an equivalent under provincial regulations. If any sample does not pass the phase contrast microscopy test, samples shall be further analyzed via transmission electron microscopy following NIOSH Method 7402.

## **6.2.9. Hazardous occurrence investigation and reporting**

When a building occupant is, or may have accidentally been, exposed to airborne asbestos as a result of disturbance of asbestos-containing material, or by inadvertent contact during regular maintenance, renovation or construction work, a qualified person shall be appointed to conduct a hazard investigation as defined by the *Canada Occupational Health and Safety Regulations*.

The assessment shall determine the potential hazard, and must conclude as to whether the hazardous material could be present as an airborne hazard, at a level of at least 50% of the exposure limit as determined by the threshold limit values identified by the American Conference of Governmental Industrial Hygienists (ACGIH). The Asset Manager or Property and Facility Manager, building Employer representatives, and the Workplace Health and Safety Committee must be invited to participate in the assessment. At the conclusion of the assessment, all participants will receive a copy of the Hazardous Occurrence Investigation report.

When airborne asbestos-containing materials are likely present at level of at least 50% of the exposure limit, a control plan shall be instituted. The control plan must address the following:

- a record of where asbestos-containing material was found
- written procedures for control
- a communication plan with building Employer representatives
- medical surveillance, when applicable
- training of employees

**6.2.10. Emergency work procedures**

A building’s Asbestos Management Plan outlines emergency work procedures.

**6.2.11. Records**

Records shall be kept in accordance with the following:

<b>Document</b>	<b>Length of retention – electronic copy</b>	<b>Information on site</b>
Annual record of inspection	30 years (including beyond the life of the building / disposal of the building / building no longer managed by PSPC)	Most recent copy
Asbestos Management Plan	30 years (including beyond the life of the building / disposal of the building / building no longer managed by PSPC)	Most recent copy
Asbestos Containing Materials inventory	30 years (including beyond the life of the building / disposal of the building / building no longer managed by PSPC)	Most recent copy
Test results (air and bulk sampling)	30 years (including beyond the life of the building / disposal of the building / building no longer managed by PSPC)	Most recent copy
Medical test records	30 years from date of test - Refer to human resources document storage requirements	Refer to human resources requirements

In addition, for records noted above to be kept on site, these shall be retained on site as long as a building is occupied or managed by PSPC. For electronic copies (other than medical

records), these records shall be saved and retained in GCDOCS as per the above retention schedule, and managed subject to any instructions for a hazardous substances information management system.

All other documents related to asbestos management and abatements shall be maintained and disposed of as per PSPC's departmental policy *Records Management and Information Holdings (044)*, and the associated Departmental Records Retention and Disposal Plan.

## 7. Definitions

**Asbestos:** naturally occurring fibrous silicates, including chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.

**Asbestos containing material (ACM):** any material found to contain asbestos that is at or above the limit defined by provincial standards, as determined by the standard Polarized Light Microscopy (PLM) or Transmission Electron Microscopy (TEM) methods for the analysis of bulk samples.

**Asbestos-related work:** work that will disturb friable or non-friable asbestos-containing material in the area.

**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.

**Assets and facilities for which PSPC is the custodian:** any federal real property or federal immovable acquired or leased by the Department for the purposes of the Department under the administration of the Minister of Public Services and Procurement.

**Construction:** any work or undertaking in connection with a project, including, but not restricted to, erection, alteration, repair, dismantling, demolition, structural maintenance, painting, land clearing, earth moving, grading, excavating, trenching, digging, boring, drilling, blasting or concreting; the installation of any machinery or plant; and ship repair/maintenance when in dry dock.

**Custodian:** a department whose minister has administration of real property for the purposes of department or agency programs, or for the accommodation of other federal departments and agencies.

**Department:** Public Service and Procurement Canada (PSPC)

**Employee:** a person employed in the part of the public service to which the Public Service Commission has exclusive authority to make appointments; this includes students and part-time employees and casual workers.

**Employer:** a person who employs one or more employees, and includes an employer's organization and any person who acts on behalf of an employer.

**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 his or her department's Workplace Health and Safety Committee, in compliance with the *Canada Labour Code*, Part II.

**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 asbestos product:** asbestos-containing material that, when dry, can be crumbled, pulverized or powdered by hand pressure. This definition also includes dust or debris arising from non-friable materials that are, or will become, crumbled, pulverized or powdered, i.e. asbestos-containing plaster disturbed by demolition.

**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.

**Hazard:** any source of potential damage, harm or adverse effects on life, health, property or environment at work. It refers to any biological, chemical, ergonomic, physical, psychosocial or safety factor that is reasonably likely to cause harm or damage to humans, other organisms, or the environment in the absence of its control. Sometimes a hazard is referred to as being the actual harm or the health effect it caused rather than the hazard. For example the disease tuberculosis might be called a hazard by some but in general the tuberculosis-causing bacteria would be considered the "hazard" or "hazardous biological agent". Exposure to tuberculosis would be the hazardous incident.

**Hazardous occurrence:** an event occurring at a PSPC-managed building or worksite, or through the course of an employee's work, that results in, or has the potential to result in, a fatality, injury, illness, exposure to a hazardous substance or property damage, or an escapement of a hazardous material. For the purpose of investigating, recording and reporting hazardous occurrences, the following are included under this term: disabling injuries, minor injuries and near-misses.

**Hazardous substance:** a controlled product that is a chemical, biological or physical agent that, by reason of a property that the agent possesses, is hazardous to the safety or health of a person exposed to it.

**Investigation:** act or process of a qualified person investigating a hazardous occurrence; a careful search or examination in order to discover facts, identify the root cause and contributing factors to produce a report of corrective measures.

**Manager:** an employee who forms part of a management team and is accountable for exercising delegated authority over human and financial resources to accomplish the objectives of the organization.

**Personal protective equipment:** any clothing, equipment, or device worn or used by a person to protect that person from injury or illness, and to minimize exposure to specific occupational hazards.

**Professional certification:** a document which has been validated by the signature of a person formally certified by a professional body.

**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; and
- has knowledge of any potential or actual danger to health or safety in the workplace.

Examples of a qualified person include a Professional Engineer, Industrial Hygienist, or someone who has another professional designation for the purposes of this standard that are related to asbestos management.

**Risk:** for the purposes of this document, the potential for harm befalling an individual, given the probability of an incident occurring, combined with the potential severity of the harm.

**Real property contractor:** a person, entity, or entities named in contracts to supply services to Canada as defined in procurement mechanisms such as RP-1 property management and project delivery services; RP-2 National Capital Area property management, project delivery services and optional services; and subsequent real property procurement mechanisms RP-n.

**Service provider:** 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.

**Supervisor:** a person who has the responsibility for day to day supervision of other employees, e.g. assigns work, sets priorities, assesses performance, and approves or recommends approval of leave.

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

**Workplace Health and Safety Committee:** as defined in the *Canada Labour Code*, Part II, Occupational Health and Safety, Sections 134.1, 135, and 136.

**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 any concentration of asbestos measured in a composite sample taken in accordance with provincial/territorial sampling and analysis standards is considered an asbestos-containing material.

## 8. References

### Federal acts and regulations:

[Canada Labour Code, Part II](#)  
[Canada Occupational Health and Safety Regulations](#)  
[Canadian Environmental Protection Act](#)  
[Hazardous Materials Information Review Act](#)  
[Hazardous Products Act](#)

### National Joint Council publications:

[Occupational Health and Safety Directive](#)  
[Occupational Health Evaluation Standard](#)

### PSPC publications:

[Directive on occupational health and safety - Hazard prevention program \(007-1\)](#)  
[Policy on occupational health and safety \(007\)](#)  
[Procedure on Respiratory Protection](#)  
[Records management and information holdings](#)  
[Standard on Hazardous Occurrence Investigation and Reporting](#)  
[Standard on Personal Protective Equipment and Clothing for Employees](#)  
*PWGSC's Invitation to Offer document*

### Other publications:

Provincial and territorial occupational health and safety legislation  
Provincial and territorial environmental protection legislation  
American Conference of Governmental Industrial Hygienists (ACGIH), TLVs and BEIs Book (as amended from time to time)  
[Canadian National Master Construction Specification \(NMS\)](#) - Asbestos Abatement Precautions

### Attachments

Annex A – Evaluation of Asbestos-Containing Materials and Recommendations for Control  
Annex B – Asbestos-containing Material Reassessment

## 9. Enquiries



Please direct all enquiries regarding this standard to:  
Senior Director, Environment, Health & Safety  
Technical Services  
Real Property Branch, PSPC

## Evaluation of Asbestos-Containing Materials and Recommendations for Control

### 1. Assessment of condition

#### 1.1. Spray-applied fireproofing, insulation and texture finishes

In evaluating the condition of asbestos-containing material spray applied as fireproofing, thermal insulation, or texture, decorative or acoustic finishes, the following criteria apply:

**GOOD** Surface of material shows no significant signs of damage, deterioration or delamination. Up to one percent of the surface area having visible damage to surface is allowed within range of GOOD. Evaluation of sprayed fireproofing requires the assessor to be familiar with the irregular surface texture typical of sprayed asbestos products. GOOD condition includes un-encapsulated or unpainted fireproofing, insulation or texture finishes where no delamination or damage is observed, and encapsulated fireproofing, insulation 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 one percent damage to surface of asbestos-containing material 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 reassessment form.

**NOTE:** FAIR condition is not used or considered as a valid criterion in the evaluation of sprayed fireproofing, sprayed insulation, or texture coat finishes.

The evaluation of asbestos-containing material 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 area are advised to be watchful for asbestos-containing material debris prior to accessing or working above ceilings in areas of buildings with asbestos-containing material, regardless of the reported condition.

#### 1.2. Detection limit of bulk analysis

Asbestos-containing material 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 (refer to *Asbestos Management Standard*, Section 6.1.2.2). Except in the case of vermiculite, the provincially/territorially-regulated limits or generally-accepted guidelines to consider a

material as an asbestos-containing material, subject to asbestos in buildings regulation, are provided as follows:

**MINIMUM CONCENTRATION TO CONSIDER AS AN ASBESTOS-CONTAINING MATERIAL (BY PROVINCE)**

QUEBEC (includes part of National Capital Area)	0.1%
MANITOBA, SASKATCHEWAN (for friable material)	0.1%
ONTARIO (includes part of National Capital Area) BRITISH COLUMBIA	0.5%
NOVA SCOTIA	0.5%
All other provinces and territories, (non-friable material in Manitoba, Saskatchewan)	1.0%

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

Vermiculite is considered an asbestos-containing material in the presence of any concentration of asbestos measured in a composite sample taken in accordance with provincial/territorial sampling standards.

**1.3. Mechanical insulation**

In evaluating the condition of mechanical insulation (on boilers, breeching, ductwork, piping, tanks, equipment, etc.) the following criteria are used:

**GOOD** Insulation is completely covered in jacketing and exhibits no evidence of damage or deterioration, i.e. 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 penetration 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 should range from 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. In these circumstances, it is not possible to observe each foot of mechanical insulation from all angles.

**1.4. Non-friable and potentially-friable materials**

Non-friable materials generally have little potential to release airborne fibres, even when damaged by mechanical breakage, but can become friable if disturbed by drilling or abrading.

However, some non-friable materials, e.g. 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 will be treated as a friable product.

#### **1.4.1. Asbestos-containing material debris**

##### **1.4.1.1. Debris from friable asbestos-containing material**

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

The presence of fallen asbestos-containing material from damaged non-friable asbestos-containing material is reported separately from the non-friable asbestos-containing material source. Fallen non-friable asbestos-containing material that has become friable is reported as debris. Workers are advised to be watchful for the presence of debris prior to accessing, or working in proximity to, mechanical insulation or above ceiling areas of buildings with asbestos-containing material, regardless of the reported presence or absence of debris.

#### **1.4.2. Evaluation of accessibility**

The accessibility of building materials known or suspected of being asbestos-containing material 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 (e.g. basketball on gym ceiling) may result in disturbance of asbestos-containing material 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 8'0" where use of a ladder is required to reach the asbestos-containing material. Only refers to asbestos-containing material materials that are exposed to view, from the floor or ladder, without removing or opening other building components such as ceiling tiles, or service access doors or hatches. 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 such as a ventilation plenum. Includes rarely-entered crawl spaces, attic spaces, etc. Observations are 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 asbestos-containing material. Evaluation of condition and extent of asbestos-containing material is limited or impossible, depending on the assessor's ability to visually examine the materials in areas rated Access (D).

### 1.4.3. Action matrix and action descriptions

The action matrix below (Table 1) prioritizes the corrective actions in terms of potential health risk based on condition, accessibility, and potential for future disturbance.

The following factors shall be considered in making site-specific recommendations for corrective actions in conformance with the existing applicable regulation or codes of practice in most provinces, and for the practical implementation of asbestos management:

1. Asbestos-containing material 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:
  - Asbestos-containing mechanical insulation found in FAIR condition in ACCESS (B) or ACCESS (C) EXPOSED areas is to be repaired.
  - Asbestos-containing mechanical insulation found in FAIR condition in ACCESS (B) and ACCESS (C) EXPOSED areas, where future damage to the asbestos-containing material is likely to occur, is to be removed.
3. Asbestos-containing material 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 asbestos-containing material in ACCESS (A) will be considered where damage is possible by ongoing 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 asbestos-containing material, are treated as friable materials and the appropriate action, depending on

accessibility, is determined from the action matrix for friable asbestos-containing material.

- 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.

**Table 1: Action matrix for determining actions required based on the location and condition of asbestos-containing materials.**

ASBESTOS-CONTAINING MATERIAL				
ACCESS	CONDITION			DEBRIS
	GOOD	FAIR	POOR	
(A)	ACTION 5/7 <sup>1</sup>	ACTION 5/6 <sup>2</sup>	ACTION 3	ACTION 1
(B)	ACTION 7	ACTION 6/5 <sup>3</sup>	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

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

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

<sup>3</sup> Remove asbestos-containing material in **ACCESS (B)/FAIR** condition if asbestos-containing material is likely to be disturbed.

**ACTION 1** Immediate clean-up of debris that is likely to be disturbed.

Access that is likely to cause a disturbance of the ASBESTOS-CONTAINING MATERIAL DEBRIS is to be restricted and clean up ASBESTOS-CONTAINING MATERIAL 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** Entry into areas with asbestos-containing material debris requires intermediate risk precautions.

At locations where ASBESTOS-CONTAINING MATERIAL DEBRIS can be isolated in lieu of removal or cleaned up, appropriate means to limit entry to the area is to be used. Access to the area is restricted to persons using intermediate risk asbestos-work precautions. The precautions will be required until the ASBESTOS-CONTAINING MATERIAL DEBRIS has been cleaned up, and the source of the DEBRIS has been stabilized or removed following intermediate risk (if minor) or high risk precautions.

**ACTION 3** Asbestos-containing material removal required for compliance.

Asbestos-containing material must be removed for compliance with regulatory requirements and good practice. Use 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 intermediate risk precautions.

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

**ACTION 5** Proactive asbestos-containing material removal.

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

**ACTION 6** Asbestos-containing material repair.

Asbestos-containing material may be repaired if 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 repair work, asbestos-containing material is to be treated as being in GOOD condition and ACTION 7 is to be implemented. If asbestos-containing material 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.

Routine surveillance of the asbestos-containing material is to be instituted. Trained workers or service providers must use appropriate asbestos precautions (low, intermediate or high) during disturbance of the remaining asbestos-containing material.

## Asbestos-containing Material Reassessment

The following outlines the **minimum** requirements to include in all Asbestos Reassessment Reports.

### Table of contents

The table of contents is to include a list of tables and a list of appendices. At minimum, appendices include:

- photographs of damaged asbestos (clearly labeled linking to findings tables); and
- the requirements set out in the *Asbestos Management Standard*.

### Executive summary

The following must be noted when preparing the executive summary:

1. The executive summary is to be written in layman's terms. Every effort must be made to use plain language, and where technical information is used, context must be given for the average reader.
2. Reference is to be made to the previous year's assessment/reassessment, and the status of any areas previously identified as Action level 1.
3. When identifying asbestos materials, it is to be noted if the location is accessible to building occupants, maintenance staff, or service providers.
4. The term "not compliant" is only to be used when referring to a regulation - the exact title of the regulation is to be cited, as well as the specific section where there is a compliance issue. NOTE: guidelines, and departmental/Employer policies and processes are not regulatory items and "compliance" terminology cannot be used for these type of documents.

### Introduction

The introduction is to include the following elements:

- The regulatory and "other" requirements are to be outlined:
  - applicable requirements under the *Canada Labour Code*
  - applicable provincial acts and regulations
  - RPB policy/directive/standard requirements
- Purpose
- Scope
- Limitations of the assessment conducted

### Methodology

Information must be included as to how RPB documentation is used when assessing condition of materials, as well as accessibility.

## Survey findings

This section must include a general description of the building. Findings are to be presented in a table format as follows:

- Table 1 – Summary of Findings (Action level 1 – This must include any newly-discovered materials covered in Table 3 which are considered Action level 1). A note must be included stating that items in this table should be actioned as soon as possible.
- Table 2 – Summary of Findings (for all materials other than Action level 1). A note must be included stating that items in this table are less urgent and can be addressed through long term action plans.
- Table 3 – Summary of Findings (newly-discovered materials – if applicable)

Each table in which the findings are presented must use the following headings (example provided):

Floor	Location	Material Description	Quantity	Condition	Accessibility	Action Level
8th	Rm 812	Pipe Fitting (paring cement)	5 fittings	Good	C (concealed)	7

## Conclusions and recommendations

State any conclusions reached and recommendations for further action.

## Abatement strategies

If applicable, provide abatement strategies, including the following:

- the complexity of the abatement (low, intermediate, or high risk); and
- a general description of the project, as well as the estimated scope/size of the abatement.