

Section 02082 Site Work – Lead Abatement

PART 1 – GENERAL

1.1 **General Conditions and Related Work**

- 1.1.1 This section forms a part of the Bid Document and should be read in conjunction with all other Sections and Divisions in order to comply with the requirements of the General Conditions of the Project.
- 1.1.2 It is the intent that work performed as outlined in this section will result in the complete removal and disposal or decontamination of all lead-containing materials, existing lead-contaminated materials and materials and/or surfaces that become contaminated by lead as a result of the work specified by this Section. The referenced materials include construction materials (paints, and coatings), existing structures, building components, and debris.
- 1.1.3 Removal of identified hazardous materials shall be carried out in accordance with Occupational Health and Safety Act and the following requirements:
- 1.1.3.1 Ontario Ministry of Labour Guideline: Lead on Construction Projects (issued September 2004, updated April 2011);
- 1.1.3.2 Designated Substance Regulation, O. Reg. 490/09; and
- 1.1.3.3 Regulation for Construction Projects, O. Reg. 213/91.
- 1.1.4 Dispose of all waste as specified in applicable sections of the specifications document.
- 1.1.5 The consultant may perform area and personal air monitoring to verify the adequacy of the respirators used by the contractor and effectiveness of dust suppression methods. Contractor's personnel shall co-operate with the consultant during the collection of the air samples.
- 1.1.6 Provide all equipment, material, services, supervision and labour required or specified to complete the scope of work of this project as described in the Project and Specifications Documents.
- 1.1.7 Provide and maintain, in compliance with applicable regulation, codes and by-laws, sanitary temporary water closets and washbasins for use of workers.
- 1.1.8 The contractor shall inform the consultant upon discovery of additional hazardous materials during abatement operation procedures.

1.2 **Description of Work**

- 1.2.1 Before submitting a bid, confirm the scope of work of the project by visiting the site and reading the entire Bid documents. The information presented is for general information purposes and should not be used as the only basis for submitting a bid. It is the contractor's responsibility to verify the quantities of the materials to be removed.
- 1.2.2 **Work Area 6: Removal or Disturbance of Lead-Containing Paints Throughout the Project Area:** Work in the area shall be carried out using Type 1 Operation procedures (Section 02082, Sub-Section 3.1) as follows:
- 1.2.2.1 Remove all moveable objects from the work area.
- 1.2.2.2 Ensure that the work area is separated from the surrounding public area using barriers or temporary fences and warning signs.
- 1.2.2.3 Protect the floor in the work area with rip-proof poly sheeting.
- 1.2.2.4 Pre-clean all stationary objects and items present in the work area using vacuum units equipped with HEPA filters and wet wiping.

- 1.2.2.5 Remove and dispose of the lead-containing off-white paint throughout the Subject Location, as required to accommodate the renovation project.
- 1.2.2.6 For chemical removal of lead-containing paint from surfaces, use odour-free paint dissolving products, as required, to ensure all materials have been removed. The work shall be done only by means of non-powered hand held tools, no sanding or scraping, and wetted to control the spread of dust. The use of any alternative method of removal shall be discussed with the Environmental Consultant before the bid closing period. The Environmental Consultant shall have the final approval regarding any new proposed methodology.
- 1.2.2.7 The material specified for removal contains lead. Half-face negative pressure respirators equipped with P100 filters shall be worn.
- 1.2.2.8 Clean the area after abatement.
- 1.2.3 Return the work area to as found conditions.

1.3 Definitions

- 1.3.1 Abatement: Procedures to control dust migration from lead-containing construction materials, existing structures, building components, and debris from manufacturing processes involving lead. Includes cutting, blasting, welding, burning, and removal.
- 1.3.2 Air Monitoring: The process of measuring the lead content in a specific volume of air (mg/m³) in a stated period of time.
- 1.3.3 Airtight: Prohibiting air movement between contaminated area(s) and control area(s) during ingress and egress the work area, consisting of two curtained doorways at least 6 feet apart.
- 1.3.4 Ambient Air Monitoring: Sampling for airborne concentrations of lead adjacent to the Work Area.
- 1.3.5 Authorized Visitor: The building Owner or his representative, persons of any regulatory or other agency having jurisdiction over the project and the lead abatement Consultant or his representative.
- 1.3.6 Barrier: An obstruction (wall, ceiling, floor) that separates work area(s) from adjacent control area(s) to prevent cross contamination.
- 1.3.7 Chemical Stripping Agent Neutralizer: Chemical stripping agent neutralizers may be used on exterior surfaces only. Neutralizers shall be compatible with and not harmful to the substrate that they are applied to and the stripping agent that has been applied to the surface substrate.
- 1.3.8 Chemical Stripping Removers: Chemical removers shall contain no methylene chloride products and shall be compatible with and not harmful to the substrate that they are applied to.
- 1.3.9 Contractor/Supervisor: An individual who supervises lead abatement work and has the proper qualifications and training as specified in this document.
- 1.3.10 Control Area: An area which is considered uncontaminated and is suitable for regular occupancy.
- 1.3.11 Critical Barrier: One or more layers of plastic sealed over all openings into a regulated area or any other similarly placed physical barrier sufficient to prevent airborne lead in a regulated area from migrating to an adjacent area.
- 1.3.12 Curtained Doorway: An access point to allow ingress or egress from one room to another while permitting minimal air movement between the rooms, constructed by placing two overlapping sheets of rip-proof plastic over an existing or temporarily framed doorway, securing each along the top of the doorway, securing the vertical edge of one along one vertical side of the doorway, and securing the vertical edge of the other sheet along the opposite vertical side of the doorway. The free bottom edge of the plastic sheets shall be weighted to ensure proper closure. The plastic sheets shall overlap by no less than 1.5 meters.
- 1.3.13 Demolition: The razing, removing or wrecking of any building component, assembly or system together with any associated handling operations.

- 1.3.14 Decontamination Area: An enclosed passage-way adjacent and connected to the work area and consisting of a dirty room, shower area, and clean room, which is used for the decontamination of workers, materials, and equipment that are contaminated with lead dust and/or debris.
- 1.3.15 Diocetylphthalate (DOP) Test: A test method that uses Diocetylphthalate aerosol to challenge a HEPA filter-equipped negative pressure unit to determine its integrity and effectiveness to filter out lead dust, fume or mist.
- 1.3.16 Dirty Room: A contaminated area or room which is part of the worker decontamination enclosure system, with storage for contaminated clothing and equipment.
- 1.3.17 Disposal: Procedures necessary to transport and dispose of the lead contaminated material(s) stripped and removed from the work area(s) at an approved waste disposal site in compliance with the applicable environmental regulations.
- 1.3.18 Disposal Bag: A 0.15 mm 6 mil thick, leak-tight polyethylene bag used for transporting lead waste from containment into a lead waste container for disposal.
- 1.3.19 Disturbance: Activities that disrupt the matrix of Lead or generate visible dust and debris.
- 1.3.20 Emery 3004 – a compound (a poly-alpha olefin) that may be substituted for DOP in HEPA filter testing.
- 1.3.21 Encapsulation: Procedures necessary to coat all lead-containing materials with an encapsulate to control the possible release of lead dust, fume, or mist into the ambient air.
- 1.3.22 Enclosure: All herein specified procedures necessary to complete the enclosure of all lead-containing material and dust behind airtight, impermeable, permanent barriers.
- 1.3.23 Filtration System for Water: A multistage system for filtering water from the decontamination shower and wastewater. The system is usually manufactured with two filters: a primary filter and a secondary filter. The primary filter collects and retains particles that are 20 microns or larger and the secondary filter removes particles that are 5 microns or larger.
- 1.3.24 HEPA Filter Equipment: High efficiency particulate air filtered vacuuming equipment with a filter system capable of collecting and retaining lead dust, fume, or mist. Filters shall be capable of trapping and retaining at least 99.97 percent of 0.3 micrometer diameter particles.
- 1.3.25 Lead: The term includes elemental lead, and/or inorganic and organic lead compounds derived from chemically treated and/or altered elements (i.e. paints, plastics, pigments, glasses, and rubber compounds).
- 1.3.26 Lead Cleaning Agent: A cleaning agent suitable for lead dust. Acceptable detergents include products with a high phosphate content (containing at least 5% trisodium phosphate) and/or phosphate-free lead dissolving agents such as Ledisolv™ or similar product.
- 1.3.27 Lead-Containing Material: Any material analyzed and found to have a detectable concentration of lead.
- 1.3.28 Lead Leachate Material: Any material analyzed and found to have a concentration equal to or greater than 5.0 milligrams per litre (mg/l) or 100 milligrams per kilogram (mg/kg)/ micrograms per gram (µg/g) as per O. Reg. 558, Schedule 4, *Leachate Quality Criteria*, February 2001.
- 1.3.29 Lead Surface Contamination: Any surfaces analyzed and found to have a concentration equal to or greater than 40 micrograms per square feet (µg/ft²) or 4 micrograms per 100 square centimetres (µg/cm²) for floors, 250 µg/ft² (25 µg/cm²) for window sills, and 400 µg/ft² (40 µg/cm²) for window troughs as per the U.S. Environmental Protection Agency (EPA) Lead, *Identification of Dangerous Levels of Lead*, Final Rule, January 2001 (40 CFR Part 74).
- 1.3.30 Lead Waste Container: An impermeable container acceptable to a disposal site and Ministry of the Environment. It shall be labeled as required by the Ministry of the Environment and Transport Canada.

- 1.3.31 Lead Work Area: An area where lead removal operations are performed which is isolated by physical boundaries to prevent the spread of lead dust or debris.
- 1.3.32 Negative Pressure Fan System: An air purifying fan system located within or outside the isolated work area, which draws air out of the work area through a HEPA filter and discharges this air directly to the exterior of the building, thus keeping the static air pressure in the work area lower than in adjacent areas and preventing infiltration of contaminated air from work area to adjacent areas. This system shall be equipped with an alarm to warn of system breakdown, shall maintain a minimum pressure differential of 0.03" water gauge relative to adjacent areas outside of work area(s) and shall be equipped with an instrument to continuously monitor and automatically record pressure differences.
- 1.3.33 Negative Pressure Respirator: A respirator in which the air inside the respiratory inlet covering is negative during inhalation in relation to the air pressure of the outside atmosphere and positive during exhalation in relation to the air pressure of the outside atmosphere.
- 1.3.34 Powered Air Purifying Respirator (PAPR): A full-face mask into which filtered air is pumped at approximately 100 – 150 litres per minute (4 – 6 cubic feet per minute). The PAPR consists of a full-face mask, a battery pack, an air pump, high efficiency filter and hoses.
- 1.3.35 Personal Monitoring: Sampling of airborne lead concentrations within the breathing zone (within 12 inches of the mouth) of a worker.
- 1.3.36 Personnel: Supervisors, Contractor employees, subcontractor employees.
- 1.3.37 Positive Pressure Respirator: A respirator that maintains a positive pressure inside the facepiece during inhalation and exhalation in relation to the atmospheric pressure.
- 1.3.38 Shower Room: A room between the clean room and the equipment room in the worker decontamination enclosure system which supplies hot and cold running water for complete showering practices during decontamination. The shower room provides an airtight barrier between contaminated and clean areas.
- 1.3.39 Supplied-air Respirator – an accepted respirator and air-supply hose with a hood/helmet, a tight fitting face-piece that is supplied with compressed breathing air from a compressed breathing air system.
- 1.3.40 Tape-Sealed Polyethylene Sheets: Rip-proof polyethylene sheets or polyethylene sheets of type and thickness as specified, sealed with tape along the edges, around objects, over cuts and in other locations as required to provide a continuous polyethylene membrane to protect underlying surfaces from water damage and damage by sealant and to prevent the escape of lead dust, fume or mist through the sheeting into a clean area.
- 1.3.41 Wet Cleaning: The process of eliminating lead dust and/or debris from building surfaces and objects by using cloths, mops, or other cleaning tools dampened with a lead cleaning agent.
- 1.3.42 Work: Includes all labour, supervision, materials and equipment required for the complete execution of the project as specified in the project.
- 1.3.43 Work Decontamination Enclosure System: A decontamination system for workers, consisting of a clean room, a shower room, and an equipment room. One entrance to the clean room shall be outside of the contaminated area. One entrance to the equipment room shall be connected directly to the contaminated area.
- 1.4 Work Schedule**
- 1.4.1 It is the responsibility of the contractor to provide the necessary manpower and work shifts to meet the schedule as specified below:
- 1.4.2 The Contractor shall, at no extra cost to the owner, be responsible for the completion of work required or scheduled to be performed on weekends, holidays and after regular hours and shall be carried out as required to meet the schedule specified.

- 1.4.3 The start date and work hours for the project are to be determined by the PDSB.
- 1.4.4 In all situations where the Contractor fails to meet the specified schedule, the Contractor shall pay all costs of inspection and air monitoring by the Consultant.

1.5 Quality Assurance

- 1.5.1 Ensure that work progresses according to schedule.
- 1.5.2 Ensure that work complies with all the requirements of the applicable regulations, guidelines and manuals.
- 1.5.3 Ensure that no water runoff or airborne lead contaminates control area(s) outside the lead removal work area(s). The Consultant has been given authorization by the Owner to stop any work where contamination of control area(s) is suspected. The Contractor shall be responsible for all costs to rectify the problem.
- 1.5.4 Use only skilled and qualified workers for all trades required to work on this project.
- 1.5.5 Only the lead abatement Contractor, and never the Consultant, is responsible for the following:
- 1.5.5.1 Safety programs and precautions required by applicable regulations for the work being performed.
- 1.5.5.2 Control over the acts and omissions of the Contractor's workers, agents, subcontractors and other employees of the Contractor required to perform work on the project.
- 1.5.5.3 Control over construction techniques, methods, means or procedures.

1.6 Regulations

- 1.6.1 The Contractor shall comply with all local, provincial and federal requirements (regulations, codes, standards and guidelines) relating to lead and other work activities being carried out.
- 1.6.2 In case of conflict among the above mentioned requirements or with these specifications, the more stringent requirements shall apply.
- 1.6.3 Perform work following the requirements of the various regulations in effect at the time the work is being carried out.
- 1.6.4 The regulations, codes, standards and guidelines shall include, but are not limited to:
- 1.6.4.1 Ontario Occupational Health and Safety Act.
- 1.6.4.2 Ministry of Labour Occupational Health and Safety Act requirements for construction projects including Ontario Regulation 490/09 Designated Substances.
- 1.6.4.3 Ministry of Labour Occupational Health and Safety Act Ontario Regulation 213/91 Construction Projects, as amended to O. Reg. 628/05.
- 1.6.4.4 Ontario Ministry of Labour; Guideline: Lead on Construction Projects, Occupational Health & Safety Branch, April 2011..
- 1.6.4.5 The U.S Department of Housing and Urban Development; Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, June 1995.
- 1.6.4.6 The U.S Department of Housing and Urban Development; Identification of Dangerous Levels of Lead, January 2001.
- 1.6.4.7 Ontario Ministry of Environment Regulations for the disposal of hazardous waste, including R.R.O. 1990, Regulation 347 General – Waste Management, as amended to O. Reg. 326/03.
- 1.6.4.8 Federal Transportation of Dangerous Goods Act, 1992 and associated federal Transportation of Dangerous Goods Regulation, SOR/DORS/2001-286 and the Ontario Dangerous Goods Transportation Act, R.S.O. 1990 Chapter D.1.

1.6.4.9 WHMIS Regulations.

1.7 Supervision

1.7.1 The Contractor shall provide a trained and qualified shift supervisor for each and every shift during which lead removal and clean-up is being carried out. The Owner reserves the right to stop all work if this requirement is not complied with, at no additional charge to the Owner.

1.7.2 The qualification of the supervisor shall meet the requirements specified under Section 1.5 Submittals above.

1.7.3 The shift supervisor shall have the authority to make decisions and take actions with respect to production, manpower and equipment.

1.7.4 Obtain approval from the Owner or his representative before replacing supervisory personnel.

1.7.5 At the request of the Owner or his representative, the Contractor shall, without asking for explanation, replace supervisory personnel with 2 days from receiving the Owner's written request.

1.8 Notifications

1.8.1 The Contractor shall be responsible for immediately notifying the following, orally and in writing, prior to any work on this project commencing:

1.8.1.1 The land fill site which agreed to accept the waste as per the requirements of Regulation 558/00.

1.8.1.2 The Fire Marshall, in cases where the execution of the work will result in blocking building exists or when turning off, removing or temporarily altering fire alarms.

1.9 Proscriptions

1.9.1 The use of motorized lift equipment in the work area(s) is not allowed.

1.9.2 The use of compressed air for removal or clean-up of lead dust and debris from any surface is not allowed.

1.9.3 Dry sweeping is prohibited during the removal and cleaning activities.

1.9.4 Smoking, eating, drinking or chewing is not allowed in the work area(s).

1.9.5 Unauthorized persons or persons not using proper personal protective equipment shall not be allowed to enter the work area(s).

1.9.6 No entry into the work area(s) shall be permitted to any person who has facial hair growth that prevents the establishment of a proper seal between the respirator and the skin.

1.9.7 The use of torches, propane-fired heaters and other open flames shall not be permitted in the lead work area(s).

1.10 Equipment and Material Protection and Replacement

1.10.1 Before starting the removal operations, the Contractor shall perform a survey to document existing damage in all areas where lead removal will be carried out or in areas where transportation of waste will take place.

1.10.2 The Contractor shall be responsible for protecting all equipment and materials within, and in the vicinity of, the work area(s).

1.10.3 The Contractor shall be responsible for replacing all equipment and materials that become damaged as a result of the work being carried out by the Contractor at no additional cost to the owner.

1.11 Worker and Visitor Protection

- 1.11.1 Instruct all personnel (workers and visitors) in all aspects of work procedures and protective equipment before permitting entry into the lead abatement work area(s).
- 1.11.2 A experienced person (as defined by the Occupational Health and Safety Act) shall provide all the training and instructions.
- 1.11.3 Instructions and training shall include, but shall not be limited to, the following:
 - 1.12.1.1 Entry and exit from lead abatement work area(s).
 - 1.12.1.4 Work practices and personal hygiene.
 - 1.12.1.3 The use, cleaning and care of respirators and protective clothing.
 - 1.12.1.4 Protective measures and work procedures.
- 1.9.2 Lead work area entry and exit procedures shall be posted in the clean room of the decontamination unit.
- 1.9.3 Respiratory Protection:
 - 1.12.3.1 All personnel required to wear respirators shall be fit tested.
 - 1.12.3.2 Each worker or visitor required to enter an lead abatement work area shall be provided with a personally issued respirator that is:
 - 1.9.3.2.1 Appropriate for the work that is being carried out.
 - 1.9.3.2.2 Acceptable to the Ministry of Labour, Occupational Health and Safety Division.
 - 1.12.3.3 The worker shall be responsible for wearing a respirator that is issued by the Contractor.
 - 1.12.3.4 The following criteria, as outlined in Table 1, shall be followed when selecting an appropriate respirator:

Table 1: Respirators

WORK CLASSIFICATION	REQUIRED RESPIRATOR
Type 1 Operations (<0.05 mg/m³)	
<ul style="list-style-type: none"> • Application of lead-containing coatings with a brush or roller. • Removal of lead-containing coatings with a chemical gel or paste and fibrous laminated cloth wrap. • Removal of lead-containing coatings or materials using a power tool that has an effective dust collection system equipped with a HEPA filter. • Installation or removal of lead-containing sheet metal. • Installation or removal of lead-containing packing, babbitt or similar material. • Removal of lead-containing coatings or materials with a non-powered hand tool, other than manual scraping and sanding. • Soldering. 	<p>Respirators should not be necessary if the general procedures listed in Section 6.1 are followed and if the level of lead in the air is less than 0.05 mg/m³. However, if the worker wishes to use a respirator, a half-mask particulate respirator with N-, R-, or P-series filter, and 95, 99, or 100% efficiency should be provided.</p>
Type 2a Operations (>0.05 to 0.50 mg/m³)	NIOSH Assigned Protection Factor of 10
<ul style="list-style-type: none"> • Welding or high temperature cutting of lead-containing coatings or materials outdoors. This operation is considered a Type 2a operation only if it is short-term, not repeated, and if the material has been stripped prior to welding or high temperature cutting. Otherwise, it will be considered a Type 3a operation. • Removal of lead-containing coatings or materials by scraping or sanding using a non-powered hand tools. • Manual demolition of lead-painted plaster walls or building components by striking a wall with a sledge hammer or similar tool. 	<p>Half-mask particulate respirator with N-, R-, or P-series filter, and 95, 99, or 100% efficiency.</p>
Type 2b Operations (>0.50 to 1.25 mg/m³)	NIOSH Assigned Protection Factor of 25
<ul style="list-style-type: none"> • Spray application of lead-coatings. 	<p>Powered air purifying respirator equipped with a hood or helmet, and any type of high efficiency filter.</p> <p>Supplied air respirator equipped with a hood or helmet and operated in a continuous flow mode.</p>
Type 3a Operations (>1.25 to 2.50 mg/m³)	NIOSH Assigned Protection Factor of 50
<ul style="list-style-type: none"> • Welding or high temperature cutting of lead-containing coatings or materials indoors or in a confined space. • Burning of a surface containing lead. • Dry removal of lead-containing mortar using an electric or pneumatic cutting device. • Removal of lead-containing coatings or materials using power tools without an effective dust collection system equipped with a HEPA filter. • Removal or repair of a ventilation system used for controlling lead exposure. • Demolition or cleanup of a facility where lead-containing products were manufactured. • An operation that may expose a worker to lead dust, fume, or mist that is not a Type 1, Type 2, or Type 3b operation. 	<p>Full-facepiece air purifying respirator with N-, R-, P-series filters, and 100% efficiency.</p> <p>Tight-fitting powered air purifying respirator with a high efficiency filter.</p> <p>Full-facepiece supplied air respirator operated in demand mode.</p> <p>Half-mask or full-facepiece supplied air respirator operated in continuous-flow mode.</p>
Type 3b Operations (>2.50 mg/m³)	NIOSH Assigned Protection Factor of ≥100
<ul style="list-style-type: none"> • Abrasive blasting of lead-containing coatings or materials. 	<p>Type CE abrasive-blast supplied respirator operated in a positive pressure mode with a tight-fitting half-mask facepiece.</p>
<ul style="list-style-type: none"> • Removal of lead-containing dust using an air mist extraction system. 	<p>Full-facepiece supplied air respirator operated in positive-pressure or other positive-pressure mode.</p>

- | | |
|--|--|
| | |
|--|--|
- 1.12.3.5 Respiratory protection systems shall be certified by the National Institute for Occupational Safety and Health (NIOSH), the British Standards Institution or any other testing agency that is acceptable to the Ministry of Labour.
 - 1.12.3.6 Respirator shall be stored in a clean location such as the clean room of the decontamination unit. This room can also be used for charging PAPR batteries.
 - 1.12.3.7 The procedures specified by the equipment manufacturer shall be followed while using and maintaining the respirators.
 - 1.12.3.8 Respirators shall be cleaned and inspected at the end of each shift. All damaged and deteriorated parts found during the inspection shall be replaced before the respirator is used again.
 - 1.12.3.9 Appropriate combination cartridges shall be used if substances other than lead are to be handled inside the lead work area(s).
 - 1.12.3.10 Used filters shall be tested and replaced as specified by the manufacturer or as specified below. The more stringent testing and replacement protocol shall be followed.
 - 1.12.3.11 Cartridges for negative pressure respirators should be replaced every 16 hours of actual usage
 - 1.12.3.12 Cartridges for PAPRs should be replaced every 8 hours.
 - 1.12.3.13 Cartridges shall be treated as lead waste and shall be disposed of accordingly after usage inside lead work area(s).
 - 1.12.3.14 All supplied air respirators shall meet the breathing air purifying requirements in accordance with the CSA Standard Z180.1-00.
 - 1.9.4 Protective Clothing:
 - 1.12.4.1 The Contractor shall provide every worker and authorized visitor with full body disposable coveralls and disposable impervious gloves.
 - 1.12.4.2 All personnel shall wear the protective coveralls before they are allowed to enter into the lead work area(s).
 - 1.12.4.3 Coveralls shall be equipped with head covering (hood), foot covering and tight fitting cuffs at the neck, ankles and wrists.
 - 1.12.4.4 The disposable coveralls shall be made up of materials that do not readily permit the penetration of lead dust.
 - 1.12.4.5 The impervious gloves shall be suitable for handling any lead cleaning agent and/or other chemical that may be required.
 - 1.12.4.6 Disposable coveralls shall be immediately repaired (using duct tape) or replaced once torn.
 - 1.12.4.7 Disposable gloves shall be immediately replaced once torn.
 - 1.12.4.8 Coveralls and gloves shall be disposed of as lead waste once they are worn inside the lead abatement area(s).
 - 1.12.4.9 Workers are allowed to wear reusable protective clothing provided that the clothing is left in the equipment room until the end of the lead abatement project. The clothing shall then be disposed of as lead waste.
 - 1.12.4.10 Safety shoes, hard hats and additional body protection equipment shall be used as necessary to meet the requirements of applicable safety regulations.

1.10 Inspections

- 1.10.1 The lead abatement Consultant may be present on site to carry out quality control inspections for the entire duration of the project. The inspections will be performed inside and outside the work area(s).
- 1.10.2 The purpose of the inspections is to ensure that the work is being completed following the requirements and procedures outlined in the specifications documents and applicable regulations.
- 1.10.3 The Consultant will issue written instructions to the lead abatement Contractor throughout the duration of the project. The instructions will authorize the Contractor to proceed with the following phase of work. The general phases of work will consist of the following: Pre-cleaning, set-up and preparation of the work area, removal of specified materials, clean-up of work area and tear down of containment.
- 1.10.4 The Contractor shall not proceed to the next phase of work without obtaining authorization from the Consultant.
- 1.10.5 The Consultant has been given authorization by the Owner to order a work shutdown if suspect or confirmed contamination of area(s) adjacent to work area(s) has occurred.
- 1.10.6 In all adjacent area(s) where it is determined by the Consultant (through visual inspection or air monitoring) that contamination has occurred, the Contractor shall be responsible to the complete isolation and cleaning of such area(s) under the direction of the Consultant and at no extra charge to the Owner.
- 1.10.7 The Consultant has been given authorization by the Owner to ensure that the Contractor adheres to specified procedures and materials and to inspect for the lead work area(s) for final completion and cleanliness. Any additional work (including labour and material charges) specified by the Consultant to achieve a completion of work to the level specified shall be carried out by the Contractor at no additional charge to the Owner.
- 1.10.8 The Contractor shall ensure that all equipment and materials to be used on the project are acceptable to the Consultant. Unacceptable materials and equipment shall be replaced by the Contractor at no additional charge to the Owner.
- 1.10.9 The Contractor shall be responsible for all additional inspection charges which are carried out as a result of a failure by the Contractor to meet set criteria relating to schedule, health and safety and quality.
- 1.11 Air Monitoring**
- 1.11.1 Air samples may be collected by the Consultant (on behalf of the Owner) prior to, during and after the remediation activities, both inside and/or outside the lead work area(s).
- 1.11.2 The objective of air monitoring is to detect defects in the containment within the work area(s) and to ensure that any contamination of adjacent (control) areas is discovered and rectified immediately.
- 1.11.3 Any contamination of area(s) outside the limits of the lead work area(s) (as determined by air monitoring) shall be contained and shall be thoroughly cleaned to the Consultant's satisfaction. The Contractor shall be responsible for all additional charges associated with such work.
- 1.11.4 Air monitoring may be carried out according to either, or both NIOSH methods described below:
- 1.12.4.14 The latest edition of the National Institute for Occupational Safety and Health (NIOSH) Method 7082. The samples will be analyzed by the Flame Atomic Absorption Spectrophotometer technique as specified in the above noted NIOSH method.
- 1.12.4.14 The latest edition of the National Institute for Occupational Safety and Health (NIOSH) Method 7702. The samples will be analyzed by the X-Ray Fluorescence (XRF) portable technique as specified in the above NIOSH method.
- 1.11.5 The Contractor shall cooperate with the Consultant during air monitoring and shall:
- 1.12.5.14 Ensure that workers wear sampling equipment for personal samples up to the duration of an entire shift.

- 1.12.5.14 Ensure that the workers exercise care and avoid damaging the Consultant's equipment.
- 1.12.5.14 Ensure that the samples and equipment are not tampered with.
- 1.11.6 The Contractor shall be responsible for charges associated with re-sampling due to tampering with the air samples.
- 1.11.7 The Contractor shall be responsible for repair or replacement charges of testing equipment that become damaged due to the actions of the Contractor forces.
- 1.11.8 The maximum allowable concentration of airborne lead concentrations outside a lead work area(s) is 0.025 mg/m³ or 25µg/m³.
- 1.12.8.14 Results equal to or greater than the specified level will indicate lead contamination of these adjacent areas and respiratory protection is required.
- 1.12.8.14 The contaminated areas shall be isolated, contained and cleaned to the satisfaction of the Consultant in the same manner as the lead work area at no additional cost to the Owner. The airborne lead concentration shall be below 0.025 mg/m³ or 25µg/m³ after cleaning.
- 1.12.8.14 Re-occupancy air samples may be collected and analyzed by NIOSH method 7082 or 7702. The work area(s) will be considered clean and clear for public occupancy only if the airborne concentrations are less than 0.005 mg/m³ (5 µg/m³).
- 1.12.8.14 In case the concentrations are equal to or greater than 0.005 mg/m³ (5 µg/m³), the Contractor shall be responsible for re-cleaning the lead work area(s). This process will have to be repeated until the concentration levels are below the specified limit.

1.12 Wipe Sampling

- 1.12.1 Wipe samples will be collected by the Consultant (on behalf of the Owner) following a 2 hour settling period as part of the clearance inspection once the final cleaning procedures have been completed inside the work area(s).
- 1.12.2 The objective of wipe sampling is to verify the effectiveness of the cleaning procedures and to ensure that any contamination on surfaces inside the lead work area(s) is discovered and rectified immediately.
- 1.12.3 Wipe sampling will be carried out following procedures specified in the latest edition of the National Institute for Occupational Safety and Health (NIOSH) Method 9100 or the American Society for Testing of Materials (ASTM) Standard E1728-99. The samples will be analyzed by either the Flame Atomic Absorption Spectrophotometer technique as specified in NIOSH method 7082 or Graphite Furnace Atomic Absorption Spectrophotometer technique, NIOSH method 7105.
- 1.12.4 The clearance standards for settled lead dust inside a lead work area(s) is 40 µg/ft² (4 µg/100cm²) for floors, 250 µg/ft² (25 µg/100cm²) for interior window sills, and 400 µg/ft² (40 µg/100cm²) for window troughs.
- 1.12.5 In case the dust levels are equal to or greater than the specified clearance standards, the Contractor shall be responsible for re-cleaning the lead work area(s). This process will have to be repeated until the concentrations are below the specified limit.

1.13 Waste Transport and Disposal

- 1.13.1 All lead-containing and lead-contaminated materials shall be disposed of as prescribed by Ontario R.R.O 1990, Regulation 347/90 as amended, Waste Management Regulation, made under the Environmental Protection Act and the provincial and federal regulations for the Transportation of Dangerous Goods.
- 1.13.2 All wash water generated from decontamination activities shall be treated as lead waste and shall be disposed of accordingly.

- 1.13.3 All non-lead containing waste generated during demolition activities inside all lead work area(s) shall be treated as lead waste.
- 1.13.4 Non-porous materials that can be washed and properly cleaned can be disposed of as clean waste.
- 1.13.5 All sharp lead-contaminated materials (such as hangers, T-bars, wood, etc.) that could rip or damage a 6mil polyethylene waste disposal bag shall be disposed of in a sealed solid lead waste container.
- 1.13.6 The waste must be stored and transported in an enclosed, lockable waste bin.
- 1.13.7 Every vehicle used for the transportation of lead waste shall display a Class 9 Label.
- 1.13.8 Both sides of the vehicle used for the transportation of lead waste and every waste bag and container shall display the word CAUTION in letters not less than 10 cm in height and the words:
- CONTAINS LEAD WASTE**
Avoid Creating Dust
Lead May Be Harmful to Your Health
Wear Approved Protective Equipment
- 1.13.9 The transport vehicle must be properly equipped to deal with lead waste spills. Equipment shall include, but not limited to, respiratory protective equipment, disposable protective clothing, 6 mil polyethylene bags, shovel and broom and wetting agent.
- 1.13.10 The Contractor shall submit to the Consultant a copy of the shipping document and weight receipt for every shipment of lead waste.

PART 2 - FACILITIES AND PRODUCTS

2.1 **Equipment**

- 2.1.1 Provide equipment that is suitable for intended use as specified by the proper regulations and standards. All equipment used on the project shall be clean and in good state of repair.
- 2.1.2 Airless Sprayer: Equipment used for the application of amended water for dust suppression purposes.
- 2.1.3 Electrical Components and Equipment: supplied by the Contractor for performance of work on this project shall meet the requirements of the Canadian Standards Association (CSA) for use as installed.
- 2.1.4 Electrical Power Cords: Use single length power cords. If single length will not reach work area, use waterproof connectors to connect separate lengths. Use heavy duty cords in high traffic areas or in areas where abrasion of cords is expected. Only grounded electrical cords will be allowed.
- 2.1.5 Ground Fault Panel: use an electrical panel that is installed by a licensed electrician and is equipped with the following:
- 2.1.5.1 Ground fault circuit interrupts (breaker type) of sufficient capacity to supply all lights and equipment to be used in the work area.
- 2.1.5.2 Breakers shall have 5mA ground fault protection.
- 2.1.5.3 Main switch disconnect, test buttons and reset switches and circuit breaker lights.
- 2.1.5.4 Proper enclosure to prevent the penetration of moisture, dust and debris.
- 2.1.6 Temporary Lighting: Provide illumination as required in all work areas to perform the work safely and adequately. Illumination can be achieved by the use incandescent or fluorescent lamps. All lamps shall be protected by grounded guard cages or tempered glass enclosures.
- 2.1.7 Fine Atomizing Spray Nozzle: an airless sprayer nozzle that is designed to deliver no less than 1 gallon per minute of fine spray of water.
- 2.1.8 Flexible Ducting: Tubing used for the exhaust of negative air units. The tubing is made up of plastic with metal reinforcement and is of a diameter that is equal to the exhaust port of a negative air unit.
- 2.1.9 Garden Sprayer: a metal or plastic pressure-can hand pump equipped with a hose and a metal wand. The pump is used to spray a fine mist of liquid on surfaces in a work area.
- 2.1.10 HEPA Filtered Negative Air Unit: A portable air handling system which is used to create negative air pressure differential by the extracting the air directly from the work area and discharging it to the exterior of the area. The unit shall be equipped as follows: Fan, HEPA filter, pre-filters, pressure differential gauge, cabinet, high/low switch, on/off switch.
- 2.1.10.1 The fan shall have a capacity of 1500 cubic feet per minute. The fan shall be considered to have 80% of the rated air flow unless tested and certified by a company specializing in such measurements and subject to the approval of the Consultant.
- 2.1.10.2 Each unit shall have a HEPA filter installed as a final filter in the unit. A tight seal shall be established between the filter and the filter housing through the use of a rubber gasket. Each filter shall be clearly marked with the serial number, direction of air flow, efficiency, air flow rating, name of manufacturer and resistance.
- 2.1.10.3 Each unit shall have an on/off switched located on the exterior of the cabinet. The unit shall also be equipped with overload protection and components such as cabinet, fan, motor, etc. shall be grounded.
- 2.1.10.4 Each unit shall have a pressure differential gauge to monitor the filter loading and to indicate when the filters need to be changed. The unit shall also have a time meter to indicate the total accumulated hours of operation.

- 2.1.10.5 Each unit shall have the following warning and safety devices: a means for preventing the unit from operating without a HEPA filter; auto shutoff system to stop the fan in case of HEPA filter failure such as rupture of the filter or blockage of air flow through the filter.
- 2.1.10.6 Provide units with pre and intermediate filters installed at the intake of the unit and secured in place with clamps or special filter housings. Two pre-filters are required: the first pre-filter shall be of the low efficiency type and shall be 98% efficient for particles 100 microns and larger; the second pre-filter shall be of the medium efficiency type and shall be 95% efficient for particles down to 5 microns.
- 2.1.10.7 The cabinet of the unit shall be constructed of durable material able to withstand rough handling during removal work. The cabinet shall have wheels and shall be designed to allow access to the inside of the unit from the intake side for maintenance and replacement of filters. The unit shall be factory sealed to prevent the escape of dust and debris during transport and use.
- 2.1.11 HEPA Vacuum: A vacuum unit equipped with a HEPA filter and designed so that all discharged air passes through the filter. The unit shall be equipped with all attachments, tools and fittings to facilitate the performance of the work.
- 2.1.12 Pressure Differential Monitoring Unit: An instrument designed to measure the difference in pressure between the interior and exterior of a work area. As a minimum, the instrument shall consist of the following: a continuous recording wheel chart or tape; a gauge with a range from 0 to 0.1 inches water; sensor tubing and wall clamps; wall mounting devices, low limit and high limit audible alarm; and auto reset.
- 2.1.13 Power Washer: A piece of equipment capable of delivering an airless stream of liquid (water) at a pressure between 1200 and 2500 psi. Typically used for cleaning of work area surfaces and equipment and for wetting materials scheduled for removal before work start to reduce the creation of dust.
- 2.1.14 Scaffolding: Select, erect and use scaffolding in a manner that is in compliance with all applicable occupational health and safety regulations.
- 2.1.14.1 Types of scaffolding allowed consist of suspension or standing types such as cantilever, metal tube and coupler, pole or outrigger or tubular welded frame.
- 2.1.14.2 Provide non-skid surfaces and/or foot boards on all scaffolds where foot traffic is anticipated.
- 2.1.14.3 Provide an abrasive non-slip surfaces on rungs of metal ladders.
- 2.1.15 Water Service Components and Equipment: supplied by the Contractor for performance of work on this project shall be temperature and pressure rated for operation of the temperature and pressure encountered.
- 2.1.15.1 Hot water heater to be used for supplying water to the shower shall be:
- 2.1.15.1.1 ULC rated electric hot water heater.
- 2.1.15.1.2 Appropriately sized for the project.
- 2.1.15.1.3 Powered from the ground fault panel.
- 2.1.15.1.4 Equipped with a relief valve that is piped to a drip pan secured to the water heater.
- 2.1.15.2 Supply water to each working area and decontamination unit using pipes having a pressure rating greater than the pressure of the water distribution system. Provide fittings as necessary to allow connecting to existing systems and other temporary facilities.
- 2.1.15.3 The shower provided for the decontamination facility shall be of the walk through type. The shower pan shall be a waterproof, one piece pan constructed from stainless or galvanized steel with welded seams, copper or lead with soldered seams or fibreglass reinforced with wood. The shower head shall be adjustable for spray size and intensity. The shower shall be supplied with separate hot and cold water. The control for water temperature, flow and shut off shall be located inside the shower.
- 2.1.15.4 Multi-stage cascade filter units shall be provided on drain lines from any water source carrying lead-contaminated water from the work area including the shower. The units shall be provided with a

primary and a secondary disposal filter elements. The primary filter shall allow the passage of particles that are 20 microns and smaller. The secondary shall allow the passage of particles that are 5 microns and smaller. The units shall be connected so that the water passes the primary filter first and the discharge of the primary filter passes through the secondary filter.

2.2 Materials

- 2.2.1 Materials destined for use on this project shall be undamaged, shall comply with the requirements of the project and specifications and shall be unused at the time of installation unless otherwise indicated.
- 2.2.2 Lead Waste Container: An impermeable container that is dust-tight and impervious to lead waste. Shall be made of new material only and shall be labeled as required by applicable regulations with a pre-printed cautionary lead warning label. The container shall (depending on the nature of the waste material) be comprised of the following:
- 2.2.2.1 A 6 mil thick leak-tight polyethylene bag labeled as required and placed inside another 6 mil sealed polyethylene bag (in case the waste does not contain any sharp objects).
- 2.2.2.2 A 6 mil sealed polyethylene bag positioned inside or outside a heavy duty leak tight solid sealed container of sufficient strength to prevent perforation of the container during handling (in case the waste contains sharp objects).
- 2.2.3 Caulking: Acrylic polymer sealant that is non-staining.
- 2.2.4 Drop Sheets: Sheets made up of polyethylene of size and type appropriate to the work. To be placed under an area where work is being carried out.
- 2.2.5 Felts: 1/16" thick and 36" to 72" wide non-coated, standard cellulose building felt.
- 2.2.6 Rip-Proof (Fibre Re-enforced) Polyethylene Sheeting: 8 mil fibre re-enforced fabric (bonded on both sides with polyethylene sheeting) made up from 5 mil weave and 2 layers of 1.5 mil poly laminate. Provide new material only in maximum size sheets (to fit work) to minimize joints.
- 2.2.7 Fire Extinguisher: Provide type "ABC" dry chemical fire extinguishers of a combination of extinguishers suitable for the type of exposure in each case.
- 2.2.8 First Aid Supplies: Provide and maintain first aid supplies on the project site as required by applicable regulations and construction industry recommendations.
- 2.2.9 Flame Resistant Polyethylene Sheeting: a layer of polyethylene sheeting that conforms to the requirements of the NFPA Standard 701, Small Scale Fire Test for Flame-Resistant Textiles and Films. Provide new material only in 6 mil thickness and in maximum size sheets (to fit work) to minimize joints.
- 2.2.10 Foam: Polyurethane expanding foam of low density.
- 2.2.11 Polyethylene Sheeting: A 6 mil minimum (unless otherwise specified) thickness polyethylene film in maximum sheet size to minimize seems and black, frosted or clear as required to meet specifications.
- 2.2.12 Protective Coveralls: Full body coveralls complete with hoods and shoe coverings, made up of a material which does not permit penetration of lead dust, fume or mist and is disposable.
- 2.2.13 Spray Cement: Specifically formulated spray adhesive in spray cans devised to stick to polyethylene sheets.
- 2.2.14 Tape: 2" to 3" widths reinforced tape (cloth or fibreglass reinforced) appropriate for sealing polyethylene sheets under dry and wet conditions.
- 2.2.15 Wetting Agent: A mixture of water and a surfactant used for wetting lead-containing materials before removal to minimize the release of fibres during disturbance of the material.

2.3 Platforms

- 2.3.1 Work in certain areas of the project will require the use of platforms. Unless otherwise specified, work platforms for this project shall be erected as follows:
- 2.3.1.1 Set up a support structure of metal, wood or equivalent scaffolding above which the work platform will be positioned.
- 2.3.1.1.1 Place one layer of rip proof polyethylene sheeting over scaffold board.
- 2.3.1.1.2 Place one layer of plywood sheets over the rip proof poly and fasten in place using nails.
- 2.3.1.1.3 Ensure that the plywood is of sufficient thickness and is capable of supporting the weight of all personnel and equipment expected to be present on the platform. Comply with the requirements of applicable Occupational Health and Safety Acts and Regulations.
- 2.3.1.1.4 Prevent water leakage from the platform by taping and caulking the seams between the plywood sheets and by instating a minimum of two layers of rip proof poly over the plywood sheets.
- 2.3.1.1.5 Isolate the platform from the occupied areas through the use of plywood walls.
- 2.3.1.2 The bases of the support structure shall be adequately sized and rated to protect the floors. The Contractor shall be responsible for rectifying any damages caused by the support structure and the platform.
- 2.3.1.3 Ensure that the support structure is set up in a manner that will not interfere with activities that are regularly carried out in the space.
- 2.3.1.4 Ensure that the existing lighting levels are maintained under the platform by using temporary fluorescent light fixtures.
- 2.3.1.5 Install air tight and water tight escape hatches for every 500 square feet of platform. The hatches shall be designed to allow for quick egress from the work area in case of an emergency and shall be supplied with emergency lighting.

2.4 Decontamination Enclosure Systems

- 2.4.1 Decontamination enclosure systems shall be constructed before any other work commences. The decontamination systems shall include one system for workers decontamination and another system for equipment and waste decontamination.
- 2.4.2 Enclosure System for Worker Decontamination: This enclosure system shall consist of a clean room, a shower room and an equipment and access room.
- 2.4.2.1 Clean Room: A clean room shall be constructed between the clean occupied areas and the shower room. The clean room shall have:
- 2.4.2.1.1 A storage space for clean personal protective equipment.
- 2.4.2.1.2 Hangers, hooks and secures lockers for workers use and for safe storage of personal belongings.
- 2.4.2.1.3 A mirror to aid workers in fittings respiratory equipment before entry into the contaminated areas.
- 2.4.2.1.4 Airlocks on the shower side and the clean occupied area side.
- 2.4.2.1.5 A lockable wood door on the occupied area side to prevent unauthorized entry into the work areas.
- 2.4.2.1.6 An area of 100 square feet (minimum) or shall be based on a criteria of 10 square feet per worker, whichever is greater.
- 2.4.2.2 Shower Room: A shower room shall be constructed between the clean room and the equipment and access room. The shower room shall have:
- 2.4.2.2.1 A shower unit of the walk through type for every 8 workers.
- 2.4.2.2.2 Airlocks on the clean room side and the equipment and access room side.

- 2.4.2.2.3 Clean towels, soap and shampoo supplied by the Contractor for use by the workers.
- 2.4.2.2.4 A constant supply of hot and cold running water with individual controls within the shower units to regulate water temperature and flow rate.
- 2.4.2.2.5 Individual hot and cold shut-off valves with access from the clean room of the decontamination enclosure.
- 2.4.2.2.6 Containers for disposing of used respirator filters and hooks for hanging respirators located on the clean side of the shower.
- 2.4.2.2.7 Watertight piping and sealed drip pans.
- 2.4.2.2.8 Sump pumps for removing shower waste water. Pump the waste water through the filter systems specified before discharging into sanitary sewer drains.
- 2.4.2.2.9 Power switches and outlets that are ground fault protected. Sump pumps power switches shall be located on both sides of the shower unit.
- 2.4.2.3 Equipment and Access Room: An equipment and access room shall be constructed between the shower room and the contaminated work areas. The equipment and access room shall have:
- 2.4.2.3.1 Airlocks on the shower side and the contaminated area side.
- 2.4.2.3.2 An area of not less than 100 square feet to allow one worker enough space to undress comfortably.
- 2.4.2.3.3 Facilities for storing personal protective equipment and clothing which will be used again inside the contaminated areas.
- 2.4.3 Enclosure System for Equipment and Waste Decontamination: This enclosure system shall consist of a transfer room, a holding room and a cleaning room.
- 2.4.3.1 Transfer Room: A transfer room shall be constructed between the clean occupied areas and the holding room. The room shall have a lockable wood door on the occupied area side to prevent unauthorized entry into the work areas. It shall have airlocks on the clean occupied area side and the holding room side. The size of the transfer room should be large enough to facilitate double bagging of waste bags or to house the largest piece of equipment used.
- 2.4.3.2 Holding Room: A holding room shall be constructed between the transfer room and cleaning room. The room shall have airlocks on the transfer room side and the cleaning room side. The size of the transfer room should be large enough to facilitate double bagging of waste bags or to house the largest piece of equipment used inside the lead work area(s).
- 2.4.3.3 Cleaning Room: A cleaning room shall be constructed between the holding room and the contaminated area. The room shall have airlocks on the holding room side and the contaminated area side. The size of the cleaning room should be large enough to facilitate washing and cleaning of waste bags, containers and equipment and for double bagging of waste bags.
- 2.4.3.4 This enclosure system shall not be used by workers exiting the contaminated area as a replacement for the workers decontamination enclosure system.
- 2.4.4 Construction of Decontamination Enclosure Systems: Enclosures shall be constructed using suitable framing to fit the area. Alternatively, existing rooms can be used subject to the approval of the Consultant.
- 2.4.4.1 Use 2"x4" studs at 16" o/c to the construct the walls and ceilings frames. The interior side of the frame shall be covered by one layer of rip proof polyethylene sheeting.
- 2.4.4.2 Cover the exterior side of the frame located inside the contaminated area with plywood sheets. All plywood sheets joints shall be sealed with duct tape. Cover the plywood sheets with two independently sealed layers of rip proof polyethylene sheeting. Cover the exterior side of the frame which is not located inside the contaminated area or in an occupied area with 1 layer of rip proof polyethylene sheets. The exterior side of the frame located in an occupied area shall be covered with painted drywall sheets installed over one layer of rip proof polyethylene sheeting.

- 2.4.4.3 The floor of the decontamination enclosure system shall be protected with two independently sealed layers of rip proof poly sheets. The poly sheets used on the floor shall overlap with the poly sheets installed on the walls.
- 2.4.4.4 Separate the various rooms of the decontamination enclosure systems by curtained doorways constructed using two flap doors which are of the same dimensions as the openings. The flaps shall be made up of two layers of rip proof polyethylene sheets. Fasten the two sheets together and reinforce all edges with duct tape. The top and one side of each flap shall be secured to the enclosure frame. Attach a weight to the bottom of each of the flaps. Mark the opening between the two flaps using pieces of duct tape configured in the shape of a directional arrow.

PART 3 - EXECUTION

3.1 ***Type 1 Removal Operations***

3.1.1 Initial Preparation and Isolation of Work Area(s): Unless otherwise specified, work carried out as part of this phase shall proceed as follows:

3.1.1.1 Carry out a survey of the work area(s) to compile an inventory of existing damages and provide a copy to the Consultant.

3.1.1.2 The Contractor is responsible for moving materials and objects which are present in the work area(s).

3.1.1.3 Prevent the spread of dust from the work area using measures appropriate to the work to be done.

3.1.1.3.1 Shut off, lock out and seal all ventilation duct vents with the application of one layer of 6 mil (0.15mm) thick clear polyethylene sheet sealed with tape.

3.1.1.3.2 Use FR polyethylene drop sheets over all flooring in work area(s) where dust, chips, or debris may be produced and where contamination cannot otherwise be thoroughly cleaned.

3.1.1.3.3 Separate parts of the building required to remain in use from the work area(s) by polyethylene drop sheets at the perimeter of the work area(s).

3.1.1.3.4 Separate the work area(s) with clearly visible warning signs advising of the hazards of lead dust and that entry is restricted to authorized trained personnel wearing personal protective equipment.

3.1.1.3.5 Erect scaffolding or platforms where necessary to perform the removal work. All platforms that exceed 25 feet in height will require the submission of a shop drawing stamped by a professional engineer for approval by the inspector within a minimum of 5 days prior to commencing the work. Guard rails shall be provided around all platforms or scaffolding where practicable. Cover the floor area of the scaffold or platform with one layer of FR polyethylene. Extend the floor of scaffolding or platform under an item being removed to act as a receptacle. Polyethylene sheeting shall be suitably braced and/or restrained so that billowing or failure of the polyethylene sheeting or taped joints does not occur.

3.1.2 Entry and Exit Procedures from Lead Removal Work Area(s): the following general procedures shall be adhered to when entering into and exiting from lead abatement work area(s):

3.1.2.1 Work Area(s) Entry Procedures:

3.1.2.1.1 Every worker and visitor planning to enter the work area should remove all street clothing and should store them in a designated clean change room.

3.1.2.1.2 The person shall then put on disposal coverall with head covering, respirators with clean filters and foot covering and shall proceed to the work area(s).

3.1.2.2 Work Area(s) Exit Procedures:

3.1.2.2.1 Each worker shall decontaminate their protective clothing, boots and respirator by first HEPA vacuuming and then by damp wiping using soap and water.

3.1.2.2.2 The removed disposable coveralls shall be disposed of as lead waste in a 0.15 mm (6 mil) labeled waste bag. Respirator filter inlets shall be sealed in tape or disposed of as lead waste.

3.1.3 **Lead Removal Procedures**

3.1.3.1 Lead removal shall not commence until:

3.1.3.1.1 The work area is effectively separated from clean areas of the building.

3.1.3.1.2 Warning signs are posted outside the removal work area(s).

3.1.3.1.3 All surfaces which are not possible to clean are sealed with polyethylene sheeting and tape.

- 3.1.3.1.4 Arrangements have been made for waste disposal, landfill site operator has been contacted and storage bin is on site.
- 3.1.3.1.5 Tools equipment and materials are on hand and in the work area(s).
- 3.1.3.1.6 Facilities for the washing of hands and face are available for workers leaving the work area(s).
- 3.1.3.2 Before beginning work remove visible dust from surfaces in the work area where dust is likely to be disturbed during the course of the work. Use HEPA vacuums, or damp cloths where damp cleaning does not create a hazard and is otherwise appropriate. Do not use compressed air or dry sweeping to clean up or remove dust from any surface.
- 3.1.3.3 Wet materials containing lead to be cut, ground, abraded, drilled, or otherwise disturbed with amended water. Use garden type low velocity fine mist sprayer. Perform work in a manner to reduce dust creation to lowest levels practicable. Spray lead material repeatedly during the work process to minimize airborne lead dust.
- 3.1.4 Final Clean
- 3.1.4.1 When removal is complete, clean the entire work area by HEPA vacuuming and wet wiping.
- 3.1.4.2 The work area(s) shall be deemed clean by the Inspector when there is no visible residue, dust, dirt, film, stain, or discolouration resulting from either lead removal or cleaning activities.
- 3.1.4.3 After completion of the initial cleaning and after the Inspector has passed the visual inspection, spray sealant on all surfaces in the work area(s), including, but not limited to:
 - 3.1.4.3.1 Where lead material has been removed.
 - 3.1.4.3.2 Polyethylene sheeting used on walls, floors and ceilings.
- 3.1.4.4 Sealant should be sprayed using a garden reservoir type low velocity fine mist sprayer. The sprayer cannot be used if the nozzle is partially obstructed, or if a uniform fine mist spray cannot be obtained.
- 3.1.4.5 After the work area(s) is declared clean and written approval to proceed has been received from the Inspector:
 - 3.1.4.5.1 Dismantle boundaries and isolating barriers as lead waste. Drop sheets shall be wetted and folded to contain dust and then placed in waste bags.
 - 3.1.4.5.2 Immediately before their removal from the work area(s), and disposal, clean each filled labeled waste bag using damp cloths or HEPA vacuum and place in second clean clear polyethylene waste bag.
 - 3.1.4.5.3 Dispose of waste as per procedures specified in subsection 1.16 Waste Transport and Disposal.
- 3.1.4.6 Repair or replace objects damaged in the course of the work. Re-establish objects moved to temporary locations in the course of the work, in their proper positions. Re-secure mounted objects removed in the course of the work in their former positions.
- 3.2 *Type 2a and 2b Removal Operations***
- 3.2.1 Initial Preparation and Isolation of Work Area(s): Unless otherwise specified, work carried out as part of this phase shall proceed as follows:
 - 3.2.1.1 Carry out a survey of the work area(s) to compile an inventory of existing damages and provide a copy to the Consultant.
 - 3.2.1.2 The Contractor is responsible for moving materials which are present in the work area(s).
 - 3.2.1.3 Prevent the spread of dust from the work area(s) using measures appropriate to the work to be done.
 - 3.2.1.3.1 Shut off, lock out and seal all ventilation duct vents with the application of one layer of 6 mil (0.15 mm) thick clear polyethylene sheet sealed with tape.
 - 3.2.1.3.2 Clean all moveable objects within proposed work area using a HEPA vacuum.

- 3.2.1.3.3 Clean fixed casework and equipment within proposed work area, using a HEPA vacuum and cover with polyethylene sheeting sealed with tape.
- 3.2.1.3.4 Clean proposed work areas using, where practicable, HEPA vacuum cleaning equipment. Do not use methods that raise dust, such as dry sweeping, or vacuuming using other than HEPA filter-equipped vacuums.
- 3.2.1.3.5 Cover and seal airtight light fixtures, duct openings and other suspended ceiling objects using clear 6 mil polyethylene sheeting and tape.
- 3.2.1.3.6 Erect scaffolding or platforms necessary to perform the removal work. All platforms that exceed 25 feet in height will require the submission of a shop drawing stamped by a professional engineer for approval by the inspector within a minimum of 5 days prior to commencing the work. Guard rails shall be provided around all platforms or scaffolding where practicable.
- 3.2.1.3.6.1 Cover floor area of scaffold or platform with one layer of FR polyethylene.
- 3.2.1.3.6.2 Extend scaffolding or platform under the item being removed to prevent material from falling.
- 3.2.1.3.7 Separate parts of the building required to remain in use from the work area by polyethylene drop sheets at the perimeter of the work area.
- 3.2.1.3.8 Set up an airtight enclosure around the work area where the work on lead-containing material is to be carried out. Enclosure should be set up using 1 layer of FR polyethylene sheeting to cover the floors, and 1 layer of 6 mil (0.15 mm) thick clear polyethylene sheeting to cover the walls. Two layers of FR polyethylene sheeting should be used to cover carpeted floors. Polyethylene on the walls should be made to overlap with the polyethylene on the floor a minimum of 300 mm.
- 3.2.1.3.9 Polyethylene sheeting shall be suitably braced and/or restrained so that excessive billowing or failure of the polyethylene sheeting or taped joints does not occur as a result of the negative pressure differential created by the vacuums.
- 3.2.1.3.10 Erect a temporary structure made of wooden studs to support polyethylene sheeting where necessary.
- 3.2.1.3.11 Insert a hose of a HEPA filter equipped vacuum into the enclosure to provide negative air pressure inside the enclosure.
- 3.2.1.3.12 Entrance to the enclosure should be covered with two pieces of overlapping polyethylene sheeting.
- 3.2.1.3.13 The Contractor shall separate the work area(s) and place warning signs at all access points leading to the contained work area. The signs shall be posted at the curtained doorways and shall read:

CAUTION
LEAD DUST, FUME, or MIST HAZARD AREA
NO UNAUTHORIZED ENTRY
WEAR ASSIGNED PROTECTIVE EQUIPMENT
BREATHING LEAD DUST MAY CAUSE SERIOUS BODILY HARM

- 3.2.2 Entry and Exit Procedures from Lead Removal Work Area(s): the following general procedures shall be adhered to when entering into and exiting from lead abatement work area(s):
 - 3.2.2.1 Work Area(s) Entry Procedures:
 - 3.2.2.1.1 Every worker and visitor planning to enter the work area(s) should remove all street clothing and should store them in a designated clean change room.
 - 3.2.2.1.2 The person shall then put on disposable coveralls with head covering, respirators with clean filters and foot covering and shall proceed to the work area through the flaps covering the entrance to the enclosure.
 - 3.2.2.2 Work Area(s) Exit Procedures:

- 3.2.2.2.1 Each worker shall decontaminate their protective clothing, boots and respirator by first HEPA vacuuming and then by damp wiping using soap and water.
- 3.2.2.2.2 The removed disposable coveralls shall be disposed of as lead waste in a 0.15 mm (6 mil) labeled waste bag. Respirator filter inlets shall be sealed in tape or disposed of as lead waste.
- 3.2.3 Lead Removal Procedures
- 3.2.3.1 Lead removal shall not commence until:
- 3.2.3.1.1 The work area(s) is effectively separated from clean areas of the building.
- 3.2.3.1.2 Warning signs are posted outside the removal work area(s).
- 3.2.3.1.3 All surfaces which are not possible to clean are sealed with polyethylene sheeting and tape.
- 3.2.3.1.4 Arrangements have been made for waste disposal, landfill site operator has been contacted and storage bin is on site.
- 3.2.3.1.5 Tools, equipment and materials are on hand and in the work area(s).
- 3.2.3.1.6 Facilities for the washing of hands and face are available for workers leaving the work area(s).
- 3.2.3.2 Before beginning the work, remove visible dust from the surfaces in the work area(s). Use HEPA vacuums, or damp cloths where damp cleaning is considered more appropriate. Do not use compressed air or dry sweeping to clean up or remove dust from any surface.
- 3.2.3.3 Wet materials containing lead to be removed, disturbed, or sealed with amended water. Garden reservoir type low velocity fine mist sprayer may be used. Perform work in a manner to reduce dust creation to lowest levels practicable. Spray lead material repeatedly during the work process to minimize airborne lead dust.
- 3.2.3.4 Removed material has to be placed directly in waste bags. Wherever possible, lead-containing material should be removed in sections as intact as possible.
- 3.2.3.5 Areas that used to be covered with the lead-containing material should be cleaned after the material is removed, using brushes, steel wool, or any other tools suitable.
- 3.2.3.6 Frequently during the work and immediately after completion of the work, clean up dust and waste containing lead using a HEPA vacuum or by damp wiping.
- 3.2.3.7 All labeled waste bags should be placed in clean clear 6 mil poly bags before they are taken out of the enclosure.
- 3.2.4 Final Clean
- 3.2.4.1 When removal is complete, clean the entire work area by HEPA vacuuming and wet wiping.
- 3.2.4.2 All tools and equipment used in the removal process such as knives, extension cords, scrapers, wire brushes, garden sprayers etc., should be washed and cleaned and placed in 6 mil polyethylene bags.
- 3.2.4.3 The work area(s) shall be deemed clean by the Inspector when there is no visible residue, dust, dirt, film, stain, or discoloration resulting from either lead removal or cleaning activities.
- 3.2.4.4 The enclosure should be left standing until wipe sample(s) are taken inside the enclosure, and the lead concentration level is below 40 µg/ft² for floors and/or 250 µg/ft² for window sills, and/or 400 µg/ft² for window sills.
- 3.2.4.5 After the area(s) is declared clean and written approval to proceed has been received from the Inspector:
- 3.2.4.5.1 Dismantle boundaries and isolating barriers and treat as lead waste. Drop sheets shall be wetted and folded to contain dust and then placed in waste bags.
- 3.2.4.5.2 Immediately before their removal from the work area(s), and disposal, clean each filled labeled waste bag using damp cloths or HEPA vacuum and place in second clean clear polyethylene waste bag.
- 3.2.4.5.3 Dispose of waste as per procedures specified in subsection 1.16 Waste Transport and Disposal.

3.2.4.6 Repair or replace objects damaged in the course of the work. Re-establish objects moved to temporary locations in the course of the work, in their proper positions. Re-secure mounted objects removed in the course of the work in their former positions.

3.3 Type 3a and 3b Removal Operations

3.3.1 Initial Preparation and Isolation of Work Area(s): Unless otherwise specified, work carried out as part of this phase shall proceed as follows:

3.3.1.1 Carry out a survey of the work area(s) to compile an inventory of existing damages and provide a copy to the Consultant.

3.3.1.2 The Contractor is responsible for moving materials and objects which are present in the work area(s).

3.3.1.3 Separate the lead removal work area(s) from other areas in the building required to remain in use by erecting floor to ceiling rip-proof polyethylene sheeting supported on wood framing.

3.3.1.4 All surfaces, equipment and objects located in the work areas and not scheduled for removal shall be pre-cleaned by HEPA vacuuming or wet wiping and shall be protected by one layer of rip proof poly sheeting unless otherwise specified. Dry sweeping or vacuuming with units not equipped with HEPA filters shall not be allowed.

3.3.1.5 All equipment, objects and articles scheduled for removal shall be taken out of the work area(s) only if its removal will not disturb any lead-containing materials.

3.3.1.6 Ensure that smoke detectors, fire alarms, heat detectors and other life safety equipment remain active and operating as installed.

3.3.1.7 All specified clean demolition work can be carried out before the Type 3 enclosure is set up on condition that the demolition work does not disturb any lead-containing materials.

3.3.1.8 Construct the decontamination enclosure systems for workers and for equipment and materials as specified.

3.3.1.9 Independently seal off all openings leading to the work area(s) using polyethylene sheeting and duct tape. Such openings include, but are not limited to, windows, doorways, corridors, skylights, diffusers, grills and air ducts. Also seal all floor openings independently before covering the entire floor with polyethylene sheeting. Ensure that the individual seals are air tight and water tight.

3.3.1.10 Cover floors with two independently sealed layers of polyethylene sheeting and seal with duct tape. The first layer immediately above the floor shall be 6 mil poly. The other layer shall be rip proof poly. Poly on the floor shall extend a minimum of 30 cm up all vertical surfaces located in the work area.

3.3.1.11 Cover walls with two independently sealed layers of 6 mil clear polyethylene sheeting. Overlap floor poly with wall poly by a minimum of 30 cm at each layer. The layers of wall poly shall always overlap the layers of the floor poly.

3.3.1.12 Ensure that adjoining sheets of poly used on walls and floors overlap by at least 30 cm.

3.3.1.13 Ensure that poly sheets are properly supported to avoid excessive billowing and failure of the enclosure as a result of applying negative pressure differential. Brace the poly in case of excessive billowing using 1"x2" straps or any other measures and means as required.

3.3.1.14 Use flame resistant polyethylene sheeting near heat sources.

3.3.1.15 Create negative pressure in the work area using HEPA-filtered negative air unit distributed evenly (horizontally and vertically) within the work area. Supply any necessary platforms as required to elevate the negative air unit.

3.3.1.16 Provide enough negative air units to be able to exchange the air volume of the work area at least once every 20 minutes (three air changes per hour) and to maintain a minimum of 0.03" water gauge differential.

- 3.3.1.17 The pressure differential shall be continuously monitored using an automatic recorder as specified. Place the monitor outside the contaminated work area. A backup negative air unit shall be set up and ready for operation in case one of the original units fail.
- 3.3.1.18 Operate the negative air units from the start of the preparation and isolation phase until completion of the final cleanup work and air testing.
- 3.3.1.19 Ensure that the necessary make up air is supplied to the work area through flaps installed in the perimeter seal.
- 3.3.1.20 Replace pre-filters and HEPA filters as necessary to maintain the proper flow rate and to ensure that the unit continues to function properly.
- 3.3.1.21 Contaminated air from the work area shall be exhausted directly to the outside through sealed ducts. Where necessary, remove existing windows and replace with a plywood panel. Secure the panel in place and make weather tight using caulking. Install appropriately sized openings for exhaust (typically 12"). Replace windows upon completion of work.
- 3.3.1.22 All negative air units which are set up to discharge inside the building shall be leak tested in place using the DOP method.
- 3.3.1.23 The Contractor is allowed to connect to the owner's existing water supply for use in the lead work areas and in the temporary shower and decontamination facilities. The Contractor shall be responsible for making all the connections using vacuum breakers and other backflow preventers.
- 3.3.1.24 The Contractor shall use copper pipes and fittings and high pressure hoses when making connections to the main water supply. The Contractor shall also install a main shut-off valve on the clean side of the decontamination enclosure. All connections shall be made downstream from the main shut-off valve. Ensure that the pressure in the temporary water distribution system is relieved if the system is to be left unattended. Ensure that no leaks are present around hose pipe connections. Minimize the possibility of water damage through spills or leaks by providing drip pans of suitable size and by ensuring that the drip pans are drained regularly.
- 3.3.1.25 Ensure that all water from the drainage facilities installed on the shower and other decontamination enclosures is passed through filtration systems as specified.
- 3.3.1.26 Test all temporary piping installed during this project and ensure that they are watertight. All temporary pipe installation shall remain water tight for the duration of the project. Pipes shall be installed parallel to walls and shall be temporarily secured to existing structures. Ensure that all piping is removed upon completion of work. Avoid damaging or altering the owner's existing water equipment and piping.
- 3.3.1.27 All electrical work shall be performed by a licensed electrician in compliance with all applicable regulations. Isolate, disconnect and lockout all power supplying or passing through the work area. Ensure that power supply to the remaining areas of the building is not disrupted during work in lead contaminated areas.
- 3.3.1.28 Unless specified, the use of the existing power and lighting circuits shall not be allowed. Use temporary electrical panels to provide power and lighting to the decontamination facilities and the work area. One electrical panel shall be provided for every 5000 square feet of contained lead work areas. Electrical panels shall be equipped and sized to handle all electrical equipment required for the completion of the project. The Contractor shall also be required to provide other additional electrical equipment such as temporary lighting, circuit breakers, panels, transformers and switch gears.
- 3.3.1.29 The contractor shall be responsible for establishing and maintaining fire and emergency exits from the work area that are acceptable to the Provincial Fire Marshall and other authorities having jurisdiction. The emergency exits shall be sealed in a manner that will not hinder the use of the doors during an evacuation and shall be clearly marked by using proper exit signs.

- 3.3.1.30 Battery powered emergency lighting shall be installed by the Contractor to provide general lighting throughout the work area(s) in case of loss of power supply to the ground fault panel and to ensure that the emergency exits and the exit routes remain lit during the power failure.
- 3.3.1.31 Ensure that fire extinguishers are installed throughout the lead work area(s) at each of the emergency exits and on both sides of the decontamination facilities. All fire extinguishers installed inside the work area(s) shall be protected by clear polyethylene sheets and shall be easily accessible in case of an emergency.
- 3.3.1.32 The Contractor shall place warning signs at all access points leading to the contained work area(s). The signs shall be posted at the curtained doorways and shall read:
- CAUTION
LEAD DUST, FUME, or MIST HAZARD AREA
NO UNAUTHORIZED ENTRY
WEAR ASSIGNED PROTECTIVE EQUIPMENT
BREATHING LEAD DUST MAY CAUSE SERIOUS BODILY HARM
- 3.3.1.33 Once the initial clean preparation and isolation of the work area(s) is completed, the Contractor shall request an inspection from the Consultant before proceeding to next phase. Notify the Consultant 24 hours before the inspection is needed.
- 3.3.1.34 Once authorization is obtained from the Consultant, proceed to setting up critical seals that become accessible once removal operations commence.
- 3.3.1.35 Shut off and lock out the HVAC system serving the subject work area. Ensure that all work requiring the complete shutdown of the HVAC system is carried out during the time when the building is not occupied.
- 3.3.1.36 Unless otherwise specified, all electrical systems scheduled to remain inside the work area(s) during lead removal activities shall be sealed using duct tape and poly sheets. Examples of such systems include speakers, wiring, smoke and heat detectors, alarm equipment, communication systems, PA systems, junction boxes, etc.
- 3.3.1.37 Once all the preparation work is complete, the contractor shall ensure that the work area(s) is maintained neat and organized. All the enclosures shall be inspected by the supervisor before and after the completion of each work shift to ensure that the hoarding walls, polyethylene barriers and enclosures are intact. Any damaged discovered during the inspection shall be repaired immediately. Maintain an inspection log book on site to document when (date and time) the inspection was carried out and by whom (name and signature of the person). Summarize any problems encountered during the inspection.
- 3.3.1.38 Ensure that the negative air units and the associated ducting and exhaust openings are regularly inspected during the work shift. The pressure differential monitoring unit shall be also inspected regularly during the work shift to ensure that the specified negative pressure inside the work area(s) is maintained.
- 3.3.2 Entry and Exit Procedures from Lead Removal Work Area(s): the following general procedures shall be adhered to when entering into and exiting from lead abatement work area(s):
- 3.3.2.1 Work Area(s) Entry Procedures:
- 3.3.2.1.1 Every worker and visitor planning to enter the work area(s) shall remove all street clothing including undergarments and shall store them in the clean change room.
- 3.3.2.1.2 All uncontaminated articles such as clothing, footwear, towels, personal effects, etc. shall be store in the clean room of the decontamination facility.
- 3.3.2.1.3 The person shall then put on disposal coverall with head covering, respirators with clean filters and foot covering and shall proceed to the work areas through the shower and then the equipment and access room.

3.3.2.2 Work Area(s) Exit Procedures:

3.3.2.2.1 Using HEPA vacuuming or wet wiping, remove all gross contamination from personal protective equipment (disposable coveralls, boots, hard hats, safety glasses, exterior of respirator, etc.) in the work area(s) and then proceed to the equipment and access room.

3.3.2.2.2 In the equipment and access room, remove all protective clothing except the respirator and proceed to the shower. All disposal contaminated clothing shall be placed in lead disposal bags. Reusable items shall be stored neatly in the equipment and access room for use during the next shift.

3.3.2.2.3 Proceed naked to the shower while still wearing the respirator. While showering, clean the outside of the respirator with soap and water. Seal the openings in the filter as per the manufacturer's instruction or using duct tape. Alternatively, the filters can be disposed of as lead waste. Continue showering by thoroughly wetting and washing the body and the head. Wet and clean the inside of the respirator. Filters shall not be allowed in the clean room if not properly sealed.

3.3.2.2.4 Upon completion of showering and drying off, proceed to the clean room and dress in street clothing.

3.3.3 Lead Removal Procedures

3.3.3.1 Lead removal work shall not commence until the following requirements have been met:

3.3.3.2 The work area(s) have been and contained as specified, decontamination enclosure systems have been set up and occupied areas of the building have been properly isolated.

3.3.3.2.1 All required notifications have been made.

3.3.3.2.2 Warnings signs have been displayed at all potential access points into the work area(s).

3.3.3.2.3 All arrangements have been made with the waste disposal facility.

3.3.3.2.4 All equipment, materials and tools needed inside the work area(s) are available and in working condition.

3.3.3.2.5 Appropriate negative pressure differential have been established inside the work area(s) with proper allowance for makeup air.

3.3.3.2.6 All building security arrangements have been made.

3.3.3.2.7 Written authorization has been obtained from the Consultant to commence lead removal work.

3.3.3.3 Using an airless sprayer, spray the lead-containing material with water mixed with a wetting agent. Apply enough amended water to ensure that the material is wet.

3.3.3.4 Remove the wet lead-containing materials in layers and/or small sections. Spray the material regularly throughout the removal work to maintain saturation and to minimize the generation and dispersion of dust. Ensure that the wet material does not dry out.

3.3.3.5 Ensure that the removed material and other waste generated during the removal process is collected and bagged immediately. Place the material in 6 mil bags. Ensure that the waste water is also collected regularly. Avoid pooling of water. Dispose of the waste water in labeled 6 mil polyethylene bags (or other suitable rigid containers) or pump it straight into the sanitary sewer after passing it through proper filters. Refer to Section 3.3.4 for specific procedures for handling of materials and waste.

3.3.3.6 Mist the air during the removal process using an airless sprayer capable of producing a fine mist and amended water to keep the airborne dust levels as low as possible. Monitor the air inside and outside of the work area during removal.

3.3.3.7 Remove deck mounted objects and other obstructions as necessary to facilitate the removal of the lead-containing materials. Ensure that the removal work includes all lead-contaminated materials specified for removal.

3.3.4 Final Clean

- 3.3.4.1 After completion of gross lead removal work, perform a more thorough cleaning of all surfaces that used to be covered by lead to remove all visible residue and dust-containing materials. Cleaning shall be carried out using wire brushing, wet sponging, wet sweeping and/or wet shovelling and HEPA vacuuming. Ensure that the surfaces remain wet during the performance of this work.
- 3.3.4.2 All tools and equipment used in the removal process such as hook knives, extension cords, scrapers, wire brushes, garden sprayers etc., should be washed and cleaned and placed in 6 mil polyethylene bags.
- 3.3.4.3 Notify the Consultant in cases where leads-containing materials is encountered which cannot be properly removed without demolishing building structural members or removing major service elements. The Consultant will advise the Contractor in writing regarding the next course of action.
- 3.3.4.4 Continue with the wet thorough cleaning activities and include other surfaces in the work area(s) including, but not limited to, decontamination facilities, polyethylene sheeting, walls and floor surfaces, equipment, containers, piping, ducts, conduits and poly surfaces used in the equipment and access room and the equipment decontamination facilities. Pre-filters used on the negative air units shall be removed and shall be disposed of as lead waste.
- 3.3.4.5 The work area(s) shall be deemed clean by the Consultant when there is no visible residue, dust, dirt, film, stain, or discolouration resulting from either lead removal or cleaning activities.
- 3.3.4.6 The work area(s) shall be considered acceptable for public occupancy only if the lead concentrations inside the work area are below 40 µg/ft² for floors and/or 250 µg/ft² for window sills, and/or 400 µg/ft² for window sills. Levels above the clearance standards require that the entire area be re-cleaned and another coat of lock-down agent be applied by the Contractor on all surfaces in the work area. Re-sampling will be carried out and the entire process shall be repeated until the dust levels are below the clearance standards.
- 3.3.4.7 The Contractor shall be responsible for all charges associated with re-cleaning work and other associated requirements as specified.

3.3.5 Procedures for Work Area Teardown and Dismantling

- 3.3.5.1 Proceed with the teardown of the work area(s) only after obtaining written authorization from the Consultant. Ensure that Type 3 procedures remain in effect during this phase of work. The worker and equipment and material decontamination units shall remain fully operational. The negative air units shall continue to operate throughout the duration of the teardown work.
- 3.3.5.2 Start by removing polyethylene sheeting by carefully folding it away from the walls to the centre of the work area making sure that any loose debris is trapped within the poly. Also remove all enclosures, duct tape, caulking, polyurethane foam and other materials used in setting up the enclosure. Polyethylene and other materials used in setting up enclosures shall be disposed of as lead-contaminated waste.
- 3.3.5.3 Clean all vacuum units, fittings, hoses and other small tools used during the removal work inside the work area(s), seal in 6 mil poly bags and remove from the work area through the equipment and materials decontamination unit. Wash down and clean other equipment used during the work and remove from the work area(s).
- 3.3.5.4 Clean up the lead work area including all surfaces and all decontamination enclosures. Remove negative air units pre-filters and dispose of as lead waste. Seal the exterior of the unit on all sides with poly and remove from the work area(s).
- 3.3.5.5 Remove all waste bags containing polyethylene sheets and other materials used to set up the enclosures and dispose of as specified.
- 3.3.5.6 Remove all hoarding walls separating the work area(s) from occupied areas except in locations where the walls are set up adjacent to other areas that still contain lead. Obtain approval of Consultant before dismantling hoarding walls.

3.3.5.7 Dismantle the remainder of the enclosure including scaffolding, platforms, decontamination facilities, tunnels, etc. Final clean the work area using HEPA vacuuming and wet wiping. Clean and remove all ground fault panels and temporary lighting.

3.3.6 Procedures for Re-Establishment of Objects and Systems

3.3.6.1 Re-establish mechanical and HVAC systems and install new clean air filters where previously removed. Re-establish all electrical system and return to as found condition unless otherwise specified.

3.3.6.2 Repair, replace and make good on all damages not identified during the per-removal survey.

3.3.6.3 Unless otherwise specified, all items and objects removed during the initial preparation phase of the work shall be returned to their original position and shall be properly mounted and secured.

END OF SECTION

**PRE-RENOVATION
HAZARDOUS BUILDING MATERIALS SURVEY**

**Elevator and Washroom Renovation Project
Burnhamthorpe Public School**

3465 Golden Orchard Drive
Mississauga, Ontario
L4Y 3H7

Presented to:

Peel District School Board

933 Central Parkway West
Mississauga, Ontario
L5M 5H6



April 2026

OHE Project No.: 32250

Submitted by:

OHE Consultants

Occupational Hygiene & Engineering
311 Matheson Blvd. East
Mississauga, Ontario
L4Z 1X8

TABLE OF CONTENTS

1. INTRODUCTION.....	1
1.1 SCOPE OF WORK.....	2
1.2 APPENDICES OUTLINE.....	3
1.3 BUILDING(S) DESCRIPTION.....	4
2. FINDINGS AND DISCUSSION.....	5
2.1 ACMS	5
2.2 LEAD	7
2.3 MERCURY	7
2.4 SILICA.....	7
2.5 ISOCYANATES	8
2.6 VINYL CHLORIDE.....	8
2.7 BENZENE.....	8
2.8 ACRYLONITRILE	8
2.9 COKE OVEN EMISSIONS	8
2.10 ARSENIC	8
2.11 ETHYLENE OXIDE	8
3. RECOMMENDATIONS.....	9
4. GENERAL STATEMENT OF LIMITATIONS	12

APPENDIX A:	Drawings
APPENDIX B:	Results of Sampling and Testing for: Asbestos Lead
APPENDIX C:	Laboratory Analysis Reports
APPENDIX D:	Site Photographs
APPENDIX E:	Background Information on Designated Substances
APPENDIX F:	Summary of Applicable Regulations and Guidelines
APPENDIX G:	Methodologies
APPENDIX H:	Limitations of the Project
APPENDIX I:	Historical Data

OHE Consultants (OHE) was retained by Peel District School Board (PDSB) to conduct a Hazardous Building Materials Survey (HBMS) as part of the Elevator and Washroom Renovation Project in 1965 original building at Burnhamthorpe Public School located at 3465 Golden Orchard Drive, Mississauga, Ontario (herein referred to as the “Subject Location”).

The field work was carried out on April 20, 2026 by Thirunavukarasu Annamalai, Junior Project Specialist, of OHE. The survey consisted of a visual inspection for the presence of hazardous building materials, including designated substances, and testing and sampling of materials suspected to contain hazardous building materials, particularly asbestos and lead.

The survey was limited to the areas associated with the Elevator and Washroom Renovation Project, as per the document provided by PDSB.

Should suspect hazardous materials be discovered in any of the areas which could not be accessed (as part of the survey) during renovation and demolition activities, the work shall stop until such materials are assessed and sampled to determine the next course of action.

A summary of the hazardous building materials survey findings is presented below:

Asbestos

- Drywall Joint Compound (DJC)
- Vinyl Floor Tiles (VFTs)
- Mastic
- Interior brick mortar
- Primer
- Mechanical System Insulation (MSI)
- Caulking

Lead

- Off-White paint
- May be present in:
 - wiring connectors
 - electric cable sheathing
 - solder joints on copper piping.

Mercury

- Presumed present: as vapour in fluorescent light bulbs
in mercury-vapour lamps
as a component in electrical equipment, such as
silent, position-dependent switches.

Silica

- Presumed present: as fillers for paints and mastic
in bricks, ceramics, masonry, concrete and mortar.

Hazardous building materials may be present in areas not accessible for view and identification. In situations where hazardous building materials extend into a non-accessible area, the materials were assumed to also be present in those areas and have been reported as such. Contractors and maintenance personnel should be warned of the possibility of undisclosed hazardous building materials in enclosed areas. All hazardous building materials discovered in these areas should be treated as such until proven otherwise as per all applicable regulations and guidelines.

Hazardous building materials including asbestos are also assumed to be present in various building materials which were not sampled as part of the survey since they were excluded from the scope of work due to inaccessibility. These materials include, but are not limited to, fire-rated doors; elevator and lift brakes; high voltage wiring, transformers and associated equipment; mechanical packing, gaskets; and refractory materials within boilers and furnaces. All excluded materials shall be assumed asbestos-containing until proven otherwise by bulk sampling and analysis.

OHE's recommendations, based on the findings of the survey, are as follows:

- Provide a copy of this report to contractors bidding on or performing work within the Subject Location.
- Remove all asbestos-containing materials that are likely to be disturbed during renovation or demolition activities in accordance with all applicable guidelines and regulations.
- Renovations and/or demolition operations that are likely to generate lead-containing dust shall be carried out in accordance with all applicable guidelines and regulations.

- Renovations and/or demolition operations that are likely to disturb mercury-containing materials or equipment shall be carried out in accordance with all applicable guidelines and regulations.
- Renovations and/or demolition operations that are likely to generate silica-containing dust shall be carried out in accordance with all applicable guidelines and regulations.
- Disposal of hazardous building materials shall be completed as per all applicable guidelines and regulations.
- Should suspect hazardous building materials be discovered during any demolition or renovation work in the Subject Location, the contractor shall stop all work in the vicinity of the suspect hazardous material and immediately notify personnel from both Peel District School Board and OHE Consultants.

This executive summary provides a brief overview of the survey findings. It is not intended to substitute for the complete survey report, nor does it discuss specific issues documented in the report. The executive summary should not be used as a substitute to reading the complete report.

This report is not a scope of work/specifications document for the abatement/remediation of hazardous materials and shall not be used for such purposes.

1. INTRODUCTION

OHE Consultants (OHE) was retained by Peel District School Board (PDSB) to conduct a Hazardous Building Materials Survey (HBMS) as part of the Elevator and Washroom Renovation Project in 1965 original building at Burnhamthorpe Public School located at 3465 Golden Orchard Drive, Mississauga, Ontario (herein referred to as the “Subject Location”).

In accordance with Section 30 of the Ontario Occupational Health and Safety Act, Designated Substances and other potentially hazardous building materials must be identified prior to construction or demolition that may disturb such materials. The following is a list of designated substances:

Asbestos	Benzene
Lead	Acrylonitrile
Mercury	Coke Oven Emissions
Silica	Arsenic
Isocyanates	Ethylene Oxide
Vinyl Chloride	

The field work was carried out on April 20, 2026 by Thirunavukarasu Annamalai, Junior Project Specialist, of OHE.

The asbestos bulk samples were analyzed by EMC Scientific Incorporated, an independent and NVLAP accredited laboratory.

The lead bulk samples were analyzed by EMSL Canada Inc., an independent and ELLAP accredited laboratory.

1.1 Scope of Work

The scope of work of the survey consisted of the following:

1. A review of previous environmental reports for the Subject Location (if provided prior to conducting the field work);
2. Meeting with key on-site personnel (if provided by the Client) to obtain information about the various operations and processes carried out at the Subject Location in the past;
3. Room-by-room inspection of accessible areas including spaces above suspended ceilings, access hatches, mechanical chases, or similar type locations. Minor demolition of walls, ceilings, floors, etc. to investigate concealed conditions was not part of the scope of work;
4. Bulk sampling and analysis of suspect materials for the presence of asbestos following the requirements of Ontario Regulation 278/05;
5. Sampling of accessible painted surfaces for lead content. The lead survey also included an inventory of paint that is peeling off and require remediation;
6. Visual inspection for the presence of the other hazardous building materials listed above. If identified, such materials were reported as suspected until tested. Testing of these materials was not part of the scope of this survey; and
7. Preparation and provision of this report which includes the methodologies, drawings (if they were initially provided by the Client), results, findings, conclusions, recommendations and site photographs.

This report is not a scope of work/specifications document for the abatement/remediation of hazardous materials and shall not be used for such purposes.

1.2 Appendices Outline

The following is an outline of the appendices included in the report:

- Drawings showing sampling locations and the locations of asbestos-containing materials (if identified) are presented in Appendix A;
- The **results** of the survey for asbestos and lead in the form of summary tables for each of the materials are presented in Appendix B;
- The laboratory analysis reports are presented in Appendix C;
- Select site photographs are presented in Appendix D;
- Background information on hazardous building materials, including a brief discussion of the properties, uses, and hazards associated with exposure, is attached in Appendix E;
- A summary of applicable provincial regulations and guidelines pertaining to hazardous building materials is attached in Appendix F;
- Survey methodology including bulk samples analysis methodology and assessment of hazardous building materials methodology is attached in Appendix G;
- Limitations of the project are attached in Appendix H; and
- Historical data (if applicable) is attached in Appendix I.

1.3 Building(s) Description

	Building 1
Name	Burnhamthorpe Public School
Address	3465 Golden Orchard Drive, Mississauga, Ontario
Current usage	School
Square footage	Unknown
Number of Floors	Two
Number of Units	NA
Year Built	1965 with addition in 1968
Roof Mechanical penthouse (yes/no)	NA
Number of underground levels	NA
General interior finishes	Block walls, brick walls, Suspended Ceiling Tiles (SCTs), Vinyl Floor Tiles (VFTs), drywall, plaster, etc.

NA = Not Applicable

2. FINDINGS AND DISCUSSION

2.1 ACMs

Material Description	Observed (yes/no)	Sample(s) Numbers	Asbestos % And Type	Friable/ Non-Friable	Condition	Location
Exterior brick mortar	Yes	32250-1A-1C	ND			Exterior bricks walls
Caulking, Grey	Yes	32250-2A-2C	ND			Around exterior window frame, North wall, Principal's Office 137A, 1 st floor
Block wall mortar	Yes	32250-3A-3C	ND			Interior block walls, Throughout project areas
Suspended Ceiling Tiles (SCTs), 2'x4', Small pinholes and medium fissures	Yes	32250-4A-4C	ND			Ceilings, Throughout project areas
SCTs, 2'x4', Small and medium pinholes	Yes	32250-5A-5C	ND			Ceiling, Seminar Room 204, 2 nd floor
Vinyl Floor Tiles (VFTs), 1'x1', Beige with light grey streaks	Yes	32250-6A-6C	ND			Floor, Seminar Room 204, 2 nd floor
Mastic, Black and yellow	Yes	32250-7A-7C	1% Chrysotile	Non-Friable	Good	Under beige with light grey streaks VFTs, Seminar Room 204, 2nd floor
Caulking, Black	Yes	32250-8A-8C	ND			Between door frame and glass pane, Door, Health Room 105, 1 st floor
Caulking, Light grey and dark grey	Yes	32250-9A-9C	0.5% Chrysotile	Non-Friable	Good	Around door frame, Seminar Room 203 and 204, 2nd floor

Hazardous Building Materials Survey
Elevator and Washrooms Renovation Project
Burnhamthorpe Public School, 3465 Golden Orchard Drive, Mississauga, Ontario
OHE Project No.: 32250
April 2026

Material Description	Observed (yes/no)	Sample(s) Numbers	Asbestos % And Type	Friable/ Non-Friable	Condition	Location
Caulking, White	Yes	32250-9A-9C	ND			Around door frame, Seminar Room 203 and 204, 2 nd floor
Sink undercoating	Yes	32250-10A-10C	ND			Sink, Under millwork, Health Room 105, 1 st floor
Mastic, Yellow	Yes	32250-11A-11C	ND			Behind vinyl baseboard, Throughout project areas
Mastic, Black	Yes	32250-12A-12C	1% Chrysotile	Non-Friable	Good	Under carpet flooring, Library 1, 1st floor
Mastic, Brown with yellow	Yes	32250-13A-13C	ND			Behind vinyl baseboard, West wall, Library 1, 1 st floor
Drywall Joint Compound (DJC)	Yes	Previously tested¹	3% Chrysotile	Non-Friable	Good	Ceiling and walls, Throughout 1965 original building
VFTs, 9"x9", Beige with brown streaks and associated black mastic	Yes	Previously tested¹	1% and 5% Chrysotile	Non-Friable	Good	Floor, Work Room 203, 2nd floor
Primer	Yes	Previously tested¹	2% Chrysotile	Non-Friable	Good	Walls, Throughout 1965 original building
Interior brick mortar	Yes	Previously tested¹	2% Chrysotile	Non-Friable	Good	Walls, Throughout 1965 original building
Mechanical System Insulation (MSI)	No	Previously tested¹	70% Chrysotile	Friable		Elbows, Pipe fittings, 1965 original building

ND – None Detected

¹- As per Appendix I

A summary of the analysis of the bulk samples is presented in Table B.1 found in Appendix B.

ACMs were noted to be in good condition. Refer to the Table above for condition and location details.

Where ACMs are in good condition and will remain in place, an AMP is required.

2.2 Lead

Lead-containing paint was identified at the Subject Location. A detailed description of the colours and locations is presented in Table B.2 found in Appendix B. It is assumed that the results presented apply to all paint(s) of the same colour.

Lead may be present in wiring connectors and electric cable sheathing, in lead piping, in solder joints on copper piping, in ceramic building products such as floor or wall tiles.

Prior to disturbance of lead-containing materials, the materials must be abated in accordance with applicable guidelines and regulations.

Where lead has been identified to be in fair condition, the materials should be repaired or removed in accordance with applicable guidelines and regulations.

2.3 Mercury

Mercury is presumed to be present as a vapour in fluorescent light bulbs and mercury-vapour lamps.

Mercury is presumed to be present as a component in electrical equipment, such as silent, position dependent switches.

2.4 Silica

Silica is presumed to be present in materials such as fillers for paints and mastic and in bricks, ceramics, masonry, concrete and mortar.

Silica-containing materials should be handled in accordance with applicable guidelines and regulations.

2.5 Isocyanates

The material was not identified at the site and is not expected to be found.

2.6 Vinyl Chloride

The material was not identified at the site and is not expected to be found.

2.7 Benzene

The material was not identified at the site and is not expected to be found.

2.8 Acrylonitrile

The material was not identified at the site and is not expected to be found.

2.9 Coke Oven Emissions

The material was not identified at the site and is not expected to be found.

2.10 Arsenic

The material was not identified at the site and is not expected to be found.

2.11 Ethylene Oxide

The material was not identified at the site and is not expected to be found.

Hazardous building materials may be present in areas not accessible for view and identification. In situations where hazardous building materials extend into a non-accessible area, the materials were assumed to also be present in those areas and have been reported as such. Contractors and maintenance personnel should be warned of the possibility of undisclosed hazardous building materials in enclosed areas. All hazardous building materials discovered in these areas should be treated as such until proven otherwise as per all applicable regulations and guidelines.

3. RECOMMENDATIONS

OHE's recommendations, based on the findings of the survey, are as follows:

- Provide a copy of this report to contractors bidding on or performing work within the Subject Location.
- Remove all asbestos-containing materials that are likely to be disturbed during renovations or demolitions activities in accordance with the following regulations:
 - Ontario Regulation 278/05 (as amended) – “Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations” (O. Reg. 278/05);
 - Ontario Regulation 490/09 (as amended) – “Designated Substances” (O. Reg. 490/09);
 - Ontario Regulation 213/91 (as amended) – “Construction Projects” (O. Reg. 213/91);
 - Ontario Regulation 347/90 (as amended) – “General - Waste Management” (O. Reg. 347/90); and
 - The regulations respecting the Handling and Offering for Transport and Transport of Dangerous Goods.
- Removal of the drywall with asbestos-containing DJC will require removal operation procedures as specified in O. Reg. 278/05 (Type 1 Operation for <math><1\text{m}^2</math> and Type 2 Operation for $\geq 1\text{m}^2$).
- Removal of the asbestos-containing primer will require removal operation procedures as specified in O. Reg. 278/05 (Type 1 or Type 2 Operations depending on method of removal).
- Removal of the asbestos-containing VFTs will require removal operation procedures as specified in O. Reg. 278/05 (Type 1 Operation).
- Removal of the asbestos-containing mastic will require removal operation procedures as specified in O. Reg. 278/05 (Type 1 or Type 2 Operations depending on method of removal).

- Removal of asbestos-containing interior brick wall mortar will require removal operation procedures as specified in O. Reg. 278/05 (Type 1 or Type 2 Operations depending on method of removal).
- Removal of the asbestos-containing MSI will require removal operation procedures as specified in O. Reg. 278/05 (Type 2 Glove Bag Operation).
- Removal of the asbestos-containing caulking will require removal operation procedures as specified in O. Reg. 278/05 (Type 1 Operation).
- Renovations and/or demolition operations that are likely to generate lead-containing dust shall be carried out in accordance with the following guidelines and regulations:
 - Ontario Ministry of Labour Guideline: Lead on Construction Projects;
 - Designated Substances Regulation, O. Reg. 490/09;
 - Regulation for Construction Projects, O. Reg. 213/91; and
 - General – Waste Management Regulation, O. Reg. 347/90.
- Renovations and/or demolition operations that are likely to generate silica-containing dust shall be carried out in accordance with the following guidelines and regulations:
 - Ontario Ministry of Labour Guideline: Silica on Construction Projects;
 - Designated Substances Regulation, O. Reg. 490/09;
 - Regulation for Construction Projects, O. Reg. 213/91; and
 - General – Waste Management Regulation, O. Reg. 347/90.
- Renovations and/or demolition operations that are likely to disturb mercury-containing materials or equipment shall be carried out in accordance with the following guidelines and regulations:
 - Designated Substances Regulation, O. Reg. 490/09;
 - Regulation for Construction Projects, O. Reg. 213/91; and
 - General – Waste Management Regulation, O. Reg. 347/90.
- Disposal of hazardous materials shall be conducted in accordance with all applicable regulations and guidelines.

- Should suspect hazardous building materials be discovered during any demolition or renovation work in the above mentioned location, the contractor shall stop all work and immediately notify personnel from the Peel District School Board and OHE.

4. GENERAL STATEMENT OF LIMITATIONS

The information and opinions rendered in this report are for use exclusively by the Client and is subject to the terms, conditions and limitations as set out in the proposal/scope of work. OHE Consultants reserves the right to review and comment on any interpretation of the data or conclusions derived by the Client. OHE Consultants will not provide this report or other associated information to any party other than the Client unless the disclosure of the information is required by law or is requested in writing by the Client. Any required notifications (internal or external) about information contained in this report shall be the sole responsibility of the Client.

Nothing under the agreement (written or verbal) with the Client shall be construed to give any other rights or benefits to anyone other than the Client and OHE Consultants, and all duties and responsibilities undertaken pursuant to the agreement will be for the sole and exclusive benefit of the Client and OHE Consultants and not for the benefit of any other party. Client agrees not to disclose to any third party data, reports or information provided by OHE Consultants without prior written consent, and OHE Consultants shall have no liability to the Client for claims resulting from such disclosure. However, the Client may use the written report and associated documents to indicate the status of the property to current owners or government requiring the report.

OHE Consultants collected the information provided in this report for the benefit of its Client. OHE Consultants' Client may upon authorization release the information to third parties, who may use and rely upon this report to their discretion. Any use of, or reliance upon, the information by a party other than the Client shall be solely at the risk of the third party and without legal recourse against OHE Consultants.

The scope of this report is limited to possible hazardous building materials found within (or part of) the subject spaces included in the survey only. The survey only considered issues of the building structure, mechanical equipment, and their finishes. The survey did not consider current or past use of the property or occupant articles within the building (i.e. furniture, stock items, etc.), nor does it report on possible contaminants in the soil and groundwater of the site, vessels,

drums, underground storage tanks, etc. The survey consisted of accessible areas only; samples were not collected if accessibility was restricted.

OHE Consultants exercised normal skills of a reasonably qualified environmental consultant as part of obtaining the information presented in this report. The findings and conclusions contained herein have been made in accordance with generally accepted evaluation methods in the industry at the time of the performance of the work utilizing trained technical staff and professionals.

The information are only representative of the time period when the actual work was carried out. It is possible, due to the nature of building construction, that conditions may exist which could not be reasonably identified within the scope of the assessment or which were not apparent during the site investigation.

The information presented in the report shall not be construed as legal opinion. In addition, the information shall not be used to evaluate health risks of building occupants associated with exposure to identified hazardous building materials – such evaluations shall be carried out by a licensed medical professional who specializes in such evaluations. Over time, the regulations, standards and guidelines which are outlined in the report could be amended/updated, and accordingly may not apply at a future date.

No representation, warranties or guaranties, expressed or implied, are made with respect to any goods or services provided as part of this assessment/report, and any implied warranties or guaranties for a particular purpose are expressly disclaimed.

April 2026

OHE Consultants

Occupational Hygiene & Engineering

Original Signed by:

Original Signed by:

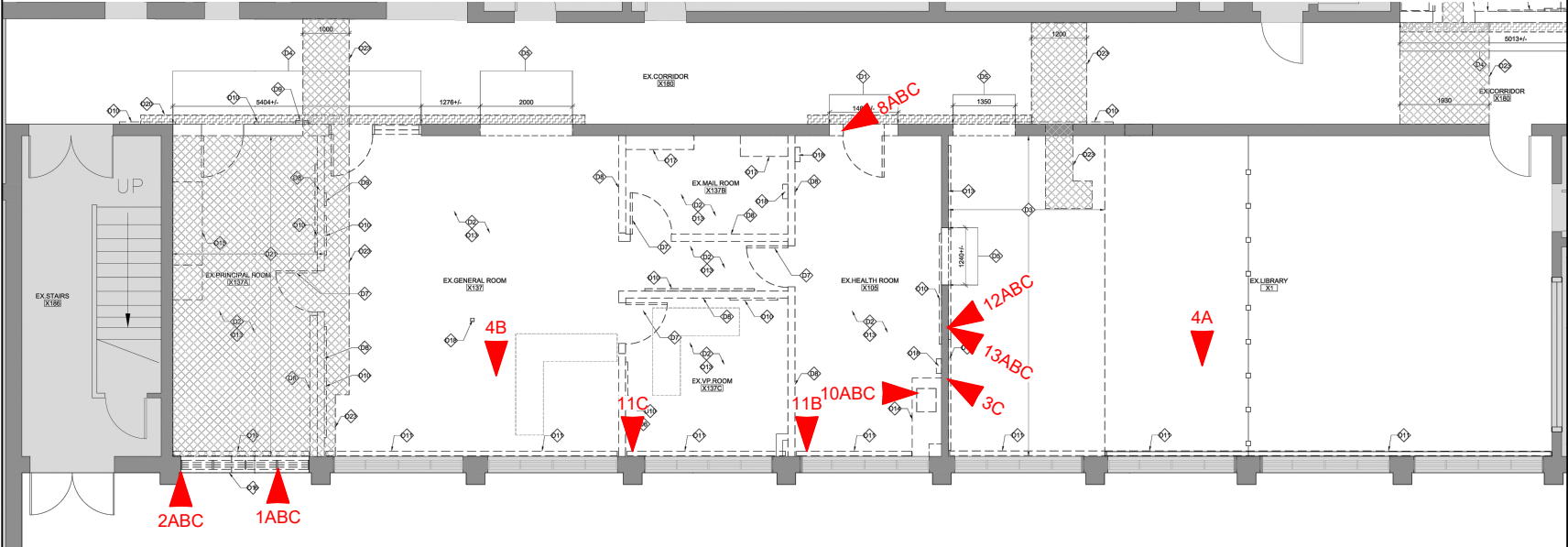
Prepared by:
Thirunavukarasu Annamalai, M.Eng.
Junior Project Specialist

Reviewed by:
Darren Kim
Senior Project Manager

Original Signed by:

Reviewed by:
Michal Zitnik, M.H.Sc., ROH, CIH
Vice President

DRAWINGS



Legend:
 ▲ Asbestos Bulk Sample Location

Notes:
 Locations of site features are approximate and may vary from that shown.

Drawing Title:
 Asbestos Bulk Sample Locations

Client Address:
 Peel District School Board
 933 Central Parkway West
 Mississauga, Ontario

Project Location:
 First Floor
 Burnhamthorpe Public School
 3465 Golden Orchard Drive
 Mississauga, Ontario

Project No: 32250

Date: April 2026

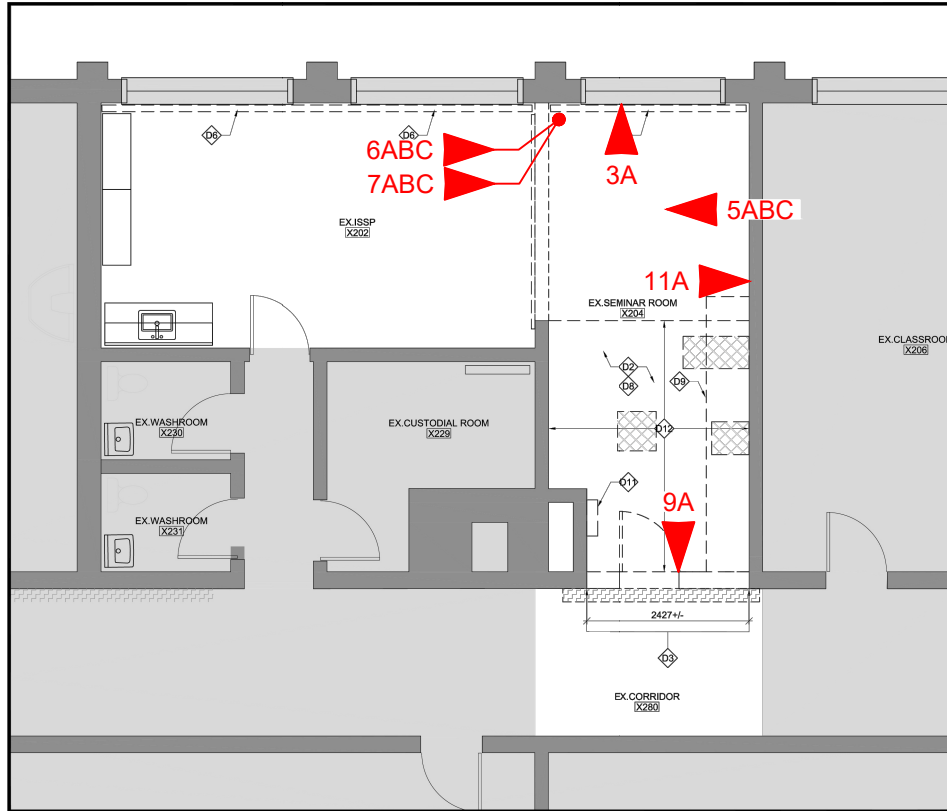
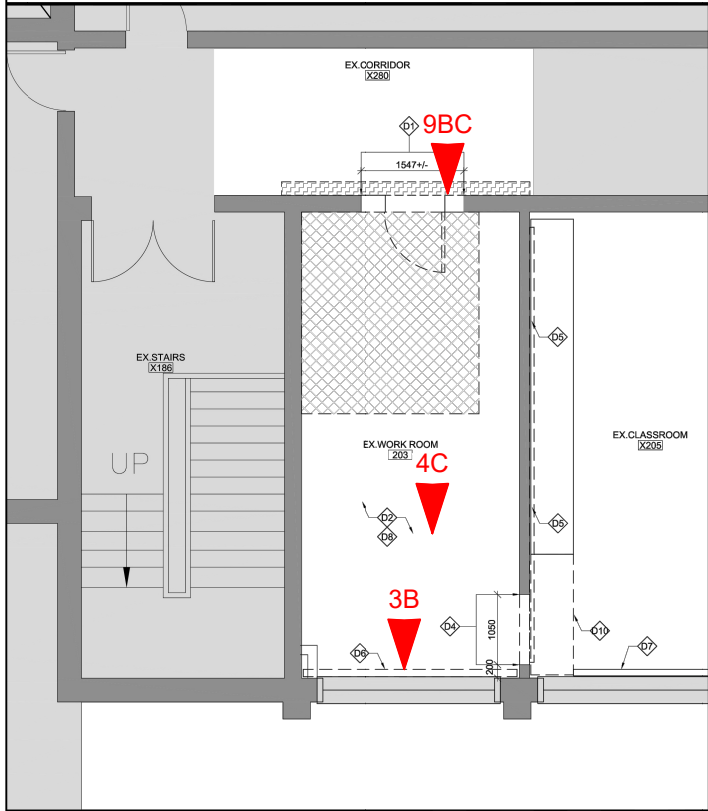
Scale: NTS

Drawn By: AF

Approved By: MZ

Drawing No:
 1.1





Legend:

▶ Asbestos Bulk Sample Location

Notes:
Locations of site features are approximate and may vary from that shown.

Drawing Title:
Asbestos Bulk Sample Locations

Client Address:
Peel District School Board
933 Central Parkway West
Mississauga, Ontario

Project Location:
Second Floor
Burnhamthorpe Public School
3465 Golden Orchard Drive
Mississauga, Ontario

Project No: 32250

Date: April 2026 Drawing No:

Scale: NTS

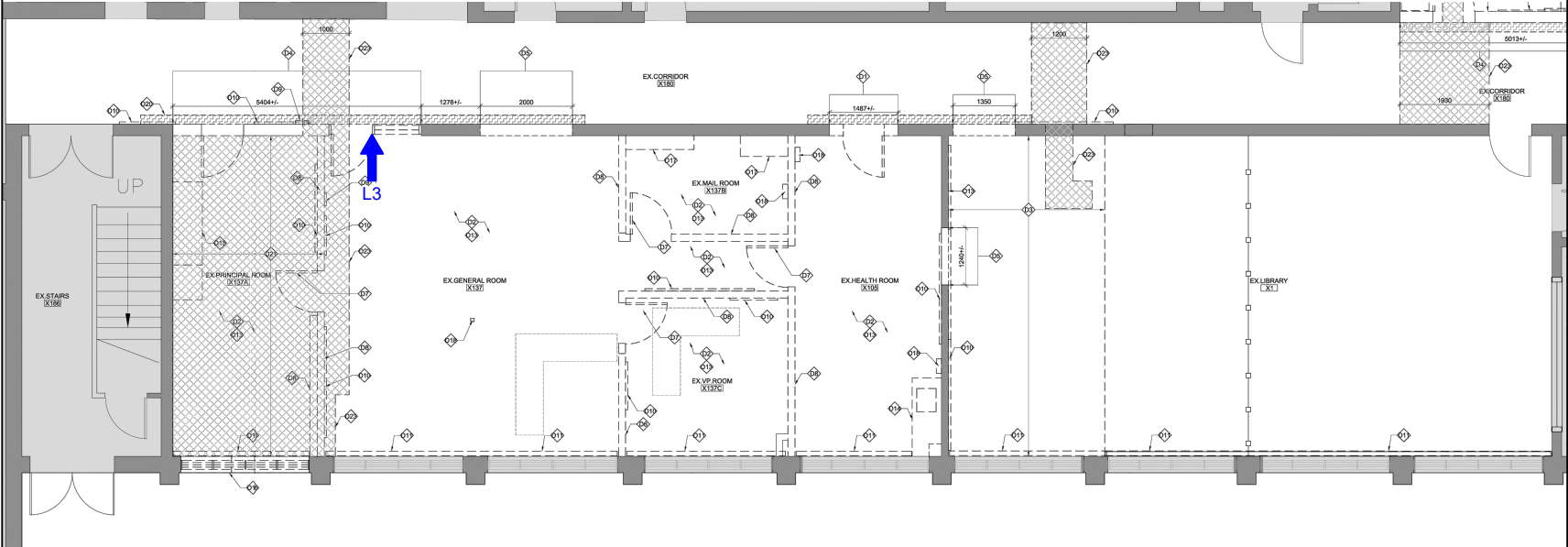
Drawn By: AF

Approved By: MZ



1.2





Legend:
 Lead Bulk Sample Location

Notes:
 Locations of site features are approximate and may vary from that shown.

Drawing Title:
Lead Bulk Sample Locations

Client Address:
 Peel District School Board
 933 Central Parkway West
 Mississauga, Ontario

Project Location:
 First Floor
 Burnhamthorpe Public School
 3465 Golden Orchard Drive
 Mississauga, Ontario

Project No: 32250



Date: April 2026

Drawing No:

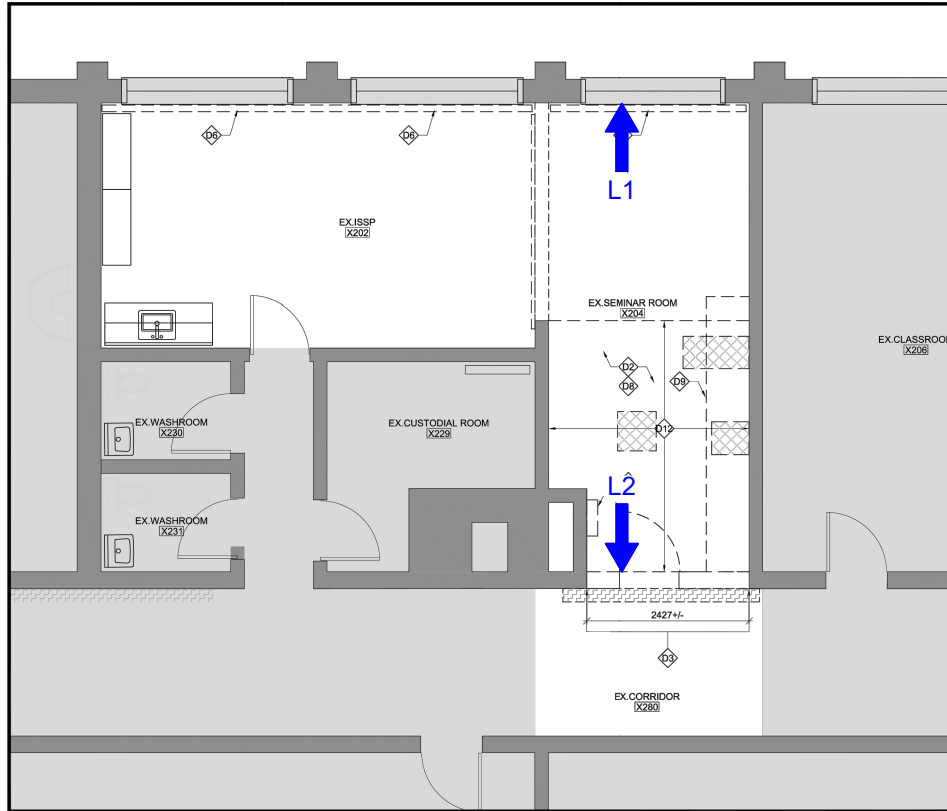
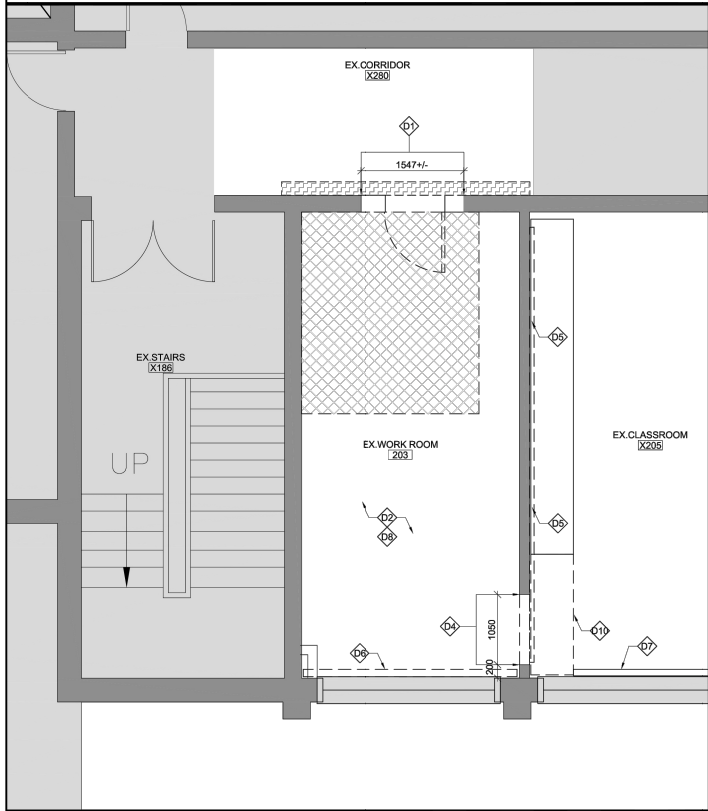
Scale: NTS

Drawn By: AF

2.1

Approved By: MZ





Legend:

→ Lead Bulk Sample Location

Notes:
Locations of site features are approximate and may vary from that shown.

Drawing Title:
Lead Bulk Sample Locations

Client Address:
Peel District School Board
933 Central Parkway West
Mississauga, Ontario

Project Location:
Second Floor
Burnhamthorpe Public School
3465 Golden Orchard Drive
Mississauga, Ontario

Project No: 32250



Date: April 2026 Drawing No:

Scale: NTS

Drawn By: AF

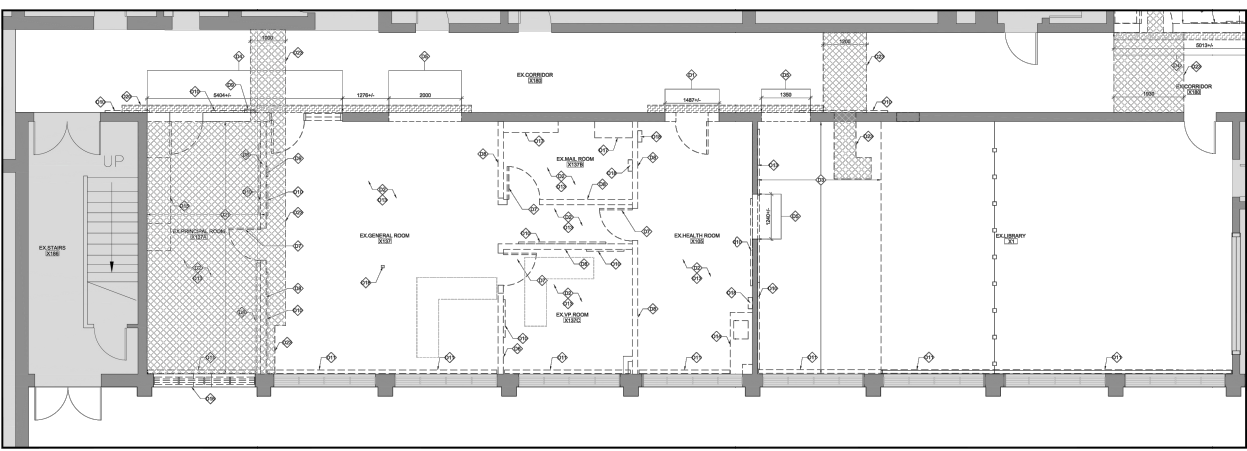
Approved By: MZ

2.2

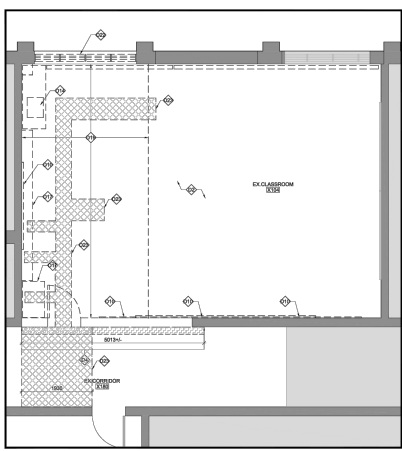


Note:
 - Asbestos-containing Mechanical System Insulation (MSI) was identified in 1965 original building.

- ① REMOVE AND REPLACE PORTIONS OF EXISTING CONCRETE SLAB AS REQUIRED FOR INSTALLATION OF ELEVATOR PIT, WEEPING TILE, AND BUMP PIT. REFER TO STRUCTURAL AND MECHANICAL DRAWINGS FOR EXTENTS AND DETAILS.
- ② FINISH EXISTING EXTERIOR WINDOWS, RETAIN EXISTING LANTERNS, PATCH EXISTING OPENINGS AND PREPARE FOR NEW, TO MATCH EXISTING WALL. CONSTRUCTION REFER TO DETAIL A600.
- ③ REMOVE EXISTING FLOORING (VCT/TERRAZZO/CARPET) AND REINFORCED CONCRETE SLAB, INCLUDING SUBBASE AND EARTH AS REQUIRED FOR NEW PILING, NEW FOOTING FOUNDATION, AND INSTALLATION OF A BUMP PIT. COORDINATE WITH STRUCTURAL AND MECHANICAL DRAWINGS.
- ④ SANITIZATION TO BE PERFORMED FROM EACH OPENING WITH FRESH CAPTURE TO BLOCK, TO MATCH EXISTING, REFER TO REGULATORY AGENCIES FOR REGULATORY REQUIREMENTS.



4 PARTIAL GROUND FLOOR - DEMOLITION PLAN
 SCALE: 1/8"



3 PARTIAL GROUND FLOOR - DEMOLITION PLAN
 SCALE: 1/8"



APPROXIMATE SITE

Legend:

Notes:
 Locations of site features are approximate and may vary from that shown.

Drawing Title:
Friable Asbestos-Containing Materials

Client Address:
 Peel District School Board
 933 Central Parkway West
 Mississauga, Ontario

Project Location:
 First Floor
 Burnhamthorpe Public School
 3465 Golden Orchard Drive
 Mississauga, Ontario

Project No: 32250

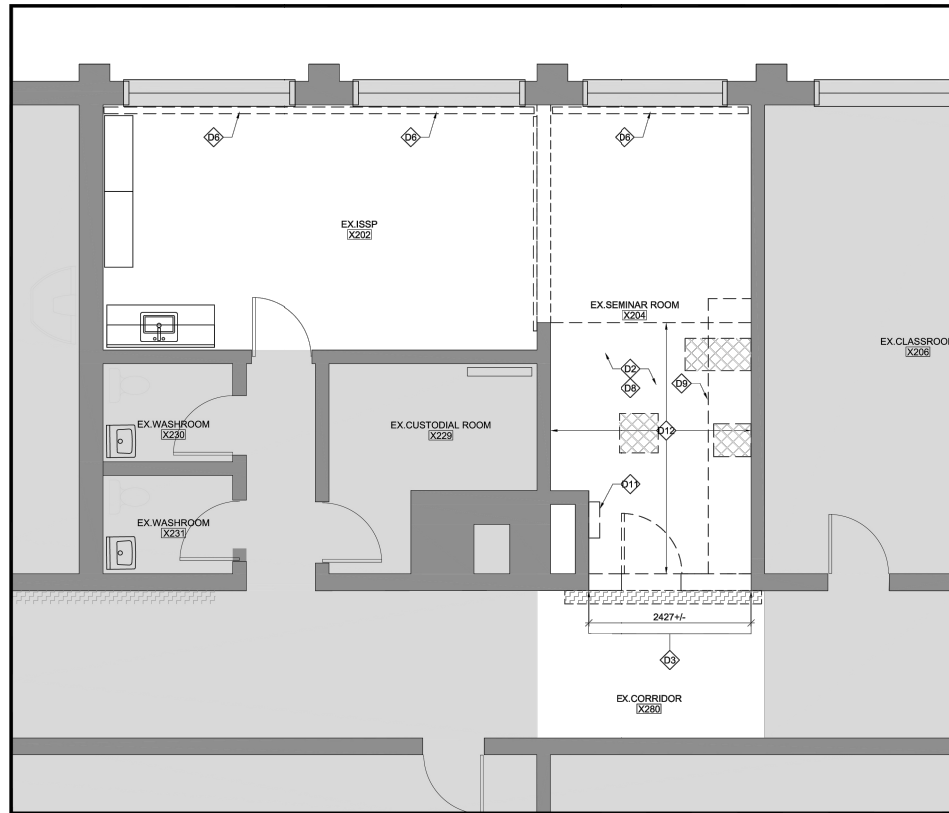
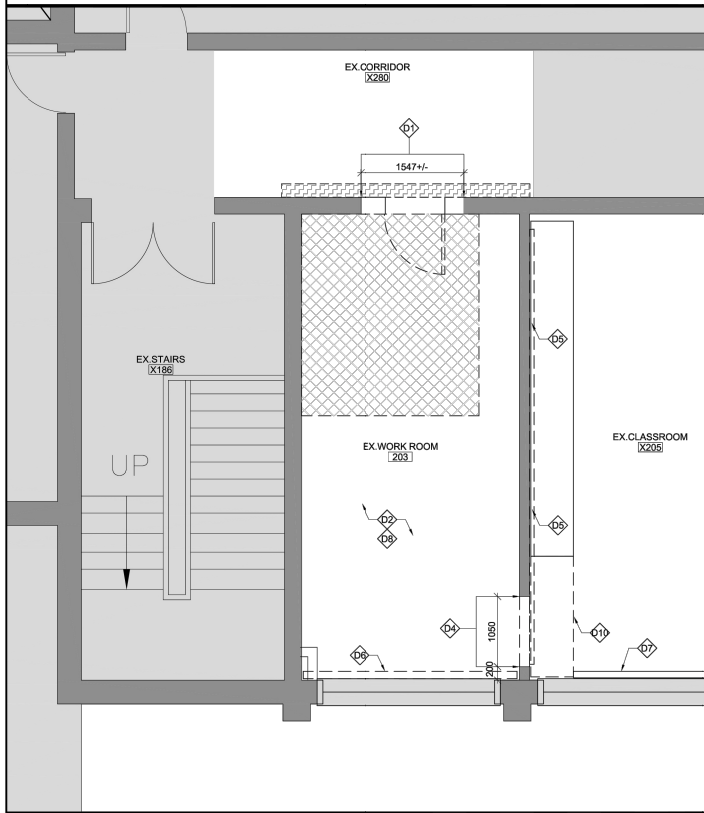
Date: April 2026	Drawing No: 3.1
Scale: NTS	
Drawn By: AF	
Approved By: MZ	



Note:

- Asbestos-containing Mechanical System Insulation (MSI) was identified in 1965 original building.

Legend:



Notes:

Locations of site features are approximate and may vary from that shown.

Drawing Title:

Friable Asbestos-Containing Materials

Client Address:

Peel District School Board
933 Central Parkway West
Mississauga, Ontario

Project Location:

Second Floor
Burnhamthorpe Public School
3465 Golden Orchard Drive
Mississauga, Ontario

Project No: 32250



Date: April 2026

Drawing No:

Scale: NTS

Drawn By: AF

3.2




Approved By: MZ

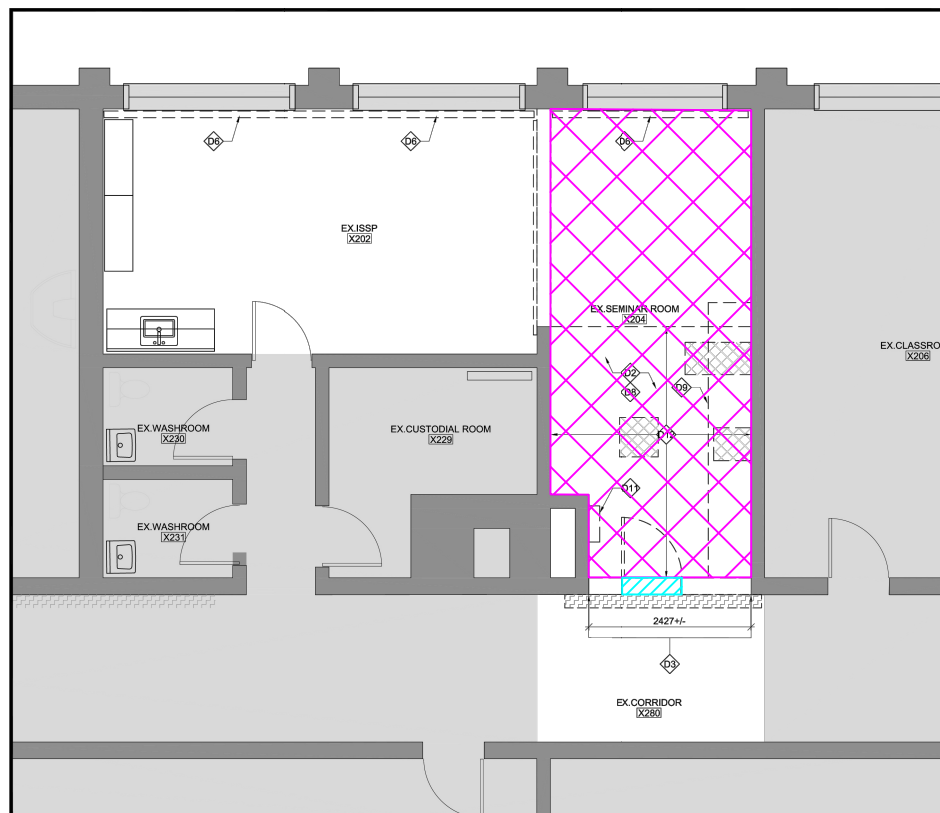
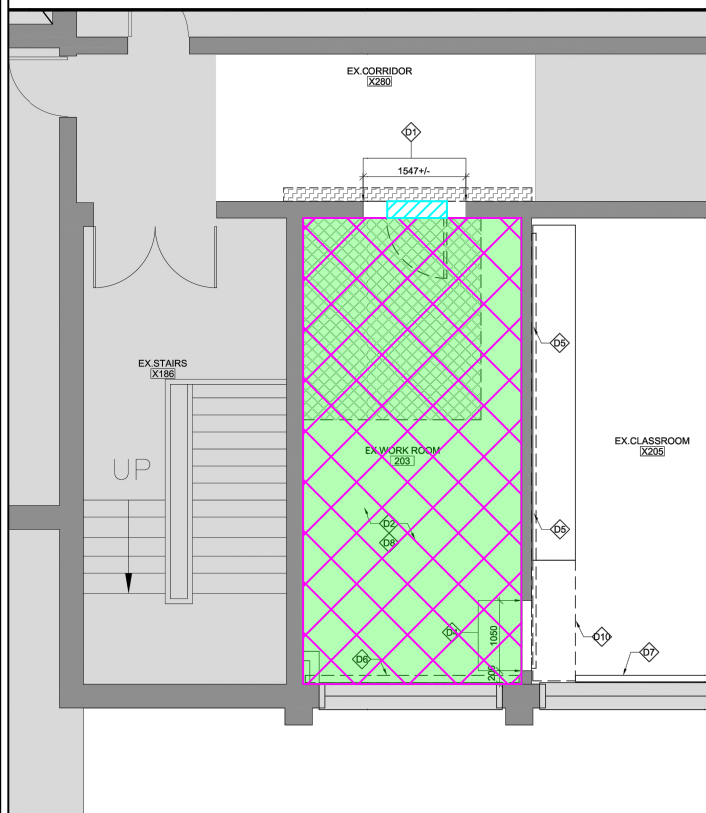


Note:

- Asbestos-containing Drywall Joint Compound (DJC) was identified in 1965 original building.
- Asbestos-containing interior brick mortar was identified in 1965 original building.
- Asbestos-containing primer was identified in the 1965 original building.

Legend:

-  Mastic
-  Caulking
-  VFTs



Notes:
Locations of site features are approximate and may vary from that shown.

Drawing Title:

Non-Friable Asbestos-Containing Materials

Client Address:

Peel District School Board
933 Central Parkway West
Mississauga, Ontario

Project Location:

Second Floor
Burnhamthorpe Public School
3465 Golden Orchard Drive
Mississauga, Ontario

Project No: 32250



Date: April 2026

Drawing No:

Scale: NTS

Drawn By: AF

Approved By: MZ

4.2



RESULTS

Table B.1

Summary of Bulk Sample Analysis Results for the Presence of Asbestos by Polarized Light Microscopy (PLM) with Dispersion Staining

Collected on April 20, 2026

OHE Sample Number	Sample Description	Sample Location	Analysis Results (% and Type of Asbestos)
32250-1A	Exterior brick mortar	North wall by Principal's Office 137A, 1 st floor	None detected
32250-1B	Exterior brick mortar	North wall by Principal's Office 137A, 1 st floor	None detected
32250-1C	Exterior brick mortar	North wall by Principal's Office 137A, 1 st floor	None detected
32250-2A	Caulking, Grey	Around exterior window frame, North wall, Principal's Office 137A, 1 st floor	None detected
32250-2B	Caulking, Grey	Around exterior window frame, North wall, Principal's Office 137A, 1 st floor	None detected
32250-2C	Caulking, Grey	Around exterior window frame, North wall, Principal's Office 137A, 1 st floor	None detected
32250-3A	Block wall mortar	North wall, Seminar Room 204, 2 nd floor	None detected
32250-3B	Block wall mortar	South wall, Work Room 203, 2 nd floor	None detected
32250-3C	Block wall mortar	West wall, Library 1, 1 st floor	None detected
32250-4A	Suspended Ceiling Tiles (SCTs), 2'x4', Small pinholes and medium fissures	Ceiling, Library 1, 1 st floor	None detected
32250-4B	SCTs, 2'x4', Small pinholes and medium fissures	Ceiling, General Office 137, 1 st floor	None detected
32250-4C	SCTs, 2'x4', Small pinholes and medium fissures	Ceiling, Work Room 203, 2 nd floor	None detected
32250-5A	SCTs, 2'x4', Small and medium pinholes	Ceiling, Seminar Room 204, 2 nd floor	None detected

OHE Sample Number	Sample Description	Sample Location	Analysis Results (% and Type of Asbestos)
32250-5B	SCTs, 2'x4', Small and medium pinholes	Ceiling, Seminar Room 204, 2 nd floor	None detected
32250-5C	SCTs, 2'x4', Small and medium pinholes	Ceiling, Seminar Room 204, 2 nd floor	None detected
32250-6A	Vinyl Floor Tiles (VFTs), 1'x1', Beige with light grey streaks	Floor, Seminar Room 204, 2 nd floor	None detected
32250-6B	VFTs, 1'x1', Beige with light grey streaks	Floor, Seminar Room 204, 2 nd floor	None detected
32250-6C	VFTs, 1'x1', Beige with light grey streaks	Floor, Seminar Room 204, 2 nd floor	None detected
32250-7A	Mastic, Black and yellow	Under beige with light grey streaks VFTs, Seminar Room 204, 2nd floor	1% Chrysotile
32250-7B	Mastic, Black and yellow	Under beige with light grey streaks VFTs, Seminar Room 204, 2nd floor	Not Analyzed (Stop positive)
32250-7C	Mastic, Black and yellow	Under beige with light grey streaks VFTs, Seminar Room 204, 2nd floor	Not Analyzed (Stop positive)
32250-8A	Caulking, Black	Between door frame and glass pane, Door, Health Room 105, 1 st floor	None detected
32250-8B	Caulking, Black	Between door frame and glass pane, Door, Health Room 105, 1 st floor	None detected
32250-8C	Caulking, Black	Between door frame and glass pane, Door, Health Room 105, 1 st floor	None detected
32250-9A	Caulking, Light grey and dark grey	Around door frame, Seminar Room 204, 2nd floor	0.5% Chrysotile
	Caulking, White		None detected
	Caulking, Off-White		None detected
32250-9B	Caulking, Light grey and dark grey	Around door frame, Work Room 203, 2nd floor	Not Analyzed (Stop positive)
	Caulking, White		

OHE Sample Number	Sample Description	Sample Location	Analysis Results (% and Type of Asbestos)
	Caulking, Off-White		
32250-9C	Caulking, Light grey and dark grey	Around door frame, Work Room 203, 2nd floor	Not Analyzed (Stop positive)
	Caulking, White		
	Caulking, Off-White		
32250-10A	Sink undercoating	Under millwork, Sink, Health Room 105, 1 st floor	None detected
32250-10B	Sink undercoating	Under millwork, Sink, Health Room 105, 1 st floor	None detected
32250-10C	Sink undercoating	Under millwork, Sink, Health Room 105, 1 st floor	None detected
32250-11A	Mastic, Yellow	Behind vinyl baseboard, East wall, Seminar Room 204	None detected
32250-11B	Mastic, Yellow	Behind vinyl baseboard, South wall, Health Room 105, 1 st floor	None detected
32250-11C	Mastic, Yellow	Behind vinyl baseboard, South wall, Vice Principal's Office 137C, 1 st floor	None detected
32250-12A	Mastic, Black	Under carpet flooring, Library 1, 1st floor	1% Chrysotile
32250-12B	Mastic, Black	Under carpet flooring, Library 1, 1st floor	Not Analyzed (Stop positive)
32250-12C	Mastic, Black	Under carpet flooring, Library 1, 1st floor	Not Analyzed (Stop positive)
32250-13A	Mastic, Brown with yellow	Behind vinyl baseboard, West wall, Library 1, 1 st floor	None detected
32250-13B	Mastic, Brown with yellow	Behind vinyl baseboard, West wall, Library 1, 1 st floor	None detected
32250-13C	Mastic, Brown with yellow	Behind vinyl baseboard, West wall, Library 1, 1 st floor	None detected

Table B.2

Summary of Bulk Samples Analysis Results for the Presence of Lead by Flame Atomic Absorption Spectrometry (AAS)

Collected on April 20, 2026

OHE Sample Number	Sample Description	Sample Location	Contains Lead by weight (%)
32250-L1	Off-White paint	North wall, Seminar Room 204, 2nd floor	0.0080
32250-L2	Blue paint	Door, Seminar Room 204, 2 nd floor	<0.0064
32250-L3	Beige paint	Door, General Office 137, 1 st floor	<0.0064

LABORATORY ANALYSIS REPORTS

Laboratory Analysis Report

To:

Fred Atrash
OHE Consultants Inc.
311 Matheson Boulevard East
Mississauga, Ontario
L4Z 1X8

EMC LAB REPORT NUMBER: A133844

Job/Project Name:

Analysis Method: Polarized Light Microscopy – EPA 600

Date Received: Apr 22/26

Date Analyzed: May 3,4/26

Analyst: Elizabeth Mierzynski

Reviewed By: Malgorzata Sybydlo

No. of Phases Analyzed: 37

Job No: 32250

Number of Samples: 39

Date Reported: May 4/26

Client's Sample ID	Lab Sample No.	Description/Location	Sample Appearance	SAMPLE COMPONENTS (%)		
				Asbestos Fibres	Non-asbestos Fibres	Non-fibrous Material
32250-1A	A133844-1 ⁵	Exterior brick mortar/North wall by Principal Room 137A, 1965 original building	Grey, cementitious material	ND		100
32250-1B	A133844-2 ⁵	Exterior brick mortar/North wall by Principal Room 137A, 1965 original building	Grey, cementitious material	ND		100
32250-1C	A133844-3 ⁵	Exterior brick mortar/North wall by Principal Room 137A, 1965 original building	Grey, cementitious material	ND		100
32250-2A	A133844-4	Caulking, Grey/Around exterior window frame, North wall, Principal Room 137A, 1965 original building	Grey, caulking	ND		100
32250-2B	A133844-5	Caulking, Grey/Around exterior window frame, North wall, Principal Room 137A, 1965 original building	Grey, caulking	ND		100
32250-2C	A133844-6	Caulking, Grey/Around exterior window frame, North wall, Principal Room 137A, 1965 original building	Grey, caulking	ND		100
32250-3A	A133844-7	Block wall mortar/North wall, Seminar Room 204, 1965 original building	Grey, cementitious material	ND		100
32250-3B	A133844-8	Block wall mortar/South wall, Work Room 203, 1965 original building	Grey, cementitious material	ND		100
32250-3C	A133844-9	Block wall mortar/West wall, Library 1, 1965 original building	Grey, cementitious material	ND		100

EMC LAB REPORT NUMBER: A133844

Client's Job/Project Name/No.: 32250

Analyst: Elizabeth Mierzynski

Client's Sample ID	Lab Sample No.	Description/Location	Sample Appearance	SAMPLE COMPONENTS (%)		
				Asbestos Fibres	Non-asbestos Fibres	Non-fibrous Material
32250-4A	A133844-10	Suspended Ceiling Tiles (SCTs), 2'x4', Small pinholes and medium fissures/Ceiling, Library 1, 1965 original building	Grey, ceiling tile	ND	75	25
32250-4B	A133844-11	SCTs, 2'x4', Small pinholes and medium fissures/Ceiling, General Office 137, 1965 original building	Grey, ceiling tile	ND	75	25
32250-4C	A133844-12	SCTs, 2'x4', Small pinholes and medium fissures/Ceiling, Work Room 203, 1965 original building	Grey, ceiling tile	ND	75	25
32250-5A	A133844-13	SCTs, 2'x4', Small and medium pinholes/Ceiling, Seminar Room 204, 1965 original building	Grey, ceiling tile	ND	75	25
32250-5B	A133844-14	SCTs, 2'x4', Small and medium pinholes/Ceiling, Seminar Room 204, 1965 original building	Grey, ceiling tile	ND	75	25
32250-5C	A133844-15	SCTs, 2'x4', Small and medium pinholes/Ceiling, Seminar Room 204, 1965 original building	Grey, ceiling tile	ND	75	25
32250-6A	A133844-16	Vinyl Floor Tiles (VFTs), 1'x1', Beige with light grey streaks/Floor, Seminar Room 204, 1965 original building	Off white, vinyl floor tile	ND		100
32250-6B	A133844-17	VFTs, 1'x1', Beige with light grey streaks/Floor, Seminar Room 204, 1965 original building	Off white, vinyl floor tile	ND		100

EMC LAB REPORT NUMBER: A133844

Client's Job/Project Name/No.: 32250

Analyst: Elizabeth Mierzynski

Client's Sample ID	Lab Sample No.	Description/Location	Sample Appearance	SAMPLE COMPONENTS (%)		
				Asbestos Fibres	Non-asbestos Fibres	Non-fibrous Material
32250-6C	A133844-18	VFTs, 1'x1', Beige with light grey streaks/Floor, Seminar Room 204, 1965 original building	Off white, vinyl floor tile	ND		100
32250-7A	A133844-19	Mastic, Black and yellow/Under beige with light grey streaks VFTs, Seminar Room 204, 1965 original building	Black and yellow, mastic	Chrysotile	1	99
32250-7B	A133844-20	Mastic, Black and yellow/Under beige with light grey streaks VFTs, Seminar Room 204, 1965 original building	NA	NA		
32250-7C	A133844-21	Mastic, Black and yellow/Under beige with light grey streaks VFTs, Seminar Room 204, 1965 original building	NA	NA		
32250-8A	A133844-22	Caulking, Black/Between door frame and glass pane, Door, Health Room 105, 1965 original building	Black, caulking	ND	5	95
32250-8B	A133844-23	Caulking, Black/Between door frame and glass pane, Door, Health Room 105, 1965 original building	Black, caulking	ND	5	95
32250-8C	A133844-24	Caulking, Black/Between door frame and glass pane, Door, Health Room 105, 1965 original building	Black, caulking	ND	5	95
32250-9A	A133844-25	Caulking, White/Around door frame, Seminar Room 204, 1965	3 Phases: a) Light grey and dark grey,	Chrysotile	0.5	99.5

EMC LAB REPORT NUMBER: A133844

Client's Job/Project Name/No.: 32250

Analyst: Elizabeth Mierzynski

Client's Sample ID	Lab Sample No.	Description/Location	Sample Appearance	SAMPLE COMPONENTS (%)		
				Asbestos Fibres	Non-asbestos Fibres	Non-fibrous Material
		original building	caulking b) White, caulking c) Off white, caulking	ND ND		100 100
32250-9B	A133844-26	Caulking, White/Around door frame, Work Room 203, 1965 original building	2 Phases: a) NA b) White, caulking	NA ND		100
32250-9C	A133844-27	Caulking, White/Around door frame, Work Room 203, 1965 original building	3 Phases: a) NA b) White, caulking c) Off white, caulking	NA ND ND		100 100
32250-10A	A133844-28	Sink undercoat/Under millwork, Sink, Health Room 105, 1965 original building	Off white, caulking	ND		100
32250-10B	A133844-29	Sink undercoat/Under millwork, Sink, Health Room 105, 1965 original building	Off white, caulking	ND		100
32250-10C	A133844-30	Sink undercoat/Under millwork, Sink, Health Room 105, 1965 original building	Off white, caulking	ND		100
32250-11A	A133844-31	Mastic, Yellow/Behind vinyl baseboard, East wall, Seminar Room 204, 1965 original building	Yellow, mastic	ND	2	98
32250-11B	A133844-32	Mastic, Yellow/Behind vinyl baseboard, South wall, Health Room 105, 1965 original building	Yellow, mastic	ND	2	98
32250-11C	A133844-33	Mastic, Yellow/Behind vinyl	Yellow, mastic	ND	2	98

EMC LAB REPORT NUMBER: A133844

Client's Job/Project Name/No.: 32250

Analyst: Elizabeth Mierzynski

Client's Sample ID	Lab Sample No.	Description/Location	Sample Appearance	SAMPLE COMPONENTS (%)		
				Asbestos Fibres	Non-asbestos Fibres	Non-fibrous Material
		baseboard, South wall, Vice Principal Room 137C, 1965 original building				
32250-12A	A133844-34	Mastic, Black/Under carpet flooring, Library 1, 1965 original building	Black, mastic	Chrysotile	1	99
32250-12B	A133844-35	Mastic, Black/Under carpet flooring, Library 1, 1965 original building	NA	NA		
32250-12C	A133844-36	Mastic, Black/Under carpet flooring, Library 1, 1965 original building	NA	NA		
32250-13A	A133844-37	Mastic, Brown with yellow/Behind vinyl baseboard, West wall, Library 1, 1965 original building	Yellow, brown and black, mastic	ND		100
32250-13B	A133844-38	Mastic, Brown with yellow/Behind vinyl baseboard, West wall, Library 1, 1965 original building	Yellow, brown and black, mastic	ND		100
32250-13C	A133844-39	Mastic, Brown with yellow/Behind vinyl baseboard, West wall, Library 1, 1965 original building	Yellow, brown and black, mastic	ND		100

Note:

1. Bulk samples are analyzed using Polarized Light Microscopy (PLM) and dispersion staining techniques. The analytical procedures are in accordance with App. E to Sub. E of 40 CFR Part 763 and EPA/600/R-93/116.
2. The results are only related to the samples analyzed. **ND** = None Detected (no asbestos fibres were observed), **NA** = Not Analyzed (analysis stopped due to a previous positive result).
3. This report may not be reproduced, except in full without the written approval of EMC Scientific Inc. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government.
4. The Ontario Regulatory Threshold for asbestos is 0.5%. The limit of quantification (LOQ) is 0.5%.
5. This sample is small in size.



EMSL Canada Inc.

2756 Slough Street, Mississauga, ON L4T 1G3

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

<http://www.EMSL.com>

torontolab@emsl.com

EMSL Canada Or 552608171
CustomerID: 55OHE193
CustomerPO: 32250
ProjectID:

Attn: **Fred Atrash**
OHE Consultants
311 Matheson Blvd. East
Mississauga, ON L4Z 1X8

Phone: (905) 890-9000
Fax: (905) 890-9005
Received: 4/22/2026 03:58 PM
Collected: 4/20/2026

Project: **32250**

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>
32250-L1 552608171-0001	4/20/2026	4/23/2026	0.2522 g	0.0064 % wt	0.0080 % wt
Site: Off-White Paint, North Wall, Seminar Room 204, 1965 Original Building					
32250-L2 552608171-0002	4/20/2026	4/23/2026	0.2577 g	0.0064 % wt	<0.0064 % wt
Site: Blue Paint, Door, Seminar Room 204, 1965 Original Building					
32250-L3 552608171-0003	4/20/2026	4/23/2026	0.2515 g	0.0064 % wt	<0.0064 % wt
Site: Beige Paint, Door, General Office 137, 1965 Original Building					

Rowena Fanto, Lead Supervisor
or other approved signatory

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

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

Initial report from 04/29/2026 10:08:57

SITE PHOTOGRAPHS

Site Photographs
OHE Project No.: 32250

Photograph 1. View of the drywall with previously identified asbestos-containing DJC on the walls in General Room 137 on the 1st floor at the Subject Location.



Photograph 2. View of the previously identified asbestos-containing VFTs, 9"x9", beige with brown streaks and associated black mastic on the floor in Work Room 203 on the 2nd floor at the Subject Location.



Photograph 3. View of the previously identified asbestos-containing primer on the walls in Work Room 203 on the 2nd floor at the Subject Location.



Site Photographs
OHE Project No.: 32250

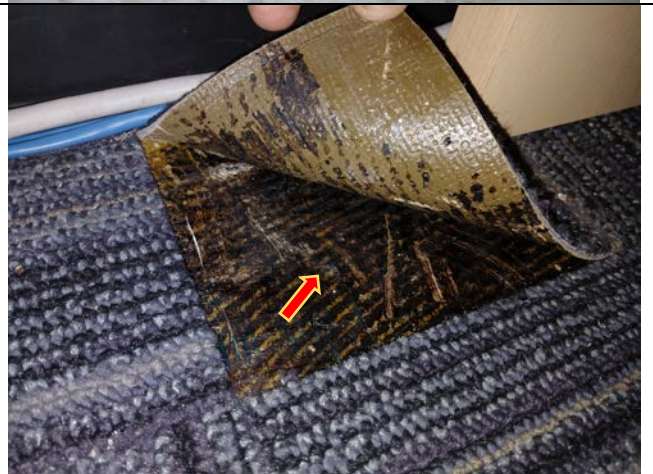
Photograph 4. View of the previously identified asbestos-containing interior brick mortar on the walls in Room 202 on the 2nd floor at the Subject Location.



Photograph 5. View of asbestos-containing mastic identified under VFTs in Seminar Room 204 on the 2nd floor at the Subject Location.



Photograph 6. View of asbestos-containing mastic identified under the carpet flooring in Library 1 on the 1st floor at the Subject Location.

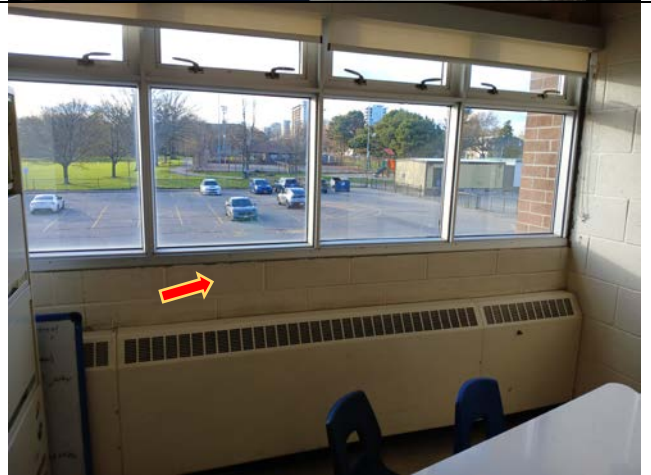


Site Photographs
OHE Project No.: 32250

Photograph 7. View of asbestos-containing caulking identified around the door frame in Seminar Room 204 on the 2nd floor at the Subject Location.



Photograph 8. View of lead-containing off-white paint identified on the walls in Seminar Room 204 on the 2nd floor at the Subject Location.



**BACKGROUND INFORMATION ON
HAZARDOUS BUILDING MATERIALS**

ASBESTOS

Asbestos is a term applied to a family of fibrous minerals divided into two geological groups, serpentine and amphibole. These minerals are naturally occurring and are found in every mountain formation throughout the world. Only six forms of asbestos were used commercially. These are chrysotile, the only serpentine asbestos type, and amosite, crocidolite, anthophyllite, tremolite and actinolite which are the amphibole asbestos type.

There are over 3,000 separate uses of asbestos identified in existing literature. Uses are dependent upon the physical and chemical properties of a particular asbestos type. The desirable properties of asbestos fibres differ with each type of asbestos and include:

Fire retardance	Resistance to acids and alkalis	High tensile strength
Filter action	Thermal insulating qualities	Friction and wear resistance
Cohesion	Reinforcement	Filler

Asbestos is rarely found in pure form in a product and all products are divided into two broad categories: "friable materials" and "non-friable materials or manufactured products". "Friable materials" are defined as materials that, when dry, can be crumbled, pulverized or powdered by hand pressure. This classification includes materials such as sprayed fireproofing, thermal insulation applications, acoustical texturized material and refractory or non-friable materials that have been made to become friable through degradation.

"Non-friable materials" are generally hard and do not readily release fibres. Most asbestos-containing materials (ACMs) are found in this category and are typically included in materials such as cement products, felts, cloths, floor and roof coverings, friction products and ceiling tiles.

Asbestos fibres, when inhaled, may cause various respiratory diseases primarily including Asbestosis, Mesothelioma and Lung Cancer which all can cause an early death. Based on the health effects of exposure to asbestos fibres, the use of asbestos has become regulated across Canada and some products are now prohibited. Essentially, the location of ACMs must be identified and a written report kept and maintained of the ACMs locations so that work undertaken on these materials is conducted in a safe manner and any damaged ACMs or debris is repaired or removed.

LEAD

For thousands of years lead has been used industrially because of its poor conductive property. Lead has been commonly used for electric storage batteries, pigments, paints, and rubber compounds.

Health effects associated with lead exposure can result in damage to the kidneys, gastrointestinal system, nervous system and reproductive system. Symptoms range from vomiting, and abdominal cramps to pains in joints and muscles.

SILICA

Silica can be found naturally in two forms, crystalline or amorphous material. Crystalline silica is regulated due to its significant toxicity over the amorphous silica. The three most common forms of crystalline silica in the workplace are: quartz, cristobalite and tridymite. The physical properties of silica make it a valuable substance for use in a variety of different industries and processes such as an abrasive and scouring compound, fillers for paint and mastic and optical equipment. Health effects resulting from exposure to crystalline silica range from eye and skin irritation, coughing and sneezing to silicosis, a progressive lung disease.

**SUMMARY OF APPLICABLE
REGULATIONS AND GUIDELINES**

APPLICABLE REGULATIONS AND GUIDELINES

The following is a list of applicable regulations and guidelines:

Designated Substances

A Designated Substances report is completed to fulfil the Owner's requirements under Section 30 of the Ontario Occupational Health and Safety Act. A copy of the report must be provided to the general contractor who in turn must submit the report to all subcontractors prior to the commencement of demolition, construction or renovations.

Ontario Regulation 490/09 "Designated Substances" (O. Reg. 490/09) provides guidance on exposure monitoring, permissible exposure levels, medical monitoring, etc. for all Designated Substances in an industrial setting. There are no specific Ministry of Labour (MOL) regulations for control of the Designated Substances, with the exception of asbestos, on construction projects; however, the MOL actively enforces the general duty clause of the OHS Act to take all reasonable precautions in the circumstances of protection of a worker. It is important to note that Ontario Regulation 213/91 "Construction Projects" (O. Reg. 213/91) applies to construction projects and provides instruction on general requirements, safe work practices, reporting, etc.

ASBESTOS

Three regulations govern the control, handling, transport and disposal of asbestos in Ontario:

- Ontario Regulation 278/05 "Asbestos on Construction Projects and in Buildings and Repair Operations" made under OHS Act (O. Reg. 278/05);
- Ontario Regulation 347/90 "General – Waste Management" (as amended) made under the Environmental Protection Act (O. Reg. 347/90); and
- The regulations respecting "The Handling and Offering for Transport and Transporting of Dangerous Goods".

Ontario Regulation 278/05

Ontario Regulation 278/05 applies to buildings with regards to maintenance, renovations or demolition work where Asbestos-Containing Materials (ACMs) are or may be disturbed.

Under O. Reg. 278/05 a building owner must instate an Asbestos Management Program (AMP) for the building. The major requirements for the AMP including the following:

- Preparation and maintenance of a record of the location of asbestos-containing materials in the building;
- Notification of the building's tenants of the location of such material;
- Establishment of a training program for those employees of the owner who may work in close proximity to and disturb the material;
- Periodic inspection of the material to determine its condition;
- Remedial action on material that has deteriorated following the precautions and procedures prescribed by the regulation as Type 1, Type 2 and Type 3; and
- Removal of asbestos-containing materials to the extent practicable prior to demolition of a building or part thereof.

The regulation prescribes work to be conducted according to three procedure types. The procedure to be followed depends on the type of material and the regulation provides instruction on how the work must be performed.

Ontario Regulation 347/90

Ontario Regulation 347/90 applies to the disposal of all hazardous materials, including asbestos waste, from the location of generation to a landfill site. The regulation also prescribes procedures on how the asbestos waste is to be buried at the landfill site.

The major requirements to the building owner are to ensure that:

- The waste is appropriately packaged and labelled;
- The transport vehicle has an appropriate placard;
- The asbestos waste is transported on the same day as received by the landfill site; and
- The route of travel is the most direct.

The building owners are held responsible for their asbestos waste as prescribed in the regulation until it is accepted by the waste disposal site.

The regulations respecting the Handling and Offering for Transport and Transporting of Dangerous Goods.

These regulations govern the packaging mode of transport labelling, placards and documentation of waste while in transport. The labelling requirements differ from O. Reg. 347/90.

The major requirement to the building owner is to ensure the waste meets the packaging requirements and that a bill of lading accompanies the shipment.

LEAD

As stated previously there are no specific regulations regarding lead on construction projects; however, the MOL published a guideline entitled “Lead on Construction Projects” to raise the awareness of employers and workers to the hazards posed by lead in construction and the measures and procedures that should be taken to control those hazards.

The document provides information on the following:

- Health effects associated with lead exposure;
- Methods for controlling the lead hazard;
- Classification of work; and
- Measure and procedures for working with lead.

The guideline classifies operations involving lead-containing materials into three groups, Type 1, Type 2 and Type 3 operations. The procedure to be followed depends on the anticipated airborne concentration of lead generated during the operation, which is dependent on the type of work performed. The guideline also provides instruction on how the work must be performed.

SILICA

Again, there are no specific regulations regarding silica on construction projects; however, the MOL published a guideline entitled “Silica on Construction Projects” to raise the awareness of employers and workers to the hazards posed by silica in construction and the measures and procedures that should be taken to control those hazards.

- Health effects associated with silica exposure;
- Methods for controlling the silica hazard;
- Classification of work; and
- Measure and procedures for working with silica.

The guideline classifies operations involving silica-containing materials into three groups, Type 1, Type 2 and Type 3 operations. The procedure to be followed depends on the anticipated airborne concentration of silica generated during the operation, which is dependent on the type of work performed. The guideline also provides instruction on how the work must be performed.

METHODOLOGY

GENERAL SURVEY METHODOLOGY

The survey consisted of an extensive examination of accessible areas of the building to identify hazardous building materials. Suspected hazardous building materials were assessed based on the surveyor's knowledge regarding the historical use of hazardous building materials in buildings, through published data and through previous experiences.

Accessible is defined as an area above a suspended ceiling tile, within an access hatch or behind a closed door, not impeded by any structure, article or thing. An area enclosed by cement block, plaster, solid lumber, etc., where minor demolition is required to gain entry is considered non-accessible. The walkthrough survey was augmented with layout drawings where available.

OHE's surveyors completed a Room by Room sheet which details the findings in each room entered. The Room by Room sheet details the room number and/or room description including the materials observed in the room and the condition of the material. The Room by Room sheet also records sampling information, quantity of the material(s), accessibility of the material(s) and the recommended control action.

OHE's approach to the work followed accepted industry procedures as well as our own in-house protocols. The examination of materials was largely performed visually with some occasion where physical contact was necessary to assess the condition or examine for underlying layers.

ASBESTOS SURVEY METHODOLOGY

This following information summarizes the bulk sampling methodology, analysis methodology and the methodology used for the assessment of the condition of Asbestos-Containing Materials (ACMs).

Bulk Sampling Methodology

Bulk samples were collected for subsequent analysis during the building survey. A small volume of material (approximately one teaspoon full) was removed either from a damaged section of suspect material or cut out of intact material and then temporarily repaired by sealing with tape to prevent fibre release. Tools used in sample collection were washed after each use to prevent cross-contamination. Collected samples were placed in sealed plastic bags and shipped to an independent laboratory for analysis.

Bulk Sample Analysis Methodology

Bulk samples of suspect ACMs were analyzed in accordance with a US EPA method for the determination of asbestos content in bulk materials, EPA Method 600/R-93/116 as per requirements of O. Reg. 278 which specifies this method be used to establish

whether a material is considered to be an ACM (i.e., contains $\geq 0.5\%$ asbestos by dry weight) and for establishing its asbestos content and the type of asbestos.

The EPA Method requires that the samples be analyzed using the Polarized Light Microscopy (PLM) technique. The percentage of asbestos in the sample is measured as perceived by the analyst in comparison to standard area projections and is greatly influenced by the analyst's experience. The method is useful for the qualitative identification of asbestos (type) and the semi-quantitative (% estimates) determination of asbestos content in bulk samples.

The asbestos bulk samples were analyzed by an independent and NVLAP accredited laboratory. To ensure quality results, the independent laboratory chosen must successfully participate in an "Asbestos Proficiency Analytical Testing Program" and as such, this laboratory is responsible for their findings.

ASSESSMENT OF ACMS METHODOLOGY

The assessment of ACMs involves the evaluation of a number of factors by the surveyor including:

- Asbestos content
- Condition of the material
- Accessibility
- Water damage
- Activity and vibration
- Presence in air plenum/direct air stream

Where ACMs are found to be in good condition, firmly bound and not likely to deteriorate or fall, the recommended procedure is to evaluate the condition of the material on a periodic basis (which should be at least once every twelve-month period as required by O. Reg. 278/05 unless specified more frequently) in order to detect gradual deterioration. This process is referred to as an "Operation and Maintenance Program".

Damaged material is identified by surface crumbling, blistering, water stains, gouges, marring or being otherwise abraded. The accumulation of powder dust or debris similar in appearance to the suspect material can be used as confirmatory evidence.

In situations where the ACMs are found to have deteriorated or likely to fall, the following are the four abatement options that may be specified in this report:

Cleaning

The cleaning of asbestos-containing debris may be performed using a High Efficiency Particulate Air (HEPA) filter vacuum cleaner or by damp wiping techniques. All fallen asbestos material must be cleaned upon discovery. In situations where the material will

continue to fall due to deterioration, damage or abrasion, additional corrective work is required, i.e., the material must be repaired, permanently enclosed or removed.

Repairs

This option is usually selected in situations where damage to the ACMs are of a minor nature and is not likely to reoccur due to accessibility or activity. This method of repair is chosen in situations where performing the repair activities will not cause significant disturbance to the underlying material. Typical repairs include the repair of thermal insulation by the application of mastic (paint adhesive) to lagging (canvas cloth). The repair of sprayed fireproofing or acoustical texturized material can involve the application of an encapsulant to limited areas of abraded or damaged material. If this option is followed, the sprayed material must be capable of supporting the additional weight of the encapsulant.

Enclosure

An enclosure consists of the construction of a physical barrier, typically constructed from drywall or metal sheeting. This option is applicable in situations where the removal of materials with asbestos is not practicable, is of a high financial cost, or where damage is likely to occur without a protective barrier. Where the installation of the barrier is likely to disturb the ACMs, the work must be performed in isolation from the building's normal environment.

Removal

This option is recommended in situations where the ACMs are damaged beyond repair and the material is highly likely to be damaged due to nearby activities, by renovation or during demolition. The precautions employed may vary depending on the volume of the material to be removed and whether the material is friable or not. Typical programs can include the use of glove bags for limited amounts of thermal pipe insulation or minor amounts of fireproofing may be removed within a small polyethylene lined enclosure. For larger amounts of asbestos, more stringent protocols are used and consist of attached shower facilities, the establishment of a negative pressure differential, a filtration system for the air and monitoring for exposure to asbestos fibres.

LEAD-IN PAINT SURVEY METHODOLOGY

This following information summarizes the sampling and analysis methodology used during the survey for lead in paint.

Bulk Sampling Methodology

Bulk samples were collected for subsequent analysis during the building survey. A small volume of material (approximately one teaspoon full) was removed either from a damaged section of suspect material or removed from an inconspicuous area using clean hand tools. The collected samples were placed in sealed plastic bags and transported to an independent laboratory for analysis.

Bulk Sample Analysis Methodology

Bulk samples of suspect lead-containing materials were analyzed in accordance with a US EPA method for the determination of lead content in bulk materials, EPA Method (SW 846 3050B/7000B). The EPA Method requires that the samples be analyzed using the Flame Atomic Absorption Spectrometry (SW 846 3050B/7000B) technique. This method may be used determine trace elements in solution.

PROJECT LIMITATIONS

PROJECT LIMITATIONS

Hazardous building materials may be present in areas not accessible for view and identification. In situations where hazardous building materials extend into a non-accessible area, the materials were assumed to also be present in those areas and have been reported as such. Contractors and maintenance personnel must be warned of the possibility of undisclosed hazardous building materials in enclosed areas. All hazardous building materials discovered in these areas must be treated as a hazardous building material until proven otherwise by sampling and analysis as per all applicable regulations and guidelines.

Asbestos is assumed to be present in various building materials which were not sampled as part of the survey since they were excluded from the scope of work. These materials include, but are not limited to vermiculite in solid block walls; materials located above solid ceilings and in manufactured wall panels; elevator and lift brakes; high voltage wiring; mechanical packing, ropes and gaskets; exterior cladding, soffit and fascia boards on building; roofing materials,; caulking and mastic material; and paper and refractory materials within boilers. In cases of demolition and/or renovation, all excluded materials (i.e., suspected ACMs) shall be assumed asbestos-containing until proven otherwise by bulk sampling and analysis.

In cases where asbestos was identified in some but not all samples of similar materials, all such material was assumed and reported to contain asbestos. When a renovation is planned, we recommend a detailed sampling of suspected asbestos-containing material to confirm the presence of asbestos. Materials that are removed through renovations must be replaced with non-asbestos-containing materials only. This must be documented. Confirmatory sampling will not be required on any new products if the manufacturer supplies written confirmation that these materials are asbestos-free.

Mould impacted and water damaged building materials was not observed in specified locations at the Subject Location. The locations detailed in this report are based on the observations noted at the time of the site visit and can change over time and if the source of water intrusion is not corrected if site conditions change.

HISTORICAL DATA

Needs to be Surveyed/Sampled
 Confirmed ACM
 Non-ACM

Burnhamthorpe PS

Priority Materials								Flooring Finishes							
Material & Number of Samples Previously Collected (Based on Available Data)	1965	1968	n/a	n/a	n/a	n/a	n/a	Material Description	ACMF	Sample ID	Asbestos Type	Report Year	Report Type	Consultant	Sample Location
Reinforced Joint Compound (JOC)	9	11	n/a	n/a	n/a	n/a	n/a	VFT - 12* - Beige with Grey Flecks	No	VFT-01A-a-c	ND	2018	Asbestos	RiaCheck	Kindergarten Room 101 (1965), Kindergarten Room 101 (1965)
Plaster	n/a	n/a	n/a	n/a	n/a	n/a	n/a	VFT - 9* - Beige with Grey Streaks	Yes	VFT-02A-a-c	3% Chrysotile	2018	Asbestos	RiaCheck	Gym Storage Room 136B (1965)
Interior Concrete Block Mortar (ICM)	9	7	n/a	n/a	n/a	n/a	n/a	Associated Mastic (Black)	No	VFT-02B-a-c	ND	2018	Asbestos	RiaCheck	Gym Storage Room 136B (1965)
Interior Brick Mortar (IBM)	1	3	n/a	n/a	n/a	n/a	n/a	VFT - 9* - Grey with White Streaks	Yes	VFT-03A-a-c	3% Chrysotile	2018	Asbestos	RiaCheck	Xerox Room 133 (1965), Xerox Room 133 (1965)
Exterior Brick Mortar (EBM)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Associated Mastic (Black)	No	VFT-03B-a-c	ND	2018	Asbestos	RiaCheck	Staff Room 100 (1965), Staff Room 100 (1965)
Spray Stippling (SP)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	VFT - 12* - Beige with Flecks	No	VFT-04-a-c	ND	2018	Asbestos	RiaCheck	Staff Room 100 (1965), Staff Room 100 (1965)
Interior Brick/Block Sealant	1	6	n/a	n/a	n/a	n/a	n/a	Associated Mastic (Black)	Yes	MAS-01A-c	ND	2024	Reassessment	RiaCheck	Classroom 108 (1968)
Notes:															
DIC- confirmed ACM in eBase. Taken from 1965 section of the building.															
Transite soffits identified around the perimeter of the building.															
Plaster and SP not identified in previous reports as being present in the building.															
VFT - 12* - Beige with Brown Streaks															
Associated Mastic (Black)															
VFT - 12* - Olive with White Streaks															
Associated Mastic (Black)															
VFT - 12* - Beige with White and Brown Streaks															
Associated Mastic (Black)															
VFT - 9* - Beige with Light Beige Flecks															
Associated Mastic (Black)															
VFT - 9* - Beige with White and Brown Streaks															
Associated Mastic (Black)															
VFT - 9* - Light Beige with Black and Beige Streaks															
Associated Mastic (Black)															
VFT - 12* - Green with Dark Flecks															
Associated Mastic (Black)															
VFT - 12* - White with Grey Flecks															
Associated Mastic															
VFT - 12* - White with Black Streaks															
Associated Mastic															
VFT - 9* - White with Grey Streaks															
Associated Mastic (Black)															
VFT - 9* - Beige with Brown Streaks															
Associated Mastic (Black)															
VFT - 9* - Brown with Dark Brown Streaks															
Associated Mastic (Black)															
VFT - 12* - Dark Grey with White Streaks															
Associated Mastic (Black)															
VFT - 12* - Grey with Grey and White Flecks															
Associated Mastic (Black)															
Wall/Ceiling Finishes															
Material Description	ACMF	Sample ID	Asbestos Type	Report Year	Report Type	Consultant	Sample Location								
Drywall Joint Compound	Yes	DIC-01A-c	3% Chrysotile	2018	Asbestos	RiaCheck	Xerox Room 133 (1965)								
CT - 2 x 4 Small and Medium Finishes	Yes	ACT-02A-a	1 Amphibole, 3% Chrysotile	2019	Reassessment	RiaCheck	Kindergarten 123 (1968)								
CT - 2 x 4 Large Finishes	No	ACT-02A-b	ND	2019	Reassessment	RiaCheck	Classroom 108 (1968)								
Interior Masonry Wall Sealant/Primer (Beige/Blue)	Yes	C15-01A	2% Chrysotile	2024	Reassessment	RiaCheck	Room 136 (1965)								
Interior Masonry Wall Sealant/Primer (Beige)	No	C85-02-a-c	ND	2024	Reassessment	RiaCheck	Stairwell Across 115, Corridor adj. f. W/R, Stairwell adj. Room 210 (1968)								
Interior Brick Mortar (Grey/Beige)	Yes	IBM-01A-a-c	2% Chrysotile	2024	Reassessment	RiaCheck	Seminar Room 213A, Stairwell adj. Room 201, 2nd Floor Stairwell (1965)								
Interior Brick Mortar (Grey/Beige)	Yes	IBM-01A-b-c	2% Chrysotile	2024	Reassessment	RiaCheck	Girls' Change Room 118, Boys' Change Room 119, Room 115 (1968)								
Drywall Joint Compound	Yes	DIC-01A-a-c	3% Chrysotile	2024	Reassessment	RiaCheck	Girls' Change Room 118 (1968)								
Interior Concrete Block Mortar	No	ICM-01A-c	ND	2024	Reassessment	RiaCheck	Gym Storage 136B, Boiler Room 238, Classroom 306 (1965)								
Interior Concrete Block Mortar	Yes	ICM-01A-a-c	2% Chrysotile	2024	Reassessment	RiaCheck	Room 123B, Gym Storage 136, Room 236 (1968)								
CT - Medium Finishes, Random Finishes	No	501A-C	ND	2024	DSS	MTE	Kindergarten 115/117 (1968)								
CT - Honeycomb Pattern	No	502A-C	ND	2024	DSS	MTE	W/R 115A, Vestibule 185 (1968)								
Drywall Joint Compound (Random)	Yes	505A	4% Chrysotile	2024	DSS	MTE	Classroom 115/117 (1968)								
Drywall Joint Compound (Beige)	No	506A-C	ND	2024	DSS	MTE	Classroom 115/117 A3, Classroom 223 (1968), SSP Room 202 (1965)								
Interior Concrete Block Mortar	No	509A-C	ND	2024	DSS	MTE	Classroom 115/117 A3, Classroom 223 (1968), SSP Room 202 (1965)								
CT - Honeycomb Random Pinhole	Yes	511A	1% Chrysotile	2024	DSS	MTE	Classroom 223 (1968)								
Drywall Joint Compound (Black/Red)	Yes	512A	4% Chrysotile	2024	DSS	MTE	Classroom 223 (1968)								
Interior Concrete Block Mortar	No	501A-B	ND	2025	DSS	MTE	Classroom 104, Corridor 180 ad (1965)								
Interior Masonry Wall Sealant/Primer	No	502A-C	ND	2025	DSS	MTE	Corridor 180 a2, Corridor 280 (1968)								
Drywall Joint Compound	Yes	503A	1% Chrysotile	2025	DSS	MTE	W/R 124 (1968)								
Ceramic Tile Grout	No	505A-C	ND	2025	DSS	MTE	W/R 233 (1965)								
CT - 2 x 4 Honeycomb Pattern	No	508A-C	ND	2025	DSS	MTE	Kindergarten 124 (1965)								
CT - 2 x 4 Insulate Random Pinhole	No	509A-C	ND	2025	DSS	MTE	Corridor 180								
Drywall Joint Compound	Yes	510A	2% Chrysotile	2025	DSS	MTE	W/R 130 (1965)								
Drywall Partitions Above Door Frames	No	511A-C	ND	2025	DSS	MTE	Kindergarten 104, Library 1, Classroom 106 (1965)								
Drywall Partitions Above Door Frames	No	512A-C	ND	2025	DSS	MTE	Classroom 108, Classroom 110, G. W/R 221 (1968)								
Microfibre/Pipe Insulations															
Material Description	ACMF	Sample ID	Asbestos Type	Report Year	Report Type	Consultant	Sample Location								
Piping Cement on Pipe Fittings/Elbows	Yes	PCE-01-a-c	30% Chrysotile	2018	Asbestos	RiaCheck	Gym Storage Room 136B (1965)								
Piping Insulation															
Material Description	ACMF	Sample ID	Asbestos Type	Report Year	Report Type	Consultant	Sample Location								
Not observed to be present on site															
Other Building Materials															
Material Description	ACMF	Sample ID	Asbestos Type	Report Year	Report Type	Consultant	Sample Location								
Interior Door Caulking (White)	No	85-01A-c	ND	2014	DSS	Stantec	Kindergarten 104 (1965), Seminar 213 (1965), Classroom 207 (1965)								
Fire Doors (Paper Insulation)	No	85-02A-c	ND	2014	DSS	Stantec	Custodian 102 (1965)								
Exterior Door Caulking (Dark Grey)	Yes	85-01A-b	1 % Chrysotile	2014	DSS	Stantec	Exterior								
Exterior Door Caulking (Light Grey)	No	85-04A-c	ND	2014	DSS	Stantec	Exterior								
Exterior Door Caulking (Black)	No	85-05A-c	ND	2014	DSS	Stantec	Exterior								
Boardwalk Mastic (Tan)	No	85-07A-c	ND	2017	DSS	Stantec	Corridor 180 (1968), Corridor 180 (1968)								
Flange gaskets/paints	Presumed	NA	Presumed	NA	NA	NA	Exterior								
Link Backing Material (Grey)	No	506A-C	ND	2024	DSS	MTE	Classroom 115/117 (1968)								
Interior Window Frame Sealant (White)	No	509A-C	ND	2024	DSS	MTE	Classroom 115/117 (1968)								
Vinyl Backboard	No	510A-A-C	ND	2024	DSS	MTE	Classroom 115/117 (1968)								
Associated Mastic	No	510B-A-C	ND	2024	DSS	MTE	Classroom 115/117 (1968)								
Link Backing Material (Black)	Yes	514A	3% Chrysotile	2024	DSS	MTE	Classroom 223 (1968)								
Vinyl Backboard	No	516A-A-C	ND	2024	DSS	MTE	ISSP 202 (1965)								
Associated Mastic	No	516B-A-C	ND	2024	DSS	MTE	ISSP 202 (1965)								