



DESIGNATED SUBSTANCE SURVEY REPORT



ISSUED TO: Ready.Set.Reno!
LOCATION: Ready.Set.Reno!
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ISSUED ON: December 21st, 2020
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PROJECT: Designated Substance Survey Report
AEOC Group Project No. 2020-R2724

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EXECUTIVE SUMMARY

AEOC Group Inc, a division of Asbestos Environmental of Canada, was retained by **Ready.Set.Reno!** to conduct a **Designated Substance Survey Report** at the **residential building**.

AEOC Group Inc's, Hazardous Materials Consultant was on site on **December 12th, 2020** to conduct the assessment.

Summary of Findings

Asbestos

- Asbestos has been widely used in buildings, both in friable applications such as pipe wrap and acoustic texture material and in non-friable manufactured products such as floor tile and cement board. The use of asbestos in friable applications was curtailed around the mid-1970s and, as such, many buildings constructed prior to 1975 contain some form of friable construction material with an asbestos content. The use of asbestos in certain non-friable materials continued beyond the mid-1970s, such as brake pads.

In Ontario, asbestos is regulated by Ontario Regulation 490/09 - Designated Substances. Control of exposure to asbestos is governed in Ontario by Regulation 278/05 - Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations. Disposal of asbestos waste (friable and non-friable materials) is governed by Ontario Regulation 278/05 and by Ontario Regulation 347, Waste Management - General. O. Reg. 278/05 classifies asbestos work operations into three types (Type 1, Type 2 and Type 3, as shown in 2.0 - Review of Guidelines Section of this report) and specifies procedures to be followed in conducting asbestos abatement work

- **Laboratory analysis confirms the presence of asbestos in some of the samples collected.**
 - Basement VCT Tiles – White Tiles
 - Register Wrap

Lead

- Lead is a heavy metal that can be found in construction materials such as paints, coatings, mortar, concrete, solder, packings, sheet metal, caulking, glazed ceramic products and cable splices. Lead has been used historically in exterior and interior paints. “Lead-based paint” is defined in federal legislation in the United States as paint which contains 0.5 percent by weight (5,000 PPM) or more lead.
- In Canada, the lead content of paints and other liquid coatings on furniture, household products, children's products and surfaces (exterior and interior) of any building frequented by children was restricted to 0.5% by 1976.

- The Surface Coating Materials Regulations made under the Hazardous Products Act, published in the Canada Gazette Vol. 139, No. 9 published on May 4, 2005 currently restricts the maximum total lead content requirement to 600 mg/kg (0.06 percent weight/weight or 600 parts per million) for surface coating materials (i.e. paints) used in or around a house or other premise attended by children or pregnant women.

In Ontario, lead is regulated by Ontario Regulation 490/09 - Designated Substances. The Ministry of Labour Guideline, Lead on Construction Projects, September 2004, provides guidance in the measures and procedures that should be followed when handling lead-containing materials during construction projects. In the guideline, lead-containing construction materials are classified into three groups (Type 1, Type 2 and Type 3,) and specified procedures to be followed in lead safe handling activities.

Mercury

In Ontario, mercury is regulated by Ontario Regulation 490/09 - Designated Substances.

- Waste mercury in amounts less than 5 kg (per month) are exempt from the generator registration requirements prescribed by O. Reg. 347 - Waste Management - General. Waste mercury from mercury switches or gauges should, however, be properly collected and shipped to a recycling facility or disposed of as a hazardous waste. Removal of mercury-containing equipment (e.g. switches, gauges, controls etc.) should be carried out in a manner which prevents spillage and exposure to workers.
- Mercury vapour is present in all fluorescent lamps.

Silica

- In Ontario, silica is regulated by Ontario Regulation 490/09 - Designated Substances. The Ministry of Labour Guideline, Silica on Construction Projects, April 2011, provides guidance in the measures and procedures that should be followed when handling silica-containing materials during construction projects. In the guideline, silica-containing construction materials are classified into three groups (Type 1, Type 2 and Type 3, as shown in 2.0 - Review of Guidelines Section of this report) and specified procedures to be followed in lead safe handling activities.
- Free crystalline silica (common construction sand) can be found in abrasives, concrete, filter aids, masonry materials (grouts, mortar, bricks, etc.), ceramics, paints, plaster and drywall/drywall joint compound.

Polychlorinated Biphenyls (PCBs)

- In Ontario, waste management of PCBs is governed by Ontario Regulation 232/11, which is the amended Reg. 362 of R.R.O. 1990 - Waste Management - PCBs.
- Light ballasts are present in fluorescent and HID light fixtures. It is assumed in a building built prior to 1979, that some of the light ballasts will contain PCB's if the building has not been re-lamped and all ballast replaced.

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INTRODUCTION AND ASSESSMENT

1.1 Introduction

AEOC Group Inc, a division of Asbestos Environmental of Canada, was retained by **Ready.Set.Reno!** to conduct a **Designated Substance Survey Report** at the **residential building**.

AEOC Group Inc's, Hazardous Materials Consultant was on site on **December 12th, 2020** to conduct the assessment.

The report is to identify if there's potential of a **Designated Substance**, in specified areas in the **residential building** as part of the requirements for the planned **renovation**. As part of the scope of work, all areas of concern were inspected. This report presents the findings of the assessment, and recommendations.

The site audit consisted of a visual inspection and samples that were collected from the **residential building** on **December 12th, 2020**. Prior to tendering project work at the **residential building**, the owner must provide this report to the contractors and subcontractors. This report fulfills the requirements of Section 10 of O. Reg. 278/05, **Designated Substance – Asbestos on Construction Projects and Buildings and Repair Operations**. This requires that owners report the presence of both friable and non-friable asbestos to contractors as part of the tendering process or prior to arranging for work.

Asbestos-containing materials (ACM) that may be disturbed during the project must be removed prior to any renovation or demolition etc. Regardless of proposed construction work, damaged Asbestos-containing materials (ACM) must be repaired or removed in order to comply with current Regulations (O. Reg. 278/05) and MOL field practice.

The assessment was performed as a prerequisite to planned **renovation**. This assessment is intended for pre-construction or pre-demolition purposes only and may not provide sufficient detail for long term management of asbestos-containing materials (ACM) as required in Section 8 (3) of O. /Reg. 278/05.

The assessment was performed to establish any (ACM) Asbestos Containing Materials incorporated in the structure and its finishes.

Asbestos is commonly found in pipe insulations, fabricated materials such as gaskets and floor tiles, wall panels, duct wrapping, wall board joint compounds. These materials are commonly used in buildings constructed from 1920's to 1970's

1.2 Facility Description

The following provides a basic description of the building systems.

The subject property is a **residential building**. AEOC Group Inc was on site **Ready.Set.Reno!** due to planned **renovation** of the above address.

<u>System</u>	<u>Description</u>
Structure	Block, Wood, Brick
Exterior Cladding	Brick, Stone
HVAC	Forced Air
Roof	Asphalt Shingles
Flooring	VCT Tiles,
Interior Walls	Lath & Plaster
Ceilings	Lath & Plaster

1.3 Scope of Assessment

The assessed area consisted of specified areas of the **residential building**. The assessment was performed to establish the location and type of hazardous building materials incorporated in the structure and its finishes. For the purpose of the assessment and this report, hazardous building materials are defined as those containing the following substances:

The following are a list of Designated Substances acknowledged by the Ontario Ministry of Labour

- Asbestos
- Lead
- Mercury
- Silica (free crystalline silica)

The investigation did not include an examination for the presence of:

- Polychlorinated Biphenyls (PCBs)
- Mould or microbial contamination (visible growth only)

The following Designated Substances are not typically found in building materials in a composition/state that is hazardous. Therefore, these materials were not addressed in this assessment. Furthermore, the client did not the use of any of the following designated substances in processes:

- Arsenic
- Acrylonitrile
- Benzene
- Coke Oven Emissions
- Ethylene Oxide
- Isocyanates
- Vinyl Chloride (vinyl chloride monomer, not PVC)

2.0 ASSESSMENT METHODOLOGIES AND CRITERIA

2.1 Methodology

The Surveyor started with a visual inspection of the building. He then entered rooms and corridors etc. where access was possible within the extent of the assessed area and inspected for the presence of hazardous building materials. Relevant information was recorded where hazardous building materials were observed, including approximate quantities, locations, condition, sample information and sample locations. The quantities reported are an approximate visual estimate.

2.2 Asbestos

The Surveyor inspected the **residential building** for the presence of friable and non-friable ACM. Typical examples of friable ACM include sprayed fireproofing, acoustic/texture finish, and mechanical insulation. Typical examples of non-friable ACM include asbestos cement sheets or pipes, vinyl floor tiles, vinyl sheet flooring, drywall compound and asbestos textile products. Typical examples of non-friable ACM, which have the potential to become friable during construction, include plaster and acoustic ceiling tiles. See (appendix III).

2.2.1 Asbestos Sampling Exclusions

A number of materials which might contain asbestos were *not* sampled during our assessment for various reasons.

Reasons for not sampling these materials include:

- Sampling the material may be hazardous to the surveyor (e.g. electrical hazard);
- Sampling the materials may cause consequential damage to the property (e.g. sampling roofing may cause leaks);
- The material is inaccessible without major demolition (e/g. Inside boilers etc.) or;
- The material is present in such an inconsistent fashion that without complete removal of finishes, the extent of ACM cannot be determined (e.g. floor levelling compound).

If present, these materials must be presumed to be asbestos-containing and are best sampled *immediately* prior to commencing renovation.

2.2.2 Asbestos Sampling Strategy and Frequency

Asbestos bulk samples were collected at a rate that was in compliance with the requirements of O.Reg. 278/05. The Regulation identifies the minimum number of samples collected and analyzed (1, 3, 5, or 7 depending on quantity, application and friability) from each homogenous material, in order for the material to be considered non-asbestos. This frequency is indicated in Table 1 of the Regulation (see Appendix 1). A homogeneous material is defined in Regulation 278/05 as one that is uniform in color and texture. The surveyor used information obtained on site by visual examination, available information on the phases of the construction and any information on renovations provided by the client, to determine the extent of each homogeneous area and the number of samples required.

The use of asbestos in drywall joint compound was banned in Canada under the Federal Hazardous Products Act of 1980 but it could possibly contain asbestos as late as 1986 (due to stored material and non-compliance with the ban). Most buildings undergo constant renovation, including the removal and replacement of drywall partitions.

Asbestos cement products and various other non-friable materials (e.g. vibration dampers) were visually identified as ACM where present and where visual identification is reliable.

Ontario was the first Canadian Province to ban the use of friable asbestos (March 1986, O.Reg. 654/85). Of the many non-friable materials, only drywall joint compound has been banned in Canada. Therefore, in theory, all other non-friable materials and surfaces in which asbestos could have been used, should be sampled for total certainty that it is non-asbestos, even to the present day. In practice however, asbestos ceased being used in most materials by manufacturers as a result of asbestos concerns. AEOC is aware of many of the dates that certain materials ceased being manufactured with asbestos. Based on this knowledge, we suggest that sampling of certain material is not required after specific dates and our sampling strategy was based on this knowledge. In addition, to be conservative we allow several years past these dates in our strategy. This allows additional time so that stored ACM products would have worked through the supply chain, and allows for some uncertainty in the exact start/finish date of construction and associated usage of ACM. We believe this is a prudent and responsible limitation and that the sampling strategy is appropriate.

2.2.3 Basis of Evaluation and Recommendations regarding ACM

The condition and the potential for disturbance of any ACM observed were evaluated. The evaluation criteria were based on the conclusions of published studies, particularly the “Royal Commissions on Matters of Health and Safety Arising from the Use of Asbestos in Ontario”, existing Ontario regulation, and our experience involving buildings that contain ACM. An ACM was considered damaged if it is sprayed material that is delaminating, mechanical insulations with damaged/missed insulation or jacketing, or non-friable materials that have been pulverized or damaged so that they have become friable.

The priority for remedial action is based not only on the evaluation of condition but is also based on several other factors which include:

- Accessibility or potential for direct contact and disturbance.
- Practicality of repair (for example, where damage to the ACM may continue even if it is repaired).
- Visibility of the material.
- Efficiency of the work (for example, if damaged ACM is being removed in an area, it may be most practical to remove all ACM in the area even if it is in good condition.

Recommendations also include removal of ACM that may be disturbed by any planned renovation or demolition activity known to Asbestos Environmental of Canada.

2.2.4 Classification of Work

Type 1, Type 2 and Type 3 operations;

- For the purposes of this Regulation, operations that may expose a worker to asbestos are classified as Type 1, Type 2 and Type 3 operations. O. Reg. 278/05, s.
- **Type 1 operations:**
 1. Installing or removing ceiling tiles that are asbestos-containing material, if the tiles cover an area less than 7.5 square meters and are installed or removed without being broken, cut, drilled, abraded, ground, sanded or vibrated.
 2. Installing or removing non-friable asbestos-containing material, other than ceiling tiles, if the material is installed or removed without being broken, cut, drilled, abraded, ground, sanded or vibrated.
 3. Breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material if, i. the material is wetted to control the spread of dust or fibers, and ii. the work is done only by means of non-powered hand-held tools.
 4. Removing less than one square meter of drywall in which joint-filling compounds that are asbestos-containing material have been used. O. Reg. 278/05, s.

➤ **Type 2 operations:**

1. Removing all or part of a false ceiling to obtain access to a work area, if asbestos-containing material is likely to be lying on the surface of the false ceiling.
2. The removal or disturbance of one square meter or less of friable asbestos-containing material during the repair, alteration, maintenance or demolition of all or part of machinery or equipment or a building, aircraft, locomotive, railway car, vehicle or ship.
3. Enclosing friable asbestos-containing material.
4. Applying tape or a sealant or other covering to pipe or boiler insulation that is asbestos-containing material.
5. Installing or removing ceiling tiles that are asbestos-containing material, if the tiles cover an area of 7.5 square meters or more and are installed or removed without being broken, cut, drilled, abraded, ground, sanded or vibrated.
6. Breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material if, i. the material is not wetted to control the spread of dust or fibers, and ii. the work is done only by means of non-powered hand-held tools.
7. Removing one square meter or more of drywall in which joint filling compounds that are asbestos-containing material have been used.
8. Breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material if the work is done by means of power tools that are attached to dust-collecting devices equipped with HEPA filters.
9. Removing insulation that is asbestos-containing material from a pipe, duct or similar structure using a glove bag.
10. Cleaning or removing filters used in air handling equipment in a building that has sprayed fireproofing that is asbestos-containing material.
11. An operation that, i. is not mentioned in any of paragraphs 1 to 10, ii. may expose a worker to asbestos, and iii. is not classified as a Type 1 or Type 3 operation. O. Reg. 278/05, s.

➤ **Type 3 operations:**

1. The removal or disturbance of more than one square meter of friable asbestos-containing material during the repair, alteration, maintenance or demolition of all or part of a building, aircraft, ship, locomotive, railway car or vehicle or any machinery or equipment.
2. The spray application of a sealant to friable asbestos-containing material.
3. Cleaning or removing air handling equipment, including rigid ducting but not including filters, in a building that has sprayed fireproofing that is asbestos-containing material.
4. Repairing, altering or demolishing all or part of a kiln, metallurgical furnace or similar structure that is made in part of refractory materials that are asbestos-containing materials.
5. Breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material, if the work is done by means of power tools that are not attached to dust-collecting devices equipped with HEPA filters.
6. Repairing, altering or demolishing all or part of any building in which asbestos is or was used in the manufacture of products, unless the asbestos was cleaned up and removed before March 16, 1986. O. Reg. 278/05, s.
7. Work on ceiling tiles, drywall or friable asbestos-containing material is classified according to the total area on which work is done consecutively in a room or enclosed area, even if the work is divided into smaller jobs. O. Reg. 278/05, s.

2.3 Lead

Old paints are known to contain lead and mercury, which are Designated Substances under the Ontario Occupational Health and Safety Act, Section 30. Lead was used in oil based paints as a drying agent and pigmentation. Should lead dust be produced as part of renovation work i.e. by cutting, grinding, or sanding at which a worker is likely to inhale lead over Time-Weighted Average Limit (TWA) of 0.05 mg/m³, appropriate respirators will be required as outlined in Ontario Regulation 490/09.

Lead on Construction Projects, Lead can be present on construction projects in two distinct ways:

- 1- It can be found in construction materials, such as paints, coatings, mortar, concrete, solder, and sheet metal.
- 2- It can be present at a construction site in existing structures, building components, and where lead was previously used in a manufacturing process.

Construction activities of particular concern include:

- 1- abrasive blasting of structures coated with lead-based paints
- 2- application or removal of lead-containing paints
- 3- welding, burning, or high temperature cutting of lead-containing coatings or materials
- 4- removal of lead-containing dust using an air mist extraction system
- 5- removal of lead-containing mortars using an electric or pneumatic cutting device.

2.3.1 CONTROLLING THE LEAD HAZARD

Lead may affect the health of workers if it is in a form that may be inhaled (i.e. airborne particles) or ingested. In order for lead to be a hazard by inhalation, lead particles that are small enough to be inhaled must get into the air. There are three types of particles: dust, fume and mist. Lead dust consists of solid particles created through processes such as blasting, sanding, grinding, and electric or pneumatic cutting. Lead fumes are produced when lead or lead- contaminated materials are heated to temperatures above 500 degrees C, such as welding, high temperature cutting, and burning operations. The heating causes a vapor to be given off and the vapor condenses into solid fume particles. Mists are made up of liquid droplets suspended in air. The spray application of lead-based paint can generate a high concentration of lead- containing mist.

The strategy for controlling airborne lead hazard can therefore be broken down into three basic approaches:

- 1- prevent lead from getting into the air
- 2- remove lead present in the air
- 3- if present in the air, prevent workers from inhaling it.

To prevent the ingestion of lead, workers should exercise good work and hygiene practices.

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

- 1- engineering controls
- 2- work practices and hygiene practices
- 3- protective clothing and equipment
- 4- training.

2.3.2 CLASSIFICATION OF WORK

It is the classification of the work that determines the appropriate respirators, measures and procedures that should be followed to protect the worker from lead exposure. In this guideline, lead-containing construction operations are classified into three groups, Type 1, Type 2, and Type 3 operations, and can be thought of as being of low, medium and high risk. Some groups, Type 2 and Type 3, are further subdivided. From Type 1 to Type 3 operations, the corresponding respirator requirements, and measures and procedures become increasingly stringent.

The classification of typical lead-containing construction tasks is based on presumed airborne concentrations obtained from the U.S. Occupational Safety and Health Administration (OSHA), the Ontario Ministry of Labour, and published research studies. The classification of Type 1, Type 2, or Type 3 operations are grouped based on the following concentrations of airborne lead:

Type 1 Operations	Type 2 Operations Type 2A	Type 2 Operations Type 2B	Type 3 Operations Type 3A	Type 3 Operations Type 3B
>0.05mg/m ³	>0.05 to 0.50mg/m ³	>0.50 to 1.25mg/m ³	>1.25 to 2.50mg/m ³	>2.50mg/m ³

2.3.3 Operation Types and Procedures

TYPE 1 OPERATIONS

- 1- Application of lead-containing coatings with a brush or roller.
- 2- Removal of lead-containing coatings with a chemical gel or paste and fibrous laminated cloth wrap.
- 3- Removal of lead-containing coatings or materials using a power tool that has an effective* dust collection system equipped with a HEPA filter.
- 4- Installation or removal of lead-containing sheet metal.
- 5- Installation or removal of lead-containing packing, babbitt or similar material.
- 6- Removal of lead-containing coatings or materials using non-powered hand tools, other than manual scraping or sanding.
- 7- Soldering.

* Effective implies that the dust collection system should be capable of controlling airborne lead concentration levels to below 0.05 mg/m³. Employers should follow manufacturer's recommendations and maintenance specifications for optimal function.

TYPE 2 OPERATIONS

TYPE 2a OPERATIONS

- 1- 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.
- 2- Removal of lead-containing coatings or materials by scraping or sanding using non-powered hand tools.
- 3- Manual demolition of lead-painted plaster walls or building components by striking a wall with a sledgehammer or similar tool.

TYPE 2b OPERATIONS

- 1- Spray application of lead-containing coatings.

TYPE 3 OPERATIONS

TYPE 3a OPERATIONS

- 1- Welding or high temperature cutting of lead-containing coatings or materials indoors or in a confined space.
- 2- Burning of a surface containing lead.
- 3- Dry removal of lead-containing mortar using an electric or pneumatic cutting device.
- 4- Removal of lead-containing coatings or materials using power tools without an effective dust collection system equipped with a HEPA filter.
- 5- Removal or repair of a ventilation system used for controlling lead exposure.
- 6- Demolition or cleanup of a facility where lead-containing products were manufactured.
- 7- 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.

TYPE 3b OPERATIONS

- 1- Abrasive blasting of lead-containing coatings or materials.
- 2- Removal of lead-containing dust using an air mist extraction system.

Employers, supervisors, and workers should be able to recognize and classify lead-containing operations in order to provide appropriate respirators, measures and procedures. Respirator requirements are listed in Table 1 for Type 1, Type 2, and Type 3 operations.

2.4 Mercury

- Building materials suspected of containing mercury were identified by appearance, age, and knowledge of historic applications. Sampling was not performed. Do not break lamps or separate liquid mercury from components Mercury - containing materials and lamps should be recycled to reclaim the mercury. Disposal in significant quantities would require mercury-containing materials to be disposed of as hazardous waste.
- Waste mercury in amounts less than 5 kg (per month) are exempt from the generator registration requirements prescribed by O. Reg. 347 - Waste Management - General. Waste mercury from mercury switches or gauges should, however, be properly collected and shipped to a recycling facility or disposed of as a hazardous waste. Removal of mercury-containing equipment (e.g. switches, gauges, controls etc.) should be carried out in a manner which prevents spillage and exposure to workers.

2.5 Silica

- Building materials suspected of containing crystalline silica were identified by knowledge of current and historic applications. Sampling was not performed. Free crystalline silica (common in sand) will likely be present within these materials. Should silica be produced as part of the renovation work at the subject site, i.e. by removal of the block walls or cement concrete, mortar, or brick, at which a worker is likely to inhale Silica over time-weighted average exposure value (TWAEV) of 0.05 mg/m³, an appropriate respirator will be required by the worker as outlined in Ontario Health and Safety Act R.R.O. 1990, Regulation 845 amended to O. Reg. 490/09.
- In construction, worker exposure to silica is of particular concern because silica is the primary component of many construction materials. Some commonly used construction materials containing silica include:

1. abrasives used for blasting
2. brick, refractory brick
3. concrete, concrete block, cement, mortar
4. granite, sandstone, quartzite, slate
5. mineral deposits
6. rock and stone
7. sand, fill dirt, top soil
8. asphalt containing rock or stone

- Many construction activities can generate airborne silica-containing dust. In construction, abrasive blasting generates the most dust. Exposure to silica from abrasive blasting can result if the abrasive contains silica and/or if the material being blasted contains silica.

2.5.1 CONTROLLING THE SILICA HAZARD

In order for silica to be a hazard, silica-containing dust particles that are small enough to be inhaled (i.e., respirable) must get into the air. The strategy for controlling the silica hazard can therefore be broken down into three basic approaches:

1. prevent silica dust from getting into the workplace air
2. remove silica dust present in the air
3. if present, prevent workers from inhaling the dust. To avoid the inhalation of silica, it is essential to have the following control methods in place:
4. engineering controls
5. work practices and hygiene practices
6. respirators and personal protective equipment
7. training.

2.5.2 CLASSIFICATION OF WORK

In the Guideline, silica-containing construction operations are classified into three groups - Type 1 (low-risk), Type 2 (medium risk) and Type 3 (high-risk) based on presumed airborne concentrations of respirable crystalline silica in the form of cristobalite, Tridymite, quartz and Tripoli shown below.

	Type 1 Operations	Type 2 Operations	Type 3 Operations
Cristobalite and Tridymite	>0.05 to 0.50 mg/m3	>0.50 to 2.50 mg/m3	>2.5 mg/m3
Quartz and Tripoli	>0.10 to 1.0 mg/m3	>1.0 to 5.0 mg/m3	>5.0 mg/m3

Note: The Classification of silica-containing construction tasks is based on presumed concentrations of respirable crystalline silica, as shown above.

The following section lists the typical construction operations that generate silica-containing dust:

TYPE 1 OPERATIONS

1. The drilling of holes in concrete or rock that is not part of a tunneling operation or road construction.
2. . Milling of asphalt from concrete highway pavement.
3. Charging mixers and hoppers with silica sand (sand consisting of at least 95 per cent silica) or silica flour (finely ground sand consisting of at least 95 per cent silica).
4. Any other operation at a project that requires the handling of silica-containing material in a way that may result in a worker being exposed to airborne silica.
5. Entry into a dry mortar removal or abrasive blasting area while airborne dust is visible for less than 15 minutes for inspection and/or sampling.
6. Working within 25 metres of an area where compressed air is being used to remove silica-containing dust outdoors.

TYPE 2 OPERATIONS

1. Removal of silica containing refractory materials with a jackhammer.
2. The drilling of holes in concrete or rock that is part of a tunneling or road construction.
3. The use of a power tool to cut, grind, or polish concrete, masonry, terrazzo or refractory materials.
4. The use of a power tool to remove silica containing materials.
5. Tunneling (operation of the tunnel boring machine, tunnel drilling, tunnel mesh installation).
6. Tuck point and surface grinding.
7. Dry mortar removal with an electric or pneumatic cutting device.
8. Dry method dust cleanup from abrasive blasting operations.
9. The use of compress air outdoors for removing silica dust.
10. Entry into area where abrasive blasting is being carried out for more than 15 minutes.

TYPE 3 OPERATIONS

- 1 Abrasive blasting with an abrasive that contains ≥ 1 per cent silica.
- 2 Abrasive blasting of a material that contains ≥ 1 per cent silica.

Employers, supervisors, and workers should be able to recognize and correctly classify the types of operations carried out in the workplace, in order to select appropriate respirators, and implement appropriate measures and procedures. Respirator requirements are listed in Table 1 of Ontario Ministry of Labour Guideline: Silica on Construction Projects (Table 1: Respirator Requirements, pp 15) for Type 1, Type 2, and Type 3 operations.

2.6 Polychlorinated Biphenyls (PCBs)

Light ballasts are present in fluorescent and HID light fixtures. Fluorescent light fixtures were not disassembled to examine ballasts during this assessment. It is assumed in a building built prior to 1979, that some of the light ballasts will contain PCB's if the building has not been re-lamped and all ballast replaced.

This assessment is intended for pre-construction or pre-demolition purposes only and may not provide sufficient detail for long term management of PCB's or to determine end-of-use inventories as required in SOR/2008-273.

2.7 Visible Mould

- When visible mold is located, the extent of growth must be fully investigated as mold may be hidden inside walls, under wall paper, in sub-floors, under carpets and other hard to assess areas. Remediation must take place as soon as possible and only after the source of moisture has been identified and has either been eliminated or will be eliminated upon the initiation of the remediation.
- Mould abatement projects, like asbestos abatement projects, must be contained, controlled and dealt with properly at all times.
 - **Visible mould was not identified at the time of inspection.** If any mould growth is concealed within wall cavities it was not addressed in this assessment.

2.7.1 CLASSIFICATIONS OF WORK

Type 1 Mold Remediation:

- Mold growth either continuous or periodic covering Less than 10 sq. ft.
- Remediation generally does not require an enclosure unless Infectious Control Procedures are necessary.
 - It is inclusive of a total of no more than 10 square feet of abated material.
 - Personnel performing the abatement work wear a Tyvek suit, a Half Face respirator and hand and eye protection.
 - They lay drop sheets below the work area and have a HEPA vacuum present for the work.
 - Once the material has been abated, they perform the necessary cleaning and remove the site controls.

Type 2 Mold Remediation:

- Mold growth either continuous or periodic covering between 10 and 100 sq. ft.
- Remediation requires an enclosure.
 - Type 2 denotes that the materials to be removed are in between 10 and 100 square feet.
 - It is generally accepted that the personnel performing the work should be wearing a Full Faced respirator, a Tyvek suit and hand protection.
 - Depending on the size of the enclosure, either a HEPA vacuum or negative air machine must be present to provide negative air pressure.
 - Once the material has been abated, the site personnel will perform a general cleaning and upon inspection, will take down the enclosure.

Type 3 Mold Remediation:

- Mold growth either continuous or periodic covering More than 100 sq. ft.
- Remediation always requires an enclosure, a two-chambered decontamination area and negative air machines.
 - Type 3 denotes that the materials to be removed are in excess of 100 square feet.
 - The personnel performing the work must wear a Full Faced respirator, hand protection and a Tyvek suit.
 - Once the material has been removed, the personnel carry out a detailed cleaning of the area.
 - It is also imperative that an environmental consultant perform an air quality test prior to the dismantling of the enclosure.

2.8 Analytical Methods

Bulk samples collected for asbestos identification were analyzed at Asbestos Laboratories in Toronto. The analysis was performed in accordance with Test Method EPA/600/R-93/116 and EPA/600/M4-82-020. **The asbestos analysis was completed using a stop positive approach. Only one result of greater than 0.5% asbestos content is required to determine that a material is asbestos-containing**, but all samples must be analyzed to conclusively determine that a material is non-asbestos (O.Reg. 278/05). The laboratory stopped analyzing samples from a homogeneous material once greater than 0.5% asbestos was detected in any of the samples of that material. All samples of a homogeneous material were analyzed if no asbestos, or described as containing no asbestos, this is subject to the limitations of the analytical method used, and should be understood to mean no asbestos was detected.

Analytical results are presented in **Appendix I**.

2.9 Photographs



3.0 FINDINGS

3.1 Asbestos

Representative samples of wall, ceiling and floor tiles were collected from locations **A, B, C and D** from the above **residential building**. Samples were submitted to Asbestos Laboratories for analysis.

- **Based on laboratory test results, asbestos was found in the samples collected from locations A.**
 - Basement VCT Tiles – White Tiles
 - Register Wrap

3.3 Lead

The Environmental Protection Agency (EPA) in the United States considers <0.5% or <5000 parts per million to be a safe level of lead in paint.

3.4 Mercury

Waste mercury in amounts less than 5 kg (per month) are exempt from the generator registration requirements prescribed by O. Reg. 347 - Waste Management - General. Waste mercury from mercury switches or gauges should, however, be properly collected and shipped to a recycling facility or disposed of as a hazardous waste. Removal of mercury-containing equipment (e.g. switches, gauges, controls etc.) should be carried out in a manner which prevents spillage and exposure to workers.

In Ontario, mercury is regulated by Ontario Regulation 490/09 - Designated Substances.

3.5 Silica

- Silica-containing construction operations are classified into three groups - Type 1 (low-risk), Type 2 (medium risk) and Type 3 (high-risk) based on presumed airborne concentrations of respirable crystalline silica in the form of cristobalite, tridymite, quartz and tripoli
- Free of crystalline silica (common construction sand) that could be present in concrete, mortar, brick, masonry, and ceramics at the above address.

3.6 Polychlorinated Biphenyls (PCBs)

Polychlorinated biphenyls, commonly known as chlorobiphenyls or PCBs, are industrial chemicals which were synthesized and commercialized in North America in 1929.

In residential and commercial buildings, PCBs are often present in lighting ballasts and other electrical equipment including small capacitors (in washing machines, hair dryers, neon tubes, dishwashers and power supply units) and circuit breakers. In larger industrial facilities PCBs may be present in transformers, heat transfer fluids and voltage regulators.

Environment Canada has therefore repealed the chlorobiphenyls Regulations and the Storage of PCB Material Regulations on September 5, 2008 and made the PCB Regulations under the Canadian Environmental Protection Act, 1999 (CEPA 1999) that set specific dates for the destruction of PCBs in service and in storage. In Ontario, waste management of PCBs is governed by Ontario Regulation 232/11, which is the amended Reg. 362 of R.R.O. 1990 - Waste Management – PCBs.

3.7 Visible Mould

- When visible mold is located, the extent of growth must be fully investigated as mold may be hidden inside walls, under wall paper, in sub-floors, under carpets and other hard to assess areas. Remediation must take place as soon as possible and only after the source of moisture has been identified and has either been eliminated or will be eliminated upon the initiation of the remediation.
- Mould abatement projects, like asbestos abatement projects, must be contained, controlled and dealt with properly at all times.
- **No visible mould was identified at the time of inspection.**

4.0 RECOMMENDATIONS

4.1 General

Prior to tendering project work at this building, the owner must provide this report to the contractors and subcontractors. Asbestos-containing materials (ACM) that may be disturbed during the project must be removed prior to any renovation, demolition etc. Regardless of proposed construction work, damaged Asbestos-containing materials (ACM) must be repaired or removed in order to comply with current Regulations (O. Reg. 278/05) and MOL field practice.

The following recommendations set out meet requirements of the Occupational Health and Safety Act. Asbestos recommendations meet the requirements of the Designated Substance – Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations, Ontario Regulation 278/05. Based upon the observations of this assessment, Asbestos Environmental of Canada (AEOC Group Inc) offers the following for your consideration.

4.2 Asbestos

In Ontario, asbestos is regulated by Ontario Regulation 490/09 - Designated Substances. Control of exposure to asbestos is governed in Ontario by Regulation 278/05 - Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations. Disposal of asbestos waste (friable and non-friable materials) is governed by Ontario Regulation 278/05 and by Ontario Regulation 347, Waste Management - General. O. Reg. 278/05 classifies asbestos work operations into three types (Type 1, Type 2 and Type 3, as shown in 2.0 - Review of Guidelines Section of this report) and specifies procedures to be followed in conducting asbestos abatement work

Prior to construction all ACM must be repaired or removed in order to comply with current Regulations (Ontario Regulation 278/05) and MOL field of practice. The following materials require repair or removal.

<u>Material</u>	<u>Location</u>	<u>Recommended Procedure</u>
VCT Tile	Basement – White Tile	Type 1 Measures and Procedures.
Register Wrap	Throughout Home	Type 1 Measures and Procedures.

4.3 Lead

Construction disturbance of lead-containing products may result in exposure to lead. Cutting, grinding, drilling, removing, stripping or demolition of materials containing or coated with lead should be completed only with proper respiratory protection and other worker safety precautions as outlined in the Ministry of Labour Guideline – Lead on Construction / Home Repairs & Renovations Projects, 2011. The Ministry has not established a lower limit for concentrations of lead in paint (or other materials) below which precautions do not need to be considered and will not accept US EPA or HUD limits (0.5% lead) for this purpose. Therefore, the need for precautions and details of worker safety will need to be assessed on a project basis.

Ontario Regulation 490/09 specifies the occupational exposure limit (OEL) for elemental lead at 0.05 mg/m³ calculated as an 8 hour/daily and a 40 hour/weekly time-weighted average (TWA) limit. Despite the fact that O. Reg 490/09 does not generally apply to a construction project, employers still have a general duty and responsibility under Part III, Section 25(2)(h) of the Act to protect workers. Thus, if the contracted personnel retained to conduct the work are required to perform operations where significant levels of airborne dust containing lead may be generated, then measures must be taken by the contractor to ensure that the OEL for lead is not exceeded and that all reasonable regulatory and health and safety precautions are taken.

4.4 Mercury

Do not break lamps or separate liquid mercury from components. Mercury-containing materials and lamps should be recycled to reclaim the mercury. Disposal in significant quantities would require mercury-containing materials to be disposed of as hazardous waste.

In Ontario, mercury is regulated by Ontario Regulation 490/09 - Designated Substances.

Waste mercury in amounts less than 5 kg (per month) are exempt from the generator registration requirements prescribed by O. Reg. 347 - Waste Management - General. Waste mercury from mercury switches or gauges should, however, be properly collected and shipped to a recycling facility or disposed of as a hazardous waste. Removal of mercury-containing equipment (e.g. switches, gauges, controls etc.) should be carried out in a manner which prevents spillage and exposure to workers.

4.5 Silica

Construction disturbance of silica-containing products may result in excessive exposure to airborne silica, especially if performed indoors and dry. Cutting, grinding, drilling or demolition of materials containing silica should be completed only with proper respiratory protection and other worker safety precautions as outlined in the Ministry of Labour Guideline – Silica on Construction Projects, 2011.

4.6 Mould

If mould is uncovered inside wall cavities during hand demolition, use appropriate precautions as outlined in the AECO (Environmental Abatement Council of Ontario) Mould Abatement Guidelines, Edition 2 (2010).

<u>Material</u>	<u>Location</u>	<u>Recommended Procedures</u>
N/A	N/A	N/A

5.0 LIMITATIONS

During the expedition of the project, if additional materials are revealed beyond what are described in this report (i.e. materials not identified or materials that are not homogenous to those identified or materials that become revealed during the work), additional testing for asbestos-content should be completed immediately and prior to disturbance of the material. Alternatively, these materials can be assumed to contain asbestos and the appropriate level of asbestos safety precautions must be implemented.

Should work be required in other areas of the building, beyond the area subjected to this assessment, additional site investigations should be completed to assess the presence of Asbestos Containing Materials (ACM).

Details of the above investigation and recommendations are based upon the scope of work understood by AEOC Group Inc (Asbestos Environmental of Canada), at the time of inspection. Should changes occur to any aspect of the project scope of work, the assessment to determine if additional site investigations are required should be completed by AEOC Group Inc (Asbestos Environmental of Canada).

This report is provided as an abbreviated version of the AEOC Group Inc (Asbestos Environmental of Canada), Asbestos Building Material Report (Standard Report). The Standard Report, which provides additional details of the visual investigation and sampling methodology, laboratory analytical procedures and statement of limitation, forms part of this report by reference. The observations, results and conclusions drawn by AEOC Group Inc (Asbestos Environmental of Canada) are limited to the specific scope of work for which AEOC Group Inc was retained, and are based solely on information generated as a result of the specific scope of work authorized by **Ready.Set.Reno!**

Only those items that are capable of being observed and are reasonably obvious to AEOC Group Inc (Asbestos Environmental of Canada) personnel or have been identified to AEOC Group Inc by other parties, can be reported. AEOC Group Inc has exercised a degree of thoroughness and competence that is consistent with the profession during the execution of this assessment. AEOC Group Inc considers the opinions and information as they are presented in this report to be factual at the time of the assessment. The conclusions are limited to the specific locations of where testing and/or observations were completed during the course of the assessment.

It is important to note that work was completed with the utmost care and our extensive expertise in carrying out assessments. AEOC Group Inc believes that the information collected during the assessment concerning the work area is reliable. No other warranties are implied or expressed. AEOC Group Inc, to the best of its knowledge, believes this report to be accurate, however, AEOC Group Inc cannot guarantee the completeness or accuracy of information supplied to AEOC Group Inc by third parties. AEOC Group Inc is an Environmental Consulting Company and as such any results or conclusions presented in this report should not be construed as legal advice. The material in this report reflects AEOC Group Inc's professional interpretation of information available at the time of report preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. AEOC Group Inc accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

6.0 Closure

Should additional information become available that suggests other environmental issues of concern, beyond those described in this report, AEOC Group Inc retains the right to review this information and modify conclusions and recommendations presented in this report accordingly.

Should you have any questions, please do not hesitate to contact Real Landriault at (416)985-5025.

Sincerely,



Prepared by:

Victoria Grimshaw
Hazardous Materials Consultant

Reviewed by:

Real Landriault
Senior Hazardous Materials Specialist
AMRT, WRT, 253S, NIOSH 582

A handwritten signature in black ink, appearing to be 'Real Landriault', is positioned below the reviewer's name and title.

APPENDIX I
LABORATORY ANALYSIS FOR DESIGNATED SUBSTANCES

Table No. 1

**Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via
EPA600/R-93/116 & 600/M4-82-020 Methods**

Project: Ready.Set.Reno!

Lab Id#	Section/ Location	Sample Description	Material Integrity/ Approx. Size	Observed Asbestos Content
2018-404	A1	Register Wrap Grey-Brown Wrap	N/A	41% Chrysotile
2018-405	A2	VCT Tiles on Stairs – White Tiles White Tile Brown Mastic	N/A	NONE DETECTED
2018-406	A3	Basement VCT Tiles – White Floor Tiles White Tile Black Mastic	N/A	1% Chrysotile NONE DETECTED
2018-407	A4	Basement VCT Tiles – White Floor Tiles White Tile Black Mastic	N/A	1% Chrysotile NONE DETECTED
2018-408	B1	Lath & Plaster Walls & Ceilings Grey Plaster Grey Plaster with Grey Paint	N/A	NONE DETECTED
2018-409	B2	Lath & Plaster Walls & Ceilings Grey Plaster Grey Plaster with White Paint	N/A	NONE DETECTED
2018-410	B3	Lath & Plaster Walls & Ceilings Grey Plaster Grey Plaster with Beige Paint	N/A	NONE DETECTED
2018-411	B4	Lath & Plaster Walls & Ceilings Grey Plaster Grey Plaster with Grey Paint	N/A	NONE DETECTED
2018-412	B5	Lath & Plaster Walls & Ceilings Grey Plaster Grey Plaster with Grey Paint	N/A	NONE DETECTED
2018-413	B6	Lath & Plaster Walls & Ceilings Grey Plaster Grey Plaster with Grey Paint	N/A	NONE DETECTED
2018-414	B7	Lath & Plaster Walls & Ceilings Grey Plaster Grey Plaster with Beige Paint	N/A	NONE DETECTED
2018-415	C1	Insulation Brown Insulation	N/A	NONE DETECTED

2018-416	D1	Popcorn Ceiling L&P – Living Room White Texture Grey Plaster with White Texture	N/A	NONE DETECTED
2018-417	D2	Popcorn Ceiling L&P – Living Room White Texture Grey Plaster with White Texture	N/A	NONE DETECTED
2018-418	D3	Popcorn Ceiling L&P – Living Room White Texture Grey Plaster with White Texture	N/A	NONE DETECTED

- All samples will be “presumed ACM” should samples of the same material come back positive for ACM.
- All ACM materials found in poor condition need to be either removed or encased. All encapsulated ACM materials need to have a yearly inspection to ensure the integrity is still safe. Should the material be found in a further diminished condition then previously identified, the home/business owner will be strongly recommended to remove the ACM material. If ACM material is in good condition, no remediation is necessary unless home/business owner is proceeding with any renovation, work, or demolition in located ACM areas.



LABORATORY RESULTS

Asbestos Laboratories Inc.
1230 Sheppard Ave. West, Unit 22
Toronto, ON M3K 1Z9
Phone: (416) 635-5025 **Email:** info@asbestoslabs.ca

Client: AEOC Group Inc <input type="text"/>	Asbestos Labs O <input type="text"/> Asbestos Labs ID: 20177214 Customer ID: 22ASB05 Project ID: <input type="text"/>
Project: <input type="text"/>	Type(s) and Date(s) of Analysis: Asbestos PLM / 2020-12-18
Analyst(s): Gavin Landriault, PLM, PCM, NIOSH 582	Test(s) Performed: Asbestos PLM Total Samples Submitted: 15 Total Samples Analyzed: 14 Samples with Layer Asbestos Content > 1%: 2
Reviewed/ Approved by: Gavin Landriault	Approved Signatory: Gavin Landriault
Notes and Observations:	<div style="border: 1px solid black; height: 200px;"></div>

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Asbestos Laboratories Inc. ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Asbestos Laboratories Inc.

Asbestos Labs ID:20177214 / Page 1 of 5

Client: **AEOC Group Inc**
 Project:

LABORATORY RESULTS
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Phone: (416) 635-5025 **Email:** info@asbestoslabs.ca

Sample Number/Location and Description	Lab ID
A1 – Register Wrap	2018-404
Sample Layers	Asbestos Content
Grey-Brown Wrap	41% Chrysotile
Sample Composite Homogeneity	
Moderate	

Sample Number/Location and Description	Lab ID
A2 - Basement VCT Tiles – White Tiles	2018-405
Sample Layers	Asbestos Content
White Tiles	1% Chrysotile
Brown Mastic	ND
Sample Composite Homogeneity	
Moderate	

Sample Number/Location and Description	Lab ID
A3 – Basement VCT Tiles – White Tiles	2018-406
Sample Layers	Asbestos Content
White Tile	1% Chrysotile
Black Mastic	ND
Sample Composite Homogeneity	
Moderate	
Sample A4 was not analyzed due to prior stop positive result.	

Sample Number/Location and Description	Lab ID
B1 – Lath & Plaster Walls & Ceilings	2018-408
Sample Layers	Asbestos Content
Grey Plaster	ND
Grey Plaster with Grey Paint	ND
Sample Composite Homogeneity	
Moderate	

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by any agency of the federal government. Asbestos Laboratories Inc. reserves the right to dispose of all samples after a period of thirty (30) days, according to all provincial and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

Client: **AEOC Group Inc**
 Project:

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Sample Number/Location and Description	Lab ID
B2 – Lath & Plaster Walls & Ceilings	2018-409
Sample Layers	Asbestos Content
Grey Plaster	ND
Grey Plaster with White Paint	ND
Sample Composite Homogeneity	
Moderate	

Sample Number/Location and Description	Lab ID
B3 – Lath & Plaster Walls & Ceilings	2018-410
Sample Layers	Asbestos Content
Grey Plaster	ND
Grey Plaster with Beige Paint	ND
Sample Composite Homogeneity	
Moderate	

Sample Number/Location and Description	Lab ID
B4 – Lath & Plaster Walls & Ceilings	2018-411
Sample Layers	Asbestos Content
Grey Plaster	ND
Grey Plaster with Grey Paint	ND
Sample Composite Homogeneity	
Moderate	

Sample Number/Location and Description	Lab ID
B5 – Lath & Plaster Walls & Ceilings	2018-412
Sample Layers	Asbestos Content
Grey Plaster	ND
Grey Plaster with Grey Paint	ND
Sample Composite Homogeneity	
Moderate	

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

Asbestos Laboratories Inc.

Asbestos Labs ID: 20177214 / Page 3 of 5

Client: **AEOC Group Inc**
 Project:

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Phone: (416) 635-5025 **Email:** info@asbestoslabs.ca

Sample Number/Location and Description	Lab ID
B6 – Lath & Plaster Walls & Ceilings	2018-413
Sample Layers	Asbestos Content
Grey Plaster	ND
Grey Plaster with Grey Paint	ND
Sample Composite Homogeneity	
Moderate	

Sample Number/Location and Description	Lab ID
B7 – Lath & Plaster Walls & Ceilings	2018-414
Sample Layers	Asbestos Content
Grey Plaster	ND
Grey Plaster with Beige Paint	ND
Sample Composite Homogeneity	
Moderate	

Sample Number/Location and Description	Lab ID
C1 - Insulation	2018-415
Sample Layers	Asbestos Content
Brown Insulation	ND
Sample Composite Homogeneity	
Moderate	

Sample Number/Location and Description	Lab ID
D1 – Popcorn Ceiling Lath & Plaster	2018-416
Sample Layers	Asbestos Content
White Texture	ND
Grey Plaster with White Texture	ND
Sample Composite Homogeneity	
Moderate	

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

Client: **AEOC Group Inc**
 Project:

LABORATORY RESULTS

Asbestos Laboratories Inc.
 1230 Sheppard Ave. West, Unit 22
 Toronto, ON M3K 1Z9

Phone: (416) 635-5025 Email: info@asbestoslabs.ca

Sample Number/Location and Description	Lab ID
D2 - Popcorn Ceiling Lath & Plaster	2018-417
Sample Layers	Asbestos Content
White Texture	ND
Grey Plaster with White Texture	ND
Sample Composite Homogeneity	
Moderate	

Sample Number/Location and Description	Lab ID
D3 - Popcorn Ceiling Lath & Plaster	2018-418
Sample Layers	Asbestos Content
White Texture	ND
Grey Plaster with White Texture	ND
Sample Composite Homogeneity	
Moderate	

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

APPENDIX II
FRIABILITY AND REGULATIONS

1.0 FRIABILITY

As per regulation 278/05, “friable material” means material that, (a) when dry, can be crumbled, pulverized or powdered by hand pressure, or (b) is crumbled, pulverized or powdered. Asbestos containing material (ACM) that is friable has a much greater potential than non-friable ACM used in the past are surfacing materials (usually sprayed fireproofing, texture, decorative or acoustic sprayed finishes) and thermal insulations on mechanical systems. Asbestos-containing non-friable materials include vinyl floor tiles, drywall joint compound, gasket materials, asbestos cement pipe or board, asbestos textiles, etc. Note that though a product may be considered non-friable is considered friable. Potentially friable materials (or sometimes called miscellaneous friable materials) include materials such as ceiling tiles and plaster. These materials are non-friable in place, but can generate dust upon removal.

2.0 TABLE 1 REGULATION 278/05- ASBESTOS SAMPLING FREQUENCY

Type of Material	Size of Area of Homogeneous Material	Minimum Number of Samples
Surfacing material, including without limitation material that is applied to surfaces by spraying, by troweling or otherwise, such as acoustical plaster on ceilings, fireproofing materials on structural members and plaster	Less than 90 square meters	3
	90 or more square metres, but less than 450 square meters.	5
	450 or more square metres	7
Thermal insulation, except as described below	Any Size	3
Thermal insulation patch	Less than 2 linear meters or 0.5 square metres	1
Other material	Any size	3

3.0 REGULATIONS-ONTARIO

Section 30 of the Occupational Health and Safety Act requires building owners or their agents (architects, general contractors, construction managers, etc.) to prepare or have prepared, a list of designated substances present in the area of construction or facility undergoing construction before entering into a binding contract with the constructor/contractor.

The disturbance of asbestos-containing materials (ACM) on construction projects is controlled by Ontario Ministry of Labour Regulation 278/05 made under the Occupational Health and Safety Act (Designated – Asbestos on Construction Projects and in Buildings and Repair Operations). The Regulation classifies all disturbances as Type 1, Type 2, or Type 3, each of which has defined work practices. All ACM are subject to special handling and disposal and must be removed before partial or full demolition. The Ministry of Labour must be notified prior to any project involving removal or more than a minor amount of friable ACM (Type 3 or Glove Bag abatement).

The Ministry of Labour released two documents in December 2004, Ministry of Labour Guideline – Lead on Construction Projects, and Ministry of Labour Guideline – Silica on Construction Projects. Although these documents were not released as Regulations, to quote the Ministry of Labour “*These guidelines will raise awareness of the potential hazards associated with Lead and Silica for common construction activities and tasks, and will provide assistance to employers, constructors and workers in how to take reasonable precaution to protect workers from exposure to Lead and Silica. These Guidelines include specific measures and procedures for typical construction activities and operations and can be used as best practices by the industry.*” These guidelines are expected to be widely enforced by the Ministry of Labour, via the general duty clause 25 (2) (h) of the Occupational Health and Safety Act, since there is no other construction regulation regarding lead and silica available for them to draw upon as a resource. The Ministry of Labour has also issued guidelines or proposed regulations for coal tar products and handling of mercury on construction sites.

Management handling and transfer of PCBs are controlled by R.R.O 1990, Reg. 362, Waste Management-PCB’s Regulation, made under the Ontario Environmental Protection Act, and the PCB regulation (SOR/2008-273) made under the federal Environmental Protection Act.

The Ontario Ministry of Labour published the hazard alert “Mould in Workplace Buildings”, in December 2000. To quote from the alert, “The sustained and /or extensive growth of any visible mould on the interior surfaces of a building is unacceptable. Mould growth on the interior surfaces of buildings is a risk factor for health problems.” The Ministry of Labour has enforced practices similar to those required for asbestos abatement.

Waste disposal is controlled by Ministry of the Environment Regulation, R.R.O. 1990 Reg. 347 as amended.