Halton District School Board

Halton District School Board **Addendum No. 1**

RFT 22-132 Renovations - Gladys Speers PS

The following, issued by the Halton District School Board May 12, 2022, shall be incorporated in the specifications and shall form part of the proposal document for the above.

Attached:

- Addendum # 1 as drafted by WK Lim & MP Liu Architects Inc. (82 pages). DSS report and Asbestos Abatement Specifications have been included in the addendum.

Information:

The following bidders have been invited to participate in this RFT process:

Allies Contracting Inc.
Area Construction
BaseKamp
Bestco Construction
Bromac Construction Inc.
Caird-Hall Construction Inc
DeFaveri Group Contracting Inc.
Design 4 General Contracting Ltd
Everstrong Construction Limited
Gen-Pro
Golden Gate Contracting
Hall Construction Inc
Index Construction
Niacon Limited

RECEIPT OF ADDENDA MUST BE ACKNOWLEDGED ON THE FORM OF TENDER.

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END OF ADDENDUM 1

ADDENDUM

Unit 100 – 706 Euclid Avenue, Toronto, Ontario, Canada M6G 2T9
Fax: (416) 591-1010 Telephone: (416) 591-6575

PROJECT: Gladys Speers Public School
2150 Samway Rd, Oakville, ON L6L 2P6

PROJECT NO.: 21153

DATE: May 12, 2022

ADDENDUM NO.: 1

THE FOLLOWING ADDITIONS, DELETIONS, AND AMENDMENTS ARE HEREBY MADE PART OF THE DRAWINGS AND SPECIFICATIONS FOR THE ABOVE PROJECT:

ITEM 1: ASBESTOS ABATEMENT

REFERENCE:
Specifications List of Contents
Specifications Section 00226
Pre-renovation Designated Substances and Hazardous Materials Survey by Arcadis Canada Inc. dated May 10, 2022 (attached)
Specifications Section 02 82 00 Asbestos Abatement Specifications (attached)
Specifications Section 09250 Gypsum Board (attached)
Drawing A1 Detail 1
Drawing A3 Detail 1 and Detail 2

Description:

.1 At Specifications List of Contents, revise “02080 Asbestos Abatement Specifications” to “02 82 00 Asbestos Abatement Specifications”.

At Specifications List of Contents, following “09130 Suspension System for Acoustic Ceilings”, add “09250 Gypsum Board”.

.2 At Specifications Section 00226 Article 1.1.1, revise Designated Substances Report title from
“Survey of Asbestos-Containing Material” to
“Pre-renovation Designated Substances and Hazardous Materials Survey”.
Revise date from “December 13, 2018” to “May 10, 2022”.

Following Specifications Section 00226, add Pre-renovation Designated Substances and Hazardous Material Survey for Gladys Speers Public School at 2150 Samway Road, Oakville, Ontario by Arcadis Canada Inc. dated May 10, 2022 (attached).

.3 Following Specifications Section 02070, add Asbestos Abatement Specifications Section 02 82 00 for Gladys Speers Public School (attached).

.4 Following Specifications Section 09130, add Section 09250 Gypsum Board (attached).

.5 At Classrooms 2, 3, 5 and 6 rear coat rack area, remove, salvage, restore and make good existing plywood bulkheads. Prepare panels and refinish to match existing.

.6 At Classrooms 12, 13, 14 and 15 rear coat rack area, provide 1/2" gypsum board on existing framing, tape, sand, prime and paint to match original bulkhead configuration.

.7 At existing gypsum board removed by Section 02 82 00, provide gypsum board to match existing thickness, tape, sand, prime and paint.

ITEM 1: GYM LINES PAINTING
REFERENCE: Specifications Section 09911
Drawing A1 Detail 1
Drawing A2 Detail 1

Description: Provide purpose made paint to repaint existing gym lines to match existing colours and configuration. Submit samples.

Mingpeng (Priscilla) Liu
WK Lim & MP Liu Architects Inc.

END OF ADDENDUM NO. 1

c.c. Ms. Jennifer Norman - Halton District School Board

ARCADIS Design & Consultancy for natural and built assets

HALTON DISTRICT SCHOOL BOARD

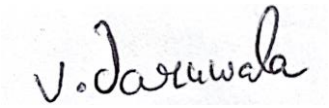
PRE-RENOVATION DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS SURVEY

GLADYS SPEERS PUBLIC SCHOOL

2150 SAMWAY ROAD, OAKVILLE, ONTARIO

May 10, 2022

30125139



Viraj Daruwala, M. Eng.

Occupational Hygiene Specialist

Jean Daigle

Senior Technical Specialist - Project Manager,

PRE-RENOVATION DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS SURVEY

Gladys Speers Public School
2150 Samway Road, Oakville, Ontario

Prepared for:

Halton District School Board

J.W. Singleton Education Center

2050 Guelph Line

Burlington, ON L7P 5A8

Attention: Jennifer Norman

Prepared by:

Arcadis Canada Inc.

121 Granton Drive, Suite 12

Richmond Hill, Ontario L4B 3N4

Tel 905 764 9380

Our Ref.:
30125139

Date:
May 10, 2022

CONTENTS*

TABLES

APPENDICES

1 INTRODUCTION

Arcadis Canada Inc. (Arcadis) was retained by the Halton District School Board (HDSB) to conduct a pre-renovation designated substances and hazardous materials survey in designated areas at Gladys Speers Public School located at 2150 Samway Road, Oakville, Ontario.

The building is a one-storey masonry structure.

The information in this report is to be provided to all bidders on a project in accordance with the requirements of the *Occupational Health and Safety Act*.

It is our understanding that the designated substances and hazardous materials survey was required to facilitate renovations in the *designated study areas*. The survey was limited to inspecting and testing materials in the designated study areas that may be affected by the renovation project based on information provided by HDSB.

The designated study areas and construction eras are shown on the floor plans provided in Appendix A.

The survey was undertaken to report on the presence or suspected presence of readily observable designated substances and hazardous materials.

1.1 Scope of Work

The scope of work for our investigation included:

- review of existing information;
- investigation of readily-accessible areas in the designated study areas for the presence of designated substances and hazardous materials used in building construction materials;
- obtaining representative bulk samples of materials suspected of containing asbestos and paint chip samples;
- laboratory analyses of bulk samples for asbestos content;
- laboratory analysis of paint chip samples for lead content; and
- preparation of a report outlining the findings of the investigation.

Mr. Viraj Daruwala of Arcadis visited the site on April 21 and May 9, 2022 to conduct the designated substances and hazardous materials survey at Gladys Speers Public School.

2 REGULATORY DISCUSSION AND METHODOLOGY

Ontario Occupational Health and Safety Act (OHSA)

The Ontario *Occupational Health and Safety Act* (OHSA) sets out, in very general terms, the duties of employers and others to protect workers from health and safety hazards on the job. These duties include, but are not limited to:

- taking all reasonable precautions to protect the health and safety of workers [clause 25(2)(h)];
- ensuring that equipment, materials and protective equipment are maintained in good condition [clause 25(1)(b)];
- providing information, instruction and supervision to protect worker health and safety [clause 25(2)(a)]; and
- acquainting a worker or a person in authority over a worker with any hazard in the work and in the handling, storage, use, disposal and transport of any article, device, equipment or a biological, chemical or physical agent [clause 25(2)(d)].

In addition, Section 30 of the OHSA deals with the presence of designated substances on construction projects. Compliance with the OHSA and its regulations requires action to be taken where there is a designated substance hazard on a construction project.

Section 30 of the OHSA requires the owner of a project to determine if designated substances are present on a project and, if so, to inform all potential contractors as part of the bidding process. Contractors who receive this information are to pass it onto other contractors and subcontractors who are bidding for work on the project.

Regulation for Construction Projects, O.Reg. 213/91

The *Regulation for Construction Projects*, O.Reg. 213/91, applies to all construction projects. The following sections of the regulation would apply to situations where there is the potential for workers to be exposed to designated substances:

Section 14	(5)	A competent person shall perform tests and observations necessary for the detection of hazardous conditions on a project.
Section 21	(1)	A worker shall wear such protective clothing and use such personal protective equipment or devices as are necessary to protect the worker against the hazards to which the worker may be exposed.
	(2)	A worker's employer shall require the worker to comply with subsection (1).

(3) A worker required to wear personal protective clothing or use personal protective equipment or devices shall be adequately instructed and trained in the care and use of the clothing, equipment or device before wearing or using it.

Section 30 Workers who handle or use substances likely to endanger their health shall be provided with washing facilities with clean water, soap and individual towels.

Section 46 (1) A project shall be adequately ventilated by natural or mechanical means,

(a) if a worker may be injured by inhaling a noxious...dust or fume;

(2) If it is not practicable to provide natural or mechanical ventilation in the circumstances described in clause (1)(a), respiratory protective equipment suitable for the hazard shall be provided and be used by the workers.

Section 59 If the dissemination of dust is a hazard to a worker, the dust shall be adequately controlled or each worker who may be exposed to the hazard shall be provided with adequate personal protective equipment.

Regulation for Designated Substances (O.Reg. 490/09)

The *Designated Substance Regulation* (O.Reg. 490/09) specifies occupational exposure limits (OELs) for designated substances and requires an assessment and a control program to ensure compliance with these OELs.

Although, O.Reg. 490/09 and the OELs do not apply to an employer on a construction project, or to their workers at the project, employers still have a responsibility to protect the health of their workers and to comply with the OHSA and other applicable regulations. Section 25(2)(h) of the OHSA requires that employers take "every precaution reasonable in the circumstances for the protection of a worker".

Other regulatory requirements (and guidelines) which apply to control of exposure to designated substances and hazardous materials are referenced in the sections below.

2.1 Asbestos

Asbestos has been widely used in buildings, both in friable applications (materials which can be crumbled, pulverized or powdered by hand pressure, when dry) such as pipe and tank insulation, sprayed-on fireproofing and acoustic texture material and in non-friable manufactured products such as floor tile, gaskets, cement board and so on. The use of asbestos in friable applications was curtailed around the mid-1970s and, as such, most buildings constructed prior to about 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.

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, 2 and 3), as shown in Table C-1 in Appendix C, and specifies procedures to be followed in conducting asbestos abatement work.

2.2 Lead

Lead is a heavy metal that can be found in construction materials such as paints, coatings, mortar, concrete, pipes, solder, packings, sheet metal, caulking, glazed ceramic products and cable splices. Lead has been used historically in exterior and interior paints.

The *Surface Coating Materials Regulations* (SOR/2016-193) made pursuant to the Canada Consumer Product Safety Act states that a surface coating material must not contain more than 90 mg/kg total lead. Health Canada defines a lead-containing surface coating as a paint or similar material that dries to a solid film that contains over 90 mg/kg dry weight of lead.

Information from the United States Occupational Health and Safety Administration (OSHA) suggests that the improper removal of lead paint containing 600 mg/kg lead results in airborne lead concentrations that exceed half of the permissible exposure limit. Lead concentrations as low as 90 mg/kg may present a risk to pregnant women and children[(1)].

The *National Plumbing Code* allowed lead as an acceptable material for pipes until 1975 and in solder until 1986.

The Ministry of Labour *Guideline, Lead on Construction Projects*, dated April 2011, 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 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 lead, as shown in Appendix C, Table C-2. Any operation that may expose a worker to lead that is not a Type 1, Type 2, or Type 3b operation, is classified as a Type 3a operation.

2.3 Mercury

Mercury has been used in electrical equipment such as alkaline batteries, fluorescent light bulbs (lamps), high intensity discharge (HID) lights (mercury vapour, high pressure sodium and metal halide), “silent switches” and in instruments such as thermometers, manometers and barometers, pressure gauges, float and level switches and flow meters. Mercury-containing lamps, the bulk of which are 1.22 m (four foot) fluorescent lamps contain between 7 and 40 mg of mercury each. Mercury compounds have also been

(1) *Lead-Containing Paints and Coatings: Preventing Exposure in the Construction Industry.* WorkSafe BC, 2011.

used historically as additives in latex paint to protect the paint from mildew and bacteria during production and storage.

The intentional addition of mercury to Canadian-produced consumer paints for interior use was prohibited in 1991. Mercury may have remained in paints after 1991, however, as a result of impurities in the paint ingredients or cross-contamination due to other manufacturing processes. The *Surface Coating Materials Regulations* made under the *Hazardous Products Act* set a maximum total mercury concentration of 10 mg/kg (0.001 percent) for surface coating materials (including paint). This criterion level applies to the sale and importation of new surface coating materials.

Mercury-containing thermostats and silent light switches are mercury tilt switches which are small tubes with electrical contacts at one end of the tube. A mercury tilt switch is usually present when no switch is visible. Mercury switches often have the word “TOP” stamped on the upper end of the switch, which is visible after removing the cover plate. If mercury switches are to be removed, the entire switch should be removed and placed into a suitable container for storage and disposal.

Waste light tubes generated during renovations or building demolition and waste mercury from equipment must either be recycled or disposed of in accordance with the requirements of Ont. Reg. 347 - *Waste Management, General*.

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.

2.4 Silica

Silica exists in several forms of which crystalline silica is of most concern with respect to potential worker exposures. Quartz is the most abundant type of crystalline silica. Some commonly used construction materials containing silica include brick, refractory brick, concrete, concrete block, cement, mortar, rock and stone, sand, fill dirt, topsoil and asphalt containing rock or stone.

The Ministry of Labour *Guideline, Silica on Construction Projects*, dated April 2011, provides guidance in controlling exposure to silica dust during construction activities. 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 as shown in Appendix C, Table C-3.

2.5 Vinyl Chloride

Vinyl chloride vapours may be released from polyvinyl chloride (PVC) products in the event of heating or as a result of decomposition during fire. PVC is used in numerous materials that may be found in building construction, including, for example, piping, conduits, siding, window and door frames, plastics, garden hoses, flooring and wire and cable protection.

2.6 Acrylonitrile

Acrylonitrile is used to produce nitrile-butadiene rubber, acrylonitrile-butadiene-styrene (ABS) polymers and styrene-acrylonitrile (SAN) polymers. Products made with ABS resins which may be found in buildings include telephones, bottles, packaging, refrigerator door liners, plastic pipe, building panels and shower stalls. Acrylonitrile can be released into the air by combustion of products containing ABS.

2.7 Other Designated Substances

Isocyanates are a class of chemicals used in the manufacture of certain types of plastics, foams, coatings and other products. Isocyanate-based building construction materials may include rigid foam products such as foam-core panels and spray-on insulation and paints, coatings, sealants and adhesives. Isocyanates may be inhaled if they are present in the air in the form of a vapour, a mist or a dust.

Benzene is a clear, highly flammable liquid used mainly in the manufacture of other chemicals. The commercial use of benzene as a solvent has practically been eliminated, however it continues to be used as a solvent and reactant in laboratories.

Arsenic is a heavy metal used historically in pesticides and herbicides. The primary use in building construction materials was its use in the wood preservative chromated copper arsenate (CCA). CCA was used to pressure treat lumber since the 1940's. Pressure-treated wood containing CCA is no longer being produced for use in most residential settings.

Ethylene oxide is a colourless gas at room temperature. it has been used primarily for the manufacture of other chemicals, as a fumigant and fungicide and for sterilization of hospital equipment.

Coke oven emissions are airborne contaminants emitted from coke ovens and are not a potential hazard associated with building construction materials.

2.8 Polychlorinated Biphenyls (PCBs)

The management of equipment classified as waste and containing Polychlorinated Biphenyls (PCBs) at concentrations of 50 parts per million (mg/kg) or greater is regulated by Ontario Regulation 362*, Waste Management – PCBs*. Under this regulation, PCB waste is defined as any waste material containing PCBs in concentrations of 50 mg/kg or greater. Any equipment containing PCBs at or greater than this level, such as transformers, switchgear, light ballasts and capacitors, which is removed from service due to age, failure or as a result of decommissioning, is considered to constitute a PCB waste. Although current federal legislation (effective 1 July 1980) has prohibited the manufacture and sale of new equipment containing PCBs since that time, continued operation of equipment supplied prior to this date and containing PCBs is still permitted. Handling, storage and disposition of such equipment is, however, tightly regulated and must be managed in accordance with provincial and federal government requirements as soon as it is taken out of service or becomes unserviceable.

In most institutional, commercial facilities and in smaller industrial facilities, the primary source of equipment potentially containing PCBs is fluorescent and H.I.D. light ballasts. Small transformers may also be present.

In larger industrial facilities, larger transformers and switch gear containing, or potentially containing, PCBs may also be present.

PCBs were also commonly added to industrial paints from the 1940s to the late 1970s. PCBs were added directly to the paint mixture to act as a fungicide, to increase durability and flexibility, to improve resistance to fires and to increase moisture resistance. The use of PCBs in new products was banned in Canada in the 1970s. PCB amended paints were used in specialty industrial/institutional applications prior to the 1970s including government buildings and equipment such as industrial plants, radar sites, ships as well as non-government rail cars, ships, grain bins, automobiles and appliances.

Removal of in-service equipment containing PCBs, such as fluorescent light ballasts, capacitors and transformers, is subject to the requirements of the federal *PCB Regulations* (discussed below).

The *PCB Regulations*, which came into force on 5 September 2008, were made under the *Canadian Environmental Protection Act*, 1999 (CEPA 1999) with the objective of addressing the risks posed by the use, storage and release to the environment of PCBs, and to accelerate their destruction. The *PCB Regulations* set different end-of-use deadlines for equipment containing PCBs at various concentration levels.

The Regulations Amending the PCB Regulations and Repealing the Federal Mobile PCB Treatment and Destruction Regulations were published on 23 April 2014, in the Canada Gazette, Part II, and came into force on 1 January 2015. The most notable part of the amendments is the addition of an end-of-use deadline date of 31 December 2025 for specific electrical equipment located at electrical generation, transmission and distribution facilities.

When the PCB materials are classified as waste, jurisdiction falls under the Ontario Ministry of the Environment and Climate Change (MOECC) and O.Reg. 362. All remedial and PCB management work must be carried out under the terms of a Director's Instruction issued by an MOECC District Office (for quantities of PCB fluid greater than 50 litres). The PCB waste stream, regardless of quantity, must be registered with the MOECC, in accordance with O.Reg. 347, *General - Waste Management*. O.Reg. 362 applies to any equipment containing greater than 1 kg of PCBs.

2.9 Ozone-Depleting Substances (ODS) and Other Halocarbons

Ontario Regulation 463/10 – *Ozone Depleting Substances and Other Halocarbons*, applies to the use, handling and disposal of Class 1 ozone-depleting substances, including various chlorofluorocarbons (CFCs), halons and other halocarbons, Class 2 ozone-depleting substances, including various hydrochlorofluorocarbons (HCFCs) and halocarbons, and other halocarbons, including fluorocarbons (FCs) and hydrofluorocarbons (CFCs). The most significant requirements for handling of ozone-depleting substances (ODS) and other Halocarbons, which include, for example, refrigerants used in refrigeration equipment and chillers, include the following:

- certification is required for all persons testing, repairing, filling or emptying equipment containing ODS and other halocarbons;

- the discharge of a Class 1 ODS or anything that contains a Class 1 ODS to the natural environment or within a building is prohibited;
- the making, use of, selling of or transferring of a Class 1 ODS is restricted to certain conditions;
- the discharge of a solvent or sterilant that contains a Class 2 ODS is prohibited;
- the making, use of, selling of or transferring of a solvent or sterilant that contains a Class 2 ODS is restricted to certain conditions;
- fire extinguishing equipment that contains a halon may be discharged to fight fires, except fires for firefighting training purposes;
- portable fire extinguishing equipment that contains a halon may be used or stored if the extinguisher was sold for use for the first time before 1 January 1996;
- records of the servicing and repair of equipment containing ODS and other halocarbons must be prepared and maintained by the owner of the equipment; and
- equipment no longer containing ODS and other halocarbons must be posted with a notice completed by a certified person.

Ontario Regulation 347, *General – Waste Management*, has also been amended to provide for more strict control of CFCs. The requirements under the amended regulation apply primarily to the keeping of records for the receipt or recycling of CFC waste.

2.10 Mould

Moulds are forms of fungi that are found everywhere both indoors and outdoors all year round. Outdoors, moulds live in the soil, on plants and on dead and decaying matter. More than 1000 different kinds of indoor moulds have been found in buildings. Moulds spread and reproduce by making spores, which are all small and light-weight, able to travel through air, capable of resisting dry, adverse environmental conditions, and hence capable of surviving a long time. Moulds need moisture and nutrients to grow and their growth is stimulated by warm, damp and humid conditions.

Control of exposure to mould is required under Section 25(2)(h) of the Ontario *Occupational Health and Safety Act*, which states that employers shall take every precaution reasonable in the circumstances for the protection of workers. Recommended work practices are outlined in the following documents:

- *Mould Guidelines for the Canadian Construction Industry.* Standard Construction Document CCA 82 2004. Canadian Construction Association.
- *Mould Abatement Guidelines*. Environmental Abatement Council of Ontario. Edition 3. 2015.

3 RESULTS AND DISCUSSION

3.1 Asbestos

Arcadis reviewed a report prepared by Arcadis for the Halton District School Board entitled *Updated Survey of Asbestos-Containing Materials Gladys Speers Public School, 2150 Samway Road, Oakville, Ontario* dated January 29, 2018. Information and/or bulk sample analysis results obtained from this report was utilized by Arcadis during the course of our investigation and in the preparation of this report.

During the course of our site investigation, representative bulk samples of material were collected by Arcadis staff. The samples were forwarded to EMSL Canada Inc. (EMSL) for asbestos analyses. Results of bulk sample analysis for asbestos content are provided in Table 3.1. Table 3.1 also includes sample results that are outside of the designated study areas. This information is provided for references purposes only. The laboratory report is provided in Appendix B. Locations of accessible asbestos-containing materials are outlined on the floor plan provided in Appendix A.

Table 3.1. Summary of Results of Analyses of Bulk Samples for Asbestos Content

Sample No.	Sample Location	Sample Description	Asbestos Content
1-A	Exterior	Brick mortar, 1959 construction era	None detected
1-B	Exterior	Brick mortar, 1959 construction era	None detected
1-C	Exterior	Brick mortar, 1959 construction era	None detected
2-A	Exterior	Brick mortar, 1963 construction era	None detected
2-B	Exterior	Brick mortar, 1963 construction era	None detected
2-C	Exterior	Brick mortar, 1963 construction era	None detected
3-A	Exterior	Brick mortar, 1965 construction era	<1% Chrysotile (PLM) <0.25% Chrysotile (PLM Grav.) (2)
3-B	Exterior	Brick mortar, 1965 construction era	<1% Chrysotile (PLM) <0.25% Chrysotile (PLM Grav.) (2)
3-C	Exterior	Brick mortar, 1965 construction era	<1% Chrysotile (PLM) <0.25% Chrysotile (PLM Grav.) (2)
4-A	Room 15	Drywall joint compound	**2% Chrysotile**
1-A	Roof	Tar around roof components	<0.25% Chrysotile (PLM) <0.1% Chrysotile (TEM) (2)
1-B	Roof	Tar around roof components	None detected
1-C	Roof	Tar around roof components	None detected
2-A	Roof	Black caulking around roof fan	None detected
2-B	Roof	Black caulking around roof fan	None detected
2-C	Roof	Black caulking around roof fan	None detected
3-A	Roof	Grey caulking around roof fan	None detected

Sample No.	Sample Location	Sample Description	Asbestos Content
3-B	Roof	Grey caulking around roof fan	None detected
3-C	Roof	Grey caulking around roof fan	None detected
4-A	Roof	Flex joint connector - black	None detected(PLM) None detected (TEM)
4-B	Roof	Flex joint connector - black	None detected
4-C	Roof	Flex joint connector - black	None detected
5-A	Room 25	Block filler paint – 1959 construction era	None detected
5-B	Room 24	Block filler paint – 1959 construction era	None detected
5-C	Corridor 6	Block filler paint – 1959 construction era	None detected
6-A	Room 37	2'x4' ceiling tiles – random small and big pinholes	None detected
6-B	Room 12	2'x4' ceiling tiles – random small and big pinholes	None detected
6-C	Room 15	2'x4' ceiling tiles – random small and big pinholes	None detected
7-A	Room 37	Block filler paint, 1965 construction era	<1% chrysotile (PLM) <0.25% chrysotile (PLM Grav.) (2)
7-B	Room 39	Block filler paint, 1965 construction era	<1% chrysotile (PLM) <0.25% chrysotile (PLM Grav.) (2)
7-C	Room 12	Block filler paint, 1965 construction era	<1% chrysotile (PLM) <0.38% chrysotile (PLM Grav.) (2)
8-A	Room 35	Drywall joint compound	**2% chrysotile**
9-A	Room 9	Block filler paint, 1963 construction era	<1% chrysotile (PLM) <0.43% chrysotile (PLM Grav.) (2)
9-A	Room 9	Block mortar	None detected
9-B	Room 18	Block filler paint, 1963 construction era	<1% chrysotile (PLM) <0.47% chrysotile (PLM Grav.) (2)
9-B	Room 9	Block mortar	None detected
9-C	Room 17	Block filler paint, 1963 construction era	<1% chrysotile (PLM) <0.43% chrysotile (PLM Grav.) (2)
9-C	Room 9	Block mortar	None detected
10-A	Room 27	Drywall joint compound – 1959 construction era	None detected
10-B	Room 27	Drywall joint compound – 1959 construction era	None detected
10-C	Room 28	Drywall joint compound – 1959 construction era	None detected
11-A	Room 25	Grey window caulking	None detected

Sample No.	Sample Location	Sample Description	Asbestos Content
11-B	Room 25	Grey window caulking	None detected
11-C	Room 25	Grey window caulking	None detected
12-A	Exit door E	Black door caulking	**1% chrysotile**
GS-VFT-A-1	Room 24	12” X 12” Vinyl Floor Tile- Grey with white streaks	**2.3% Chrysotile** (TEM)(1)
GS-VFT-B-1	Room 19	12”x 12” Vinyl Floor Tile- Cream with grey specks	None Detected (TEM) (1)
GS-VFT-B-2	Room 19	12”x 12” Vinyl Floor Tile- Cream with grey specks	None Detected(1)
GS-VFT-B-3	Room 19	12”x 12” Vinyl Floor Tile- Cream with grey specks	None Detected(1)
GS-VFT-C- 3	Room 9	12”x 12” Vinyl Floor Tile- Cream with brown specks	None Detected(1)
GS-VFT-D- 1	Room 39	12”x 12” Vinyl Floor Tile- Grey with black streaks	**10.1% Chrysotile** (TEM) (1)
GS-VFT-E-1	Staff Room (23)	12”x 12” Vinyl Floor Tile- White with green and brown specks	None Detected (TEM) (1)
GS-VFT-E-2	Staff Room (23)	12”x 12” Vinyl Floor Tile- White with green and brown specks	None Detected(1)
GS-VFT-E-3	Staff Room (23)	12”x 12” Vinyl Floor Tile- White with green and brown specks	None Detected(1)
GS-Anti-A-1	Room 24	Anti-Sweat Pipe Straight Insulation	None Detected (TEM) (1)
GS-Anti-A-2	Room 24	Anti-Sweat Pipe Straight Insulation	None Detected(1)
GS-Anti-A-3	Room 24	Anti-Sweat Pipe Straight Insulation	None Detected(1)
GS-PFI-A-1	Room 29	Pipe Fitting Insulation	**22% Chrysotile**(1)
GS-ACPS- A-1	Room 29	Air Cell Pipe Straight Insulation	**56% Chrysotile**(1)
GS-DWJC-A-1	Room 9	Drywall Joint Compound	None Detected(1)
GS-DWJC-A-2	Room 9	Drywall Joint Compound	None Detected(1)
GS-DWJC-A-3	Room 9	Drywall Joint Compound	None Detected(1)
GS-CT-A-1	Room 29	12” Ceiling Tile - 2 Size Dots	None Detected(1)
GS-CT-A-2	Room 29	12” Ceiling Tile - 2 Size Dots	None Detected(1)

Sample No.	Sample Location	Sample Description	Asbestos Content
GS-CT-A-3	Room 29	12” Ceiling Tile - 2 Size Dots	None Detected(1)
GS-SCT-A-1	Room 27	2’ x 4’ Suspended Ceiling Tile; Short Random Fissure	None Detected(1)
GS-SCT-A-2	Room 27	2’ x 4’ Suspended Ceiling Tile; Short Random Fissure	None Detected(1)
GS-SCT- A-3	Room 27	2’ x 4’ Suspended Ceiling Tile; Short Random Fissure	None Detected(1)
GS-SCT-B-1	Room 23	2’ x 4’ Suspended Ceiling Tile; Deep Fissure in 2’ with Random Pin Hole	None Detected(1)
GS-SCT-B-2	Room 23	2’ x 4’ Suspended Ceiling Tile; Deep Fissure in 2’ with Random Pin Hole	None Detected(1)
GS-SCT-B-3	Room 23	2’ x 4’ Suspended Ceiling Tile; Deep Fissure in 2’ with Random Pin Hole	None Detected(1)
GS-SCT-C-1	Corridor 1	2’ x 4’ Suspended Ceiling Tile; Fissure in 2’ with Random Pin Hole	None Detected(1)
GS-SCT-C-2	Corridor 1	2’ x 4’ Suspended Ceiling Tile; Fissure in 2’ with Random Pin Hole	None Detected(1)
GS-SCT-C-3	Corridor 1	2’ x 4’ Suspended Ceiling Tile; Fissure in 2’ with Random Pin Hole	None Detected(1)
GS-EXTS- A-3	Main Entrance	Exterior Soffit Material	**0.5% Chrysotile(1)**
GS-TxPl-A-1	Room 29	Textured Plaster Ceiling	None Detected(1)
GS-TxPl-A-2	Room 29	Textured Plaster Ceiling	None Detected(1)
GS-TxPl-A-3	Room 7	9” x 9” vinyl floor tile, White with grey fleck	**0.53% Chrysotile (1)**
7-FT-1A	Room 7	Mastic under white 9”x 9” vinyl floor tile (Sample FT-1)	None Detected (PLM) (1) None Detected (TEM) (1)
7-M-2A	Room 7	Mastic under blue 9”x 9” vinyl floor tile (Sample FT-5)	None Detected (1)
7-M-2B	Room 10	Mastic under white 9”x 9” vinyl floor tile (Sample FT-1)	None Detected (1)
10-M-2C	Room 7	9” x 9” vinyl floor tile, White with grey fleck	**0.53% Chrysotile (1)**
7-CB-3A	Room 7	Vinyl cove baseboard - Black	None Detected (PLM) (1) None Detected (TEM) (1)
16-CB-3B	Room 16	Cove baseboard, Black - Black	None Detected (1)
11-CB-3C	Room 11	Cove baseboard, Black - Black	None Detected (1)
7-M-4A	Room 7	Mastic on vinyl baseboard (Sample CB-3)	None Detected (PLM) (1) None Detected (TEM) (1)
16-M-4B	Room 16	Mastic from baseboard (Sample CB-3)	None Detected(1)

Sample No.	Sample Location	Sample Description	Asbestos Content
11-M-4C	Room 11	Mastic from baseboard (Sample CB-3)	None Detected[(1)]
10-FT-5A	Room 10	9” x 9” vinyl floor tile, white with multi colour fleck	**3.2% Chrysotile** [(1)]
34-M-6A	Room 34	Mastic from carpet	None Detected (PLM) [(1)] None Detected (TEM) [(1)]
34-M-6B	Room 34	Mastic from carpet	<0.25% Chrysotile [(1, 2)]
34-M-6C	Room 34	Mastic from carpet	None Detected [(1)]
7-TH-1A	Room 7	Caulking on column enclosure - beige colour	None Detected [(1)]
7-TH-1B	Room 7	Caulking on interior door frame - beige colour	**10.2% Chrysotile** [(1)]
7-TH-2A	Room 7	Caulking, on interior window frame – grey colour	None Detected (PLM) [(1)] None Detected (TEM) [(1)]
8-TH-2B	Room 8	Caulking, on interior window frame - grey colour	None Detected [(1)]
9-TH-2C	Room 9	Caulking, on interior window frame - grey colour	None Detected [(1)]
EXT-TH-3A	Exterior Room 7	Caulking on window frame - grey colour	None Detected (PLM) [(1)] None Detected (TEM) [(1)]
EXT-TH-3B	Exterior Room 8	Caulking on ventilator grate - grey colour	None Detected [(1)]
EXT-TH-3C	Exterior Room 10	Caulking on window frame - grey colour	None Detected [(1)]
8-CT-1	Room 8	12” x 12” ceiling tile - large and small hole (cellulose)	None Detected [(1)]
9-CT-2	Room 9	12” x 12” ceiling tile - large and small hole stippled surface	None Detected [(1)]
35-CT-2B	Room 35	12” x 12” ceiling tile - large and small hole stippled surface	None Detected [(1)]
32-CT-2C	Room 32	12” x 12” ceiling tile - large and small hole stippled surface	None Detected [(1)]
34A-CT-3A	Room 34A	2’ x 4’ ceiling tile - circle dot pattern	None Detected [(1)]
CORR4- CT-3B	Corridor 4	2’ x 4’ ceiling tile - circle dot pattern	None Detected [(1)]
CORR3-CT-3C	Corridor 3	2’ x 4’ ceiling tile - circle dot pattern	None Detected [(1)]
25-PL-1A	Room 25	Plaster on ceiling – scratch coat	None Detected [(1)]
25-PL-1A	Room 25	Plaster on ceiling – top coat	None Detected [(1)]
18-PL-1B	Room 18	Plaster on ceiling – scratch coat	None Detected [(1)]
18-PL-1B	Room 18	Plaster on ceiling – top coat	None Detected [(1)]
36A-PL-1C	Room 36A	Plaster on ceiling – scratch coat	None Detected [(1)]
36A-PL-1C	Room 36A	Plaster on ceiling – top coat	None Detected [(1)]
6-FT-7	Room 6	12” x 12” vinyl floor tile – beige with beige fleck – reported installed in 2007	None Detected (PLM) [(1)] None Detected (TEM)

Sample No.	Sample Location	Sample Description	Asbestos Content
6-FT-7	Room 6	Mastic on vinyl floor tiles reported installed in 2007	None Detected (PLM) (1) None Detected (TEM)
1-A	Room 27	ceramic tile grout	None detected (TEM) (1)
1-B	Room 28	ceramic tile grout	None Detected(1)
1-C	Room 35	ceramic tile grout	None Detected(1)
2-A	Room 15	Mortar (1965 era)	**1.1% Chrysotile** (1)
3-A	Room 27	Mortar in concrete block wall – grey coloured (1959 Era)	None detected None detected (TEM) (1)
3-B	Room 28	Mortar in concrete block wall – grey coloured (1959 Era)	None Detected(1)
3-C	Room 1	Mortar in concrete block wall – grey coloured (1959 Era)	None Detected(1)
4-A	Room 27	Mortar in glazed face concrete block wall – grey coloured (1959 Era)	**3.4% Chrysotile** (1)
5-A	Room 36A	Mortar in concrete block wall – grey coloured (1963 Era)	0.42% Chrysotile **0.83% Chrysotile(TEM)** (1)
6-A	Room 35	Mortar in glazed face of concrete block wall – white coloured (1963 Era)	None detected None detected (TEM) (1)
6-B	Room 36	Mortar in glazed face of concrete block wall – white coloured (1963 Era)	None Detected(1)
6-C	Room 4	Mortar in glazed face of concrete block wall – white coloured (1963 Era)	None Detected(1)
7-A	Room 9	12” x 12” acoustic ceiling tile – large and small hole stippled surface	None Detected(1)
7-B	Room 9	12” x 12” acoustic ceiling tile – large and small hole stippled surface	None Detected(1)
7-C	Room 9A	12” x 12” acoustic ceiling tile – large and small hole stippled surface	None Detected(1)
8-A	Room 9	Acoustic ceiling tile mastic – dark brown coloured	None detected None detected (TEM) (1)
8-B	Room 9	Acoustic ceiling tile mastic – dark brown coloured	None Detected(1)
8-C	Room 9A	Acoustic ceiling tile mastic – dark brown coloured	None Detected(1)

NOTES:

(1) Sample results obtained from a report prepared by Arcadis for the HDSB entitled *Updated Survey of Asbestos-Containing Materials Gladys Speers Public School, 2150 Samway Road, Oakville, Ontario* dated January 29, 2018

(2) Asbestos-containing material is defined as material that contains 0.5% or more asbestos by dry weight.

Bulk samples were analyzed by Polarized Light Microscopy (PLM) analysis, except where “TEM” is noted, in which case Transmission Electron Microscopy analysis was also performed.

< = less than.

Chrysotile = Chrysotile asbestos.

Amosite = Amosite asbestos.

Determination of the locations of asbestos-containing material was made based on the review of existing information, results of bulk sample analysis, visual observations and physical characteristics of the applications as well as our knowledge of the uses of asbestos in building materials.

Based on visual observations and results of laboratory analyses of samples collected by Arcadis Canada Inc., the following asbestos-containing materials were found to be present in the designated study areas:

Visual inspections and laboratory analyses of representative bulk samples of materials confirm that non-friable asbestos-containing materials are present in the following accessible applications:

- Thermal insulation applied to pipe fittings and pipe straights in various locations throughout the building;
- Mortar in concrete block walls throughout the facility;
- Vinyl floor tiles (9” x 9”) located in Room 32;
- Vinyl floor tiles (12” x 12”) located in Rooms 24 and 39;
- Caulking on door frames and window frames on south wall located in Rooms 9 and 21;
- Caulking around interior and exterior sides of the door frames at Exits E and F;
- Duct connectors on duct work located in Room 29A (Presumed asbestos);
- Drywall joint compound applied to gypsum board on east wall of Rooms 9, 11, 106, and 109;
- Drywall joint compound applied to gypsum board on all the walls of Room 9A;
- Drywall joint compound applied to gypsum board on the north wall of Rooms 34 and 38;
- Drywall joint compound applied to north and west wall in Room 113;
- Drywall joint compound applied to south and west wall in Room 16;
- Drywall joint compound applied to ceiling in the east section of the ceiling in Room 18;
- Drywall joint compound applied to bulkhead in Rooms 9, 12, 13, 14, 15, and 106;
- Drywall joint compound on ceilings of Rooms 111, 114, 33, 35, and 36; and
- Textured plaster on exterior soffit at Exits A, B, C, D, E and F.

During the course of investigations, Arcadis staff accessed cavities in exterior concrete block walls in several different locations throughout the designated study areas when renovation activities may disturb concrete block walls. Materials suspect of containing asbestos (e.g. vermiculite block-fill insulation) was not observed in all block wall cavities accessed.

Asbestos-containing thermal insulation applied to pipe fittings is a grey-coloured cementitious material. Asbestos-containing thermal insulation applied to pipe straights is “Air-Cell” insulation. “Aircell” is a trade name for a grey-coloured corrugated paper-like type of pipe insulation, usually found on heating and domestic hot water piping.

Glass fibre insulation is readily visually distinguishable (typically yellow in colour) from asbestos-containing insulation materials and was, therefore, not tested for asbestos content.

Thermal insulation is a friable material. The removal, alteration and/or disturbance of less than 1 m^2 of friable asbestos-containing materials is classified as a Type 2 enclosure operation as specified in O.Reg. 278/05. The removal, alteration and/or disturbance of more than 1 m^2 of friable asbestos-containing materials is classified as a Type 3 operation.

All thermal insulation, with the exception of glass fibre material, should be assumed to contain asbestos unless a bulk sample analysis indicates otherwise.

Vinyl floor tiles, caulking and duct connectors are non-friable materials. The removal, alteration and/or disturbance of these non-friable asbestos-containing materials can be performed as a Type 1 operation as specified in O. Reg. 278/05 if the material is wetted and the work is done only using non-powered, hand-held tools (see Table C-1 in Appendix C). If the removal, alteration and/or disturbance work is done using power tools that are attached to dust-collecting devices equipped with HEPA filters, then the work is classified as Type 2. If the power tools do not have HEPA filtered dust collecting devices, then the work is Type 3.

The removal, alteration and/or disturbance of less than one square meter of drywall in which asbestos-containing joint filling compounds have been used is classified as a Type 1 operation. The removal, alteration and/or disturbance of one square meter or more of drywall with asbestos-containing joint compounds is a Type 2 operation.

Plaster and mortar are non- or semi-friable materials which can become friable when disturbed. According to the Ministry of Labour *"A Guide to the Regulation Respecting Asbestos on Construction Projects and in Buildings and Repair Operations"*, dated November 2007, wetting does not adequately control the spread of dust and fibres during the breaking, cutting, drilling, abrading, grinding, sanding or vibrating of asbestos containing plaster (as well as stucco and other hard finishes) by means of non-powered hand-held tools. As such, Type 1 procedures cannot be used for work on these materials. The removal, alteration and/or disturbance should therefore be classified as a Type 2 or Type 3 operation depending on the tools used, and the amount of material to be removed.

Asbestos may also be present in materials which were not sampled during the course of the asbestos survey carried out by Arcadis, including, but not limited to, areas outside the designated study areas, roofing materials, asphaltic pavement, etc., and/or in locations that are presently inaccessible (e.g., in pipe chases and behind walls). Confirmatory testing of any such materials could be undertaken as the need arises (i.e., at the time of renovations, modifications or demolition) or the materials can be assumed to contain asbestos based on findings in adjacent areas.

If any materials which may contain asbestos and which were not tested during the course of the designated substances and hazardous materials survey are discovered during any construction activities, the work shall not proceed until such time as the required notifications have been made and an appropriate course of action is determined.

3.2 Lead

Arcadis reviewed a report prepared by Arcadis for the Halton District School Board entitled *Pre-Renovation Designated Substances Survey and Hazardous Materials Survey*, *Gladys Speers Public School, 2150 Samway Road, Oakville, Ontario* dated May 14, 2018. Information and/or bulk sample analysis results obtained from this report was utilized by Arcadis during the course of our investigation and in the preparation of this report.

Additional paint samples may be required to confirm lead content. Representative samples of paint were collected at the time of the survey based on, in part, the visual appearances of the paints (i.e., colours). Paints of similar colours may have been applied at different times and have varying amounts of lead.

Table 3.2. Summary of Results of Analysis of Bulk Sample for Lead

Sample No.	Sample Location	Sample Description	Lead Content (mg/kg)
P-1	Room 15	Concrete block paint	**1500**(1)

NOTE:

mg/kg = milligrams lead per kilogram paint.

1 mg/kg = 1 part per million (ppm).

(1) Sample results obtained from a report prepared by Arcadis for the HDSB entitled *Pre-Renovation Designated Substances Survey and Hazardous Materials Survey, Gladys Speers Public School, 2150 Samway Road, Oakville, Ontario dated May 14, 2018.*

Based on the result of the laboratory analysis, lead was found to be present at a level above the 90 mg/kg criterion value (Surface Coating Materials Regulations) in the sample collected.

Lead may be present in lead pipe, mortar, glazing on ceramic tiles, in the solder on the seals of bell joints of any cast iron drainpipe and in the solder on the sweated-on joints between copper pipe and fittings.

The Ministry of Labour *Guideline – Lead on Construction Projects*, dated April 2011, 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 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 lead, as shown in Appendix C, Table C-2. Any operation that may expose a worker to lead that is not a Type 1, Type 2, or Type 3b operation, is classified as a Type 3a operation.

In addition, the *EACO Lead Abatement Guidelines*, *2014 — Edition 1,* Environmental Abatement Council of Ontario, also provides guidance and recommended work practices.

3.3 Mercury

During the course of our site investigation, fluorescent lights were observed in the designated study areas. Mercury should be assumed to be present as a gas in all fluorescent light tubes and in all paint applications, albeit at low levels. The fluorescent light tubes should be recycled for mercury, if the lights are removed.

Proper procedures for removing and handling mercury-containing fluorescent light tubes typically involve:

- ensuring that electrical power to light fixtures has been disconnected and locked out;
- taking all necessary precautions to ensure that fluorescent lamp tubes are removed in a manner that prevents breakage; and
- transporting fluorescent lamp tubes to a licensed processing location for separation and recovery of mercury.

The measures and procedures outlined in the MOL *Guideline, Lead on Construction Projects* for control of potential exposure to lead in paint during construction activities will also serve to control potential exposure to any mercury in paint.

3.4 Silica

Materials observed in the designated study areas which should be considered to contain silica included gypsum board, joint compound, plaster, cementitious pipe fitting insulation, concrete, concrete block, brick and mortar.

The Ministry of Labour *Guideline, Silica on Construction Projects*, April 2011, provides guidance in controlling exposure to silica dust during construction activities. 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 silica, as shown in Appendix C, Table C-3.

Additional precautionary measures should also be implemented for certain types of materials (e.g., plaster, including non-asbestos applications, concrete block, etc.). For minor disturbances such as drilling, a HEPA-filtered attachment should be used. For removal of more than a minor amount of material, enclosures should be constructed for dust control and separation of the work area from adjacent areas.

3.5 Vinyl Chloride

As mentioned in Section 2.5 above, vinyl chloride would only be a potential exposure concern in the event of combustion of PVC products.

3.6 Acrylonitrile

As mentioned in Section 2.6 above, acrylonitrile would only be a potential exposure concern in the event of combustion of ABS products.

3.7 Other Designated Substances

No other designated substances (benzene, isocyanates, arsenic, ethylene oxide and coke oven emissions) were observed to be present in the designated study areas, and none would be expected to be encountered in any building materials in a form that would represent an exposure concern. Arsenic may be present at low levels in paint applications. The measures and procedures outlined in the MOL *Guideline, Lead on Construction Projects* for control of potential exposure to lead in paint during construction activities will also serve to control potential exposure to any arsenic (or mercury) in paint.

3.8 Polychlorinated Biphenyls (PCBs)

Fluorescent lights (T8 types) were observed in the designated study areas during the course of our site investigation. Light ballasts, such as those associated with some of the type of fluorescent lights (T8s) observed in the designated study areas, are usually an electronic-type which do not contain PCBs, however, this would be confirmed by an electrician at the time of dismantling of the lights.

Inspection of product codes and date codes on the ballasts can be used to determine the likely presence or absence of PCBs.

3.9 Ozone-Depleting Substances (ODS) and Other Halocarbons

No equipment potentially containing ozone-depleting substances was observed in the designated study areas during the course of the site investigation.

3.10 Mould

Readily evident mould was not observed during the course of the site investigation. The inspection of mould was limited to visual observations of readily-accessible surfaces and did not include intrusive inspections of wall cavities. During renovations or interior demolition work, any mould-impacted materials uncovered/discovered should be remediated following the measures and procedures outlined in the *Canadian Construction Association Standard Construction Document CCA-82 2004 - Mould Guidelines for the Canadian Construction Industry*.

4 USE AND LIMITATIONS OF THIS PRE-RENOVATION DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS SURVEY REPORT

This report, prepared for the Halton District School Board, does not provide certification or warranty, expressed or implied, that the investigation conducted by Arcadis Canada Inc. identified all designated substances (as defined in the Ontario *Occupational Health and Safety Act*) in the designated study areas at the subject facility. The work undertaken by Arcadis Canada Inc. was directed to provide information on the presence of designated substances in building construction materials based on review of existing information, visual investigation of readily accessible areas in the designated study areas of the building and on the results of laboratory analysis of a limited number of bulk samples of material for asbestos content and laboratory analysis of one paint sample for lead content. The survey did not include for identification of asbestos in process materials, equipment (including electrical equipment and wiring), furniture (e.g., chairs, table tops, etc.), nor material outside of the building (e.g., asphaltic pavement).

The material in this report reflects Arcadis Canada Inc.'s best judgment in light of the information available at the time of the investigation, which was performed on April 21 and May 9, 2022.

This report is not intended to be used as a scope of work or technical specification for remediation of designated substances or hazardous materials.

This report was prepared by Arcadis Canada Inc. for the Halton District School Board. Any use which any other party makes of the report, or reliance on, or decisions to be based on it, is the responsibility of such parties.

APPENDIX A

Floor Plan

Scale

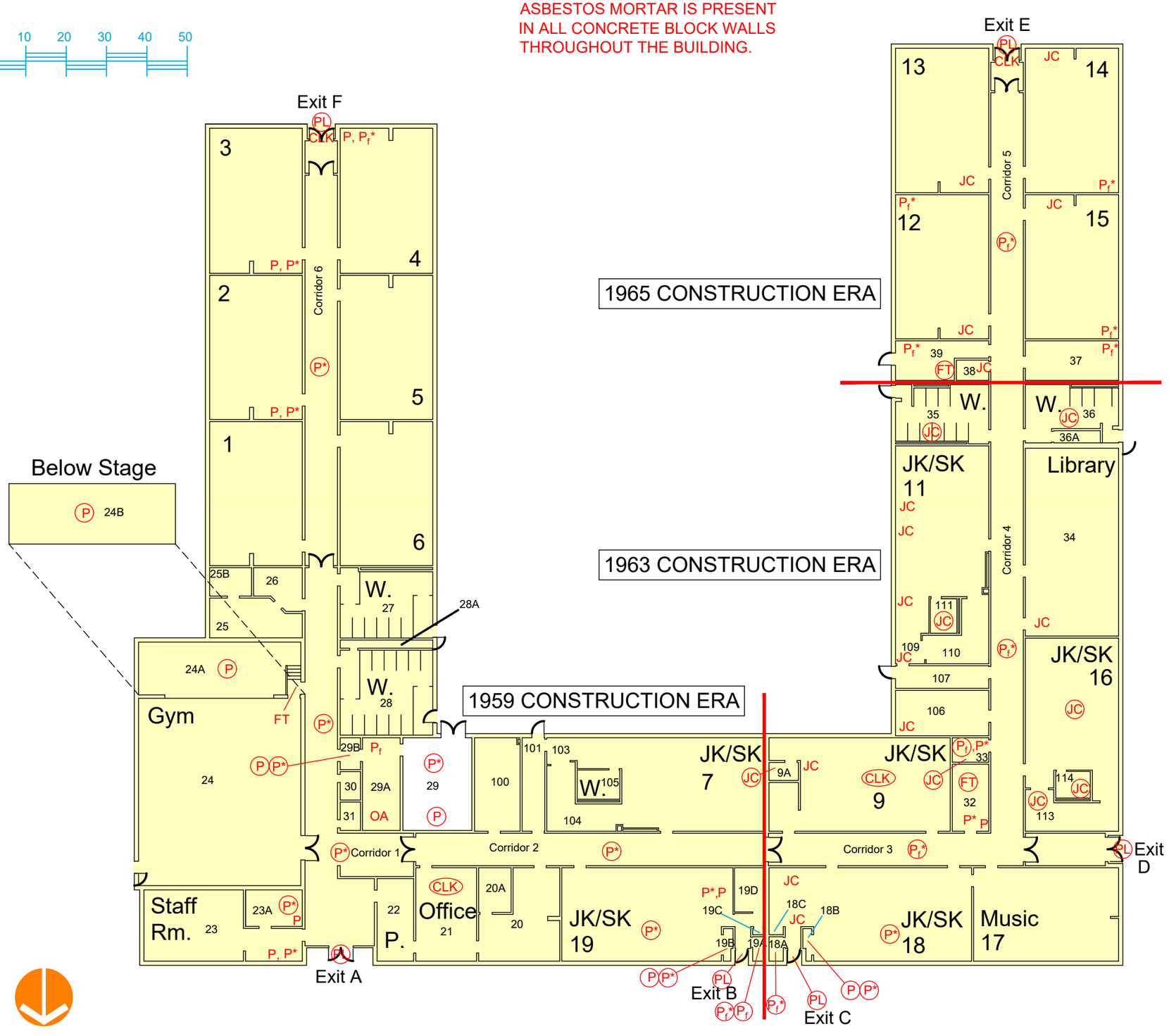
5 0 1 2 3 4 5 10 15 20

METRES

5 0 3 10 20 30 40 50

FEET

ASBESTOS MORTAR IS PRESENT IN ALL CONCRETE BLOCK WALLS THROUGHOUT THE BUILDING.



TRUE NORTH

PROJECT NORTH

LEGEND:

19	FUNCTIONAL SPACE
◯	THROUGHOUT FUNCTIONAL SPACE
*	ABOVE CEILING ASSEMBLY
P	ASBESTOS ON PIPING (FRIABLE)
P_f	ASBESTOS ON PIPE FITTINGS ONLY (FRIABLE)
FT	SUSPECT ASBESTOS FLOOR TILE (NON-FRIABLE)
CLK	ASBESTOS CAULKING (NON-FRIABLE)
PL	ASBESTOS PLASTER (NON-FRIABLE)
OA	OTHER ASBESTOS MATERIAL (NON-FRIABLE)
JC	JOINT COMPOUND
	STUDY AREA

NOTES:

1. INTERIORS OF ALL FIRE DOORS ARE ASSUMED TO CONTAIN ASBESTOS

ARCADIS

HALTON DISTRICT SCHOOL BOARD

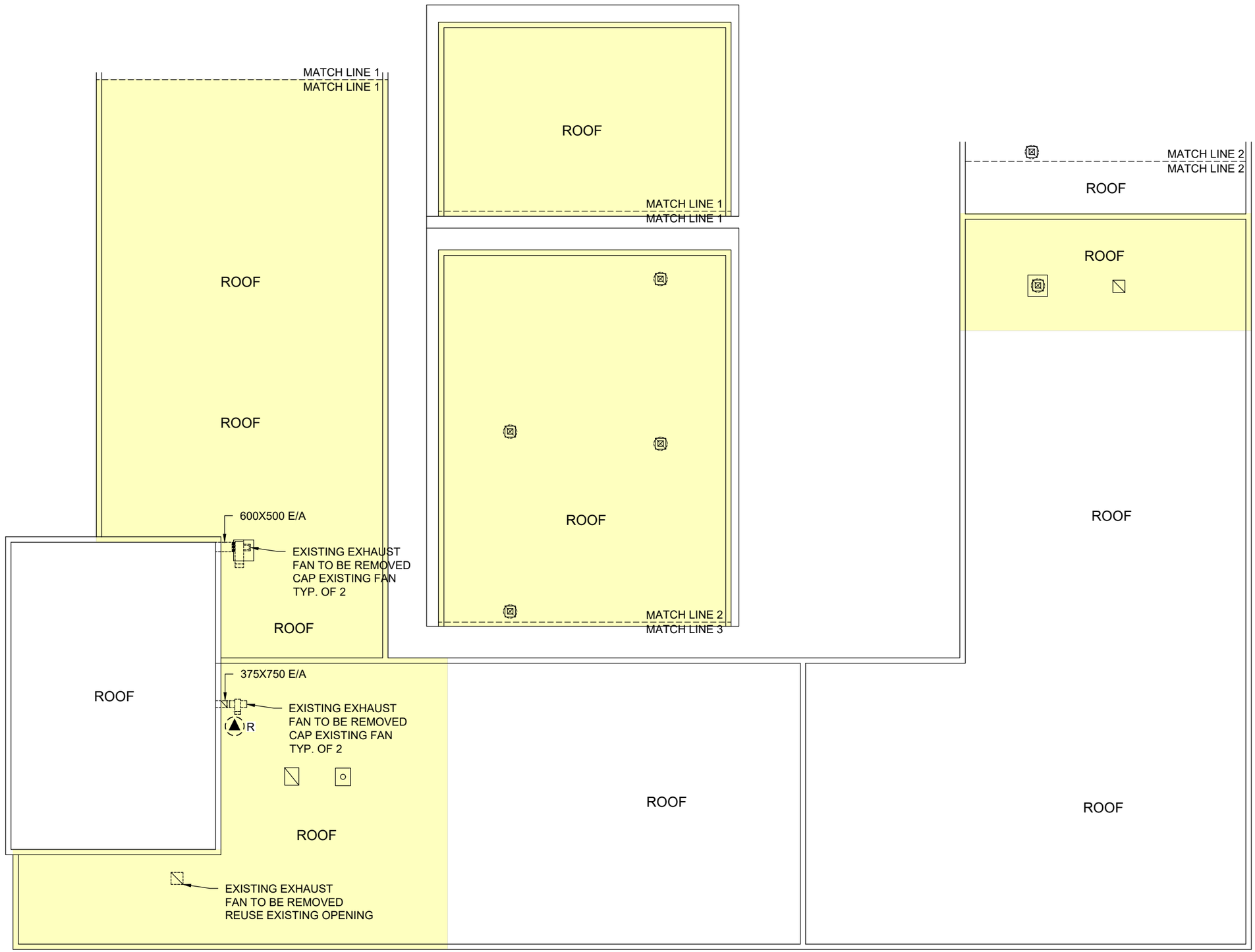
PRE-RENOVATION DESIGNATED SUBSTANCES AND HAZARDOUS MATERIAL SURVEY

Gladys Speers Public School
2150 Samway Road, Oakville, Ontario

LOCATIONS OF ASBESTOS-CONTAINING MATERIALS AND STUDY AREAS

FIRST FLOOR PLAN

Drawn By: B.R	Approved By: V.D	Project No: 30125139	
Date: MAY 2022	Scale: N.T.S	Drawing No: 30125139-1	



LEGEND:

STUDY AREA

NOTES:

REVISIONS:

No.	Date:	By:	Revisions

REFERENCE:

1.

ARCADIS

HALTON DISTRICT SCHOOL BOARD

PRE-RENOVATION DESIGNATED SUBSTANCES AND HAZARDOUS MATERIAL SURVEY

Gladys Speers Public School
2150 Samway Road, Oakville, Ontario

LOCATIONS OF ASBESTOS-CONTAINING MATERIALS AND STUDY AREAS

ROOF FLOOR PLAN

Drawn By: B.R	Approved By: V.D	Project No: 30125139
Date: MAY 2022	Scale: N.T.S	Drawing No: 30125139-1

APPENDIX B

Laboratory Reports

EMSL Canada Inc.

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

EMSL Canada Order 552206401
Customer ID: 55DCSL97
Customer PO: 30125139
Project ID:

Attn: Viraj Daruwala
ARCADIS Canada Inc.
121 Granton Drive
Unit 12
Richmond Hill, ON L4B 3N4

Proj: Glay's Speers 30125139

Phone: (905) 882-5984
Fax: (905) 882-8962
Collected:
Received: 4/25/2022
Analyzed: 4/28/2022

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

Client Sample ID: 1-A **Lab Sample ID:** 552206401-0001
Sample Description: Roof/Tar around roof components

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	4/27/2022	Black	0.0%	100%	**<0.25% Chrysotile**	
TEM Grav. Reduction	4/27/2022	Black	0.0%	100.0%	**<0.1% Chrysotile**	

Client Sample ID: 1-B **Lab Sample ID:** 552206401-0002
Sample Description: Roof/Tar around roof components

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Black	0.0%	100.0%	None Detected	

Client Sample ID: 1-C **Lab Sample ID:** 552206401-0003
Sample Description: Roof/Tar around roof components

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Black	0.0%	100.0%	None Detected	

Client Sample ID: 2-A **Lab Sample ID:** 552206401-0004
Sample Description: Roof/Black caulking around roof fan

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Black	0.0%	100.0%	None Detected	

Client Sample ID: 2-B **Lab Sample ID:** 552206401-0005
Sample Description: Roof/Black caulking around roof fan

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Black/Silver	0.0%	100.0%	None Detected	

Client Sample ID: 2-C **Lab Sample ID:** 552206401-0006
Sample Description: Roof/Black caulking around roof fan

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Black	0.0%	100.0%	None Detected	

Client Sample ID: 3-A **Lab Sample ID:** 552206401-0007
Sample Description: Roof/Grey caulking around roof fan

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Gray	0.0%	100.0%	None Detected	

EMSL Canada Inc.

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

EMSL Canada Order 552206401
Customer ID: 55DCSL97
Customer PO: 30125139
Project ID:

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

Client Sample ID: 3-B **Lab Sample ID:** **552206401-0008**
Sample Description: Roof/Grey caulking around roof fan

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 3-C-Grey Caulking **Lab Sample ID:** **552206401-0009**
Sample Description: Roof/Grey caulking around roof fan

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 3-C-Brown Caulking **Lab Sample ID:** **552206401-0009A**
Sample Description: Roof/Grey caulking around roof fan

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Brown	0.0%	100.0%	None Detected	

Client Sample ID: 4-A **Lab Sample ID:** **552206401-0010**
Sample Description: Roof/Flex joint connector - black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	4/27/2022	Black	0.0%	100%	None Detected	
TEM Grav. Reduction	4/27/2022	Black	0.0%	100.0%	None Detected	

Client Sample ID: 4-B **Lab Sample ID:** **552206401-0011**
Sample Description: Roof/Flex joint connector - black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Black	3.0%	97.0%	None Detected	

Client Sample ID: 4-C **Lab Sample ID:** **552206401-0012**
Sample Description: Roof/Flex joint connector - black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Gray	10.0%	90.0%	None Detected	

Client Sample ID: 5-A **Lab Sample ID:** **552206401-0013**
Sample Description: Room 25/Block filler paint – 1959 construction era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	White	0.0%	100.0%	None Detected	

Client Sample ID: 5-B **Lab Sample ID:** **552206401-0014**
Sample Description: Room 24/Block filler paint – 1959 construction era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Gray	0.0%	100.0%	None Detected	

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

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Customer ID: 55DCSL97
Customer PO: 30125139
Project ID:

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

Client Sample ID: 5-C **Lab Sample ID:** **552206401-0015**
Sample Description: Corridor 6/Block filler paint – 1959 construction era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Gray/Beige	0.0%	100.0%	None Detected	

Client Sample ID: 6-A **Lab Sample ID:** **552206401-0016**
Sample Description: Room 37/2'x4' ceiling tiles – random small and big pinholes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Gray	75.0%	25.0%	None Detected	

Client Sample ID: 6-B **Lab Sample ID:** **552206401-0017**
Sample Description: Room 12/2'x4' ceiling tiles – random small and big pinholes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Gray	75.0%	25.0%	None Detected	

Client Sample ID: 6-C **Lab Sample ID:** **552206401-0018**
Sample Description: Room 15/2'x4' ceiling tiles – random small and big pinholes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Gray	80.0%	20.0%	None Detected	

Client Sample ID: 7-A **Lab Sample ID:** **552206401-0019**
Sample Description: Room 37/Block filler paint, 1965 construction era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Gray/Beige	0.0%	100.0%	**<1% Chrysotile**	
400 PLM Pt Ct	4/27/2022	Gray/Beige	0.0%	100.0%	**<0.25% Chrysotile**	

Client Sample ID: 7-B **Lab Sample ID:** **552206401-0020**
Sample Description: Room 39/Block filler paint, 1965 construction era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Gray/Beige	0.0%	100.0%	**<1% Chrysotile**	
400 PLM Pt Ct	4/27/2022	Gray/Beige	0.0%	100.0%	**<0.25% Chrysotile**	

Client Sample ID: 7-C **Lab Sample ID:** **552206401-0021**
Sample Description: Room 12/Block filler paint, 1965 construction era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Beige	0.0%	100.0%	**<1% Chrysotile**	
PLM Grav. Reduction	4/28/2022	Beige	0.0%	100%	**<0.38% Chrysotile**	

Client Sample ID: 8-A **Lab Sample ID:** **552206401-0022**
Sample Description: Room 35/Drywall joint compound

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Beige	0.0%	98.0%	**2% Chrysotile**	

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

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Client Sample ID: 8-B **Lab Sample ID:** **552206401-0023**

Sample Description: Room 36/Drywall joint compound

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022			Positive Stop (Not Analyzed)		

Client Sample ID: 8-C **Lab Sample ID:** **552206401-0024**

Sample Description: Room 38/Drywall joint compound

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022			Positive Stop (Not Analyzed)		

Client Sample ID: 9-A-Block Fill **Lab Sample ID:** **552206401-0025**

Sample Description: Room 9/Block filler paint, 1963 construction era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Beige	0.0%	100.0%	**<1% Chrysotile**	
PLM Grav. Reduction	4/28/2022	Beige	0.0%	100%	**<0.43% Chrysotile**	

Client Sample ID: 9-A-Mortar **Lab Sample ID:** **552206401-0025A**

Sample Description: Room 9/Block filler paint, 1963 construction era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 9-B-Block Fill **Lab Sample ID:** **552206401-0026**

Sample Description: Room 18/Block filler paint, 1963 construction era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Beige	0.0%	100.0%	**<1% Chrysotile**	
PLM Grav. Reduction	4/28/2022	Beige	0.0%	100%	**<0.47% Chrysotile**	

Client Sample ID: 9-B-Mortar **Lab Sample ID:** **552206401-0026A**

Sample Description: Room 18/Block filler paint, 1963 construction era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 9-C-Block fill **Lab Sample ID:** **552206401-0027**

Sample Description: Room 17/Block filler paint, 1963 construction era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Beige	0.0%	100.0%	**<1% Chrysotile**	
PLM Grav. Reduction	4/28/2022	Beige	0.0%	100%	**<0.43% Chrysotile**	

Client Sample ID: 9-C-Mortar **Lab Sample ID:** **552206401-0027A**

Sample Description: Room 17/Block filler paint, 1963 construction era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Gray	0.0%	100.0%	None Detected	

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2756 Slough Street Mississauga, ON L4T 1G3
Phone/Fax: (289) 997-4602 / (289) 997-4607
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Customer PO: 30125139
Project ID:

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

Client Sample ID: 10-A **Lab Sample ID:** **552206401-0028**
Sample Description: Room 27/Drywall joint compound – 1959 construction era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	White	0.0%	100.0%	None Detected	

Client Sample ID: 10-B **Lab Sample ID:** **552206401-0029**
Sample Description: Room 27/Drywall joint compound – 1959 construction era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	White	0.0%	100.0%	None Detected	

Client Sample ID: 10-C **Lab Sample ID:** **552206401-0030**
Sample Description: Room 28/Drywall joint compound – 1959 construction era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	White	0.0%	100.0%	None Detected	

Client Sample ID: 11-A **Lab Sample ID:** **552206401-0031**
Sample Description: Room 25/Grey window caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 11-B **Lab Sample ID:** **552206401-0032**
Sample Description: Room 25/Grey window caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 11-C **Lab Sample ID:** **552206401-0033**
Sample Description: Room 25/Grey window caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 12-A-Brown **Lab Sample ID:** **552206401-0034**
Sample Description: Exit door E/Black door caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Brown	0.0%	100.0%	None Detected	

Client Sample ID: 12-A-Grey **Lab Sample ID:** **552206401-0034A**
Sample Description: Exit door E/Black door caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Gray	3.0%	96.0%	**1% Chrysotile**	

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Phone/Fax: (289) 997-4602 / (289) 997-4607
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Client Sample ID: 12-B-Brown ***Lab Sample ID:*** **552206401-0035**

Sample Description: Exit door F/Black door caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Brown	0.0%	100.0%	None Detected	

Client Sample ID: 12-B-Grey ***Lab Sample ID:*** **552206401-0035A**

Sample Description: Exit door F/Black door caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022				Positive Stop (Not Analyzed)	

Client Sample ID: 12-C-Brown ***Lab Sample ID:*** **552206401-0036**

Sample Description: Exit door F/Black door caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Brown	0.0%	100.0%	None Detected	

Client Sample ID: 12-C-Grey ***Lab Sample ID:*** **552206401-0036A**

Sample Description: Exit door F/Black door caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/27/2022	Gray	0.0%	100.0%	None Detected	

Analyst(s):

Anne Balayboa	TEM Grav. Reduction (2)
Delaney Breen	PLM Grav. Reduction (3)
Kira Ramphal	PLM (17) 400 PLM Pt Ct (2) PLM Grav. Reduction (2)
Natalie D'Amico	PLM (21)
Ruby Lai	PLM Grav. Reduction (1)

Reviewed and approved by:

Matthew Davis or other approved signatory
or Other Approved Signatory

None Detected = <0.1%. EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This 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. Estimation of uncertainty available upon request. This report is a summary of multiple methods of analysis, fully compliant reports are available upon request. A combination of PLM and TEM analysis may be necessary to ensure consistently reliable detection of asbestos. This report must not be used to claim product endorsement by NVLAP of any agency or the U.S. Government.

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

Initial report from: 04/27/202210:09:22

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EMSL Canada Order 552207292
Customer ID: 55DCSL97
Customer PO: 30125139
Project ID:

Attn: Viraj Daruwala
ARCADIS Canada Inc.
121 Granton Drive
Unit 12
Richmond Hill, ON L4B 3N4

Proj: 30125139 - Glady's Speers PS

Phone: (905) 882-5984
Fax: (905) 882-8962
Collected:
Received: 5/09/2022
Analyzed: 5/10/2022

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

Client Sample ID: 1-A **Lab Sample ID:** 552207292-0001
Sample Description: Brick Mortar, Exterior Wall, 1959 era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	5/10/2022	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 1-B **Lab Sample ID:** 552207292-0002
Sample Description: Brick Mortar, Exterior Wall, 1959 era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	5/10/2022	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 1-C **Lab Sample ID:** 552207292-0003
Sample Description: Brick Mortar, Exterior Wall, 1959 era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	5/10/2022	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 2-A **Lab Sample ID:** 552207292-0004
Sample Description: Brick Mortar, Exterior Wall, 1963 era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	5/10/2022	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 2-B **Lab Sample ID:** 552207292-0005
Sample Description: Brick Mortar, Exterior Wall, 1963 era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	5/10/2022	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 2-C **Lab Sample ID:** 552207292-0006
Sample Description: Brick Mortar, Exterior Wall, 1963 era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	5/10/2022	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 3-A **Lab Sample ID:** 552207292-0007
Sample Description: Brick Mortar, Exterior Wall, 1965 era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	5/10/2022	Gray	0.0%	100.0%	**<1% Chrysotile**	
400 PLM Pt Ct	5/10/2022	Gray	0.0%	100.0%	**<0.25% Chrysotile**	

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

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

Client Sample ID: 3-B ***Lab Sample ID:*** **552207292-0008**

Sample Description: Brick Mortar, Exterior Wall, 1965 era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	5/10/2022	Gray	0.0%	100.0%	**<1% Chrysotile**	
400 PLM Pt Ct	5/10/2022	Gray	0.0%	100.0%	**<0.25% Chrysotile**	

Client Sample ID: 3-C ***Lab Sample ID:*** **552207292-0009**

Sample Description: Brick Mortar, Exterior Wall, 1965 era

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	5/10/2022	Gray	0.0%	100.0%	**<1% Chrysotile**	
400 PLM Pt Ct	5/10/2022	Gray	0.0%	100.0%	**<0.25% Chrysotile**	

Client Sample ID: 4-A ***Lab Sample ID:*** **552207292-0010**

Sample Description: Drywall Joint Compound, 1965 era, Room 15

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	5/10/2022	Beige	0.0%	98.0%	**2% Chrysotile**	

Client Sample ID: 4-B ***Lab Sample ID:*** **552207292-0011**

Sample Description: Drywall Joint Compound, 1965 era, Room 14

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	5/10/2022	Positive Stop (Not Analyzed)				

Client Sample ID: 4-C ***Lab Sample ID:*** **552207292-0012**

Sample Description: Drywall Joint Compound, 1965 era, Room 12

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	5/10/2022	Positive Stop (Not Analyzed)				

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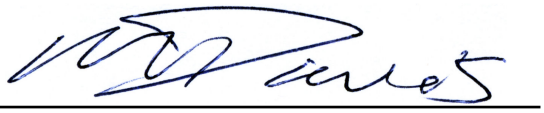
Analyst(s):

Delaney Breen	PLM (3) 400 PLM Pt Ct (1)
Vanessa Gallego	PLM (7) 400 PLM Pt Ct (2)

Reviewed and approved by:



Matthew Davis or other approved signatory
or Other Approved Signatory

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

Initial report from: 05/10/202213:41:32

APPENDIX C

Summary of Asbestos, Lead and Silica Work Classifications

TABLE C-1
SUMMARY OF CLASSIFICATION OF TYPE 1, 2 AND 3 OPERATIONS (Ont. Reg. 278/05)

TYPE 1 OPERATIONS

- removing less than 7.5 m^2 asbestos-containing ceiling tiles;
- removing non-friable asbestos-containing material other than ceiling tiles, if the material is removed without being broken, cut, drilled, abraded, ground, sanded or vibrated;
- breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material if the material is wetted and the work is done only using non-powered, hand-held tools; and
- removing less than 1 m^2 of drywall in which asbestos-containing joint compounds have been used.

TYPE 2 OPERATIONS

- 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;
- removal of one square metre or less of friable asbestos-containing material;
- enclosing friable asbestos-containing material;
- applying tape or a sealant or other covering to asbestos-containing pipe or boiler insulation;
- removing 7.5 m^2 or more asbestos-containing ceiling tiles (if removed without being broken, cut, drilled, abraded, ground, sanded or vibrated);
- breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material if the material is not wetted and the work is done only using non-powered, hand-held tools;
- removal of one square metre or more of drywall in which asbestos-containing joint compounds have been used;
- breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material if the work is done using power tools that are attached to dust-collecting devices equipped with HEPA filters;
- cleaning or removing filters used in air-handling equipment in a building that has asbestos-containing sprayed fireproofing.

TABLE C-1 (Continued)
SUMMARY OF CLASSIFICATION OF TYPE 1, 2 AND 3 OPERATIONS (Ont. Reg. 278/05)

TYPE 3 OPERATIONS

- removal of more than one square metre of friable asbestos-containing material;
- spray application of a sealant to friable asbestos-containing material;
- cleaning or removing air-handling equipment, including rigid ducting but not including filters, in a building that has sprayed asbestos-containing fireproofing;
- repairing or demolishing a kiln, metallurgical furnace or similar structure that is made in part of asbestos-containing refractory materials;
- breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing materials, if the work is done using power tools that are not attached to dust-collecting devices equipped with HEPA filters.

TABLE C-2
SUMMARY OF CLASSIFICATION OF LEAD-CONTAINING CONSTRUCTION TASKS
MOL GUIDELINE – LEAD ON CONSTRUCTION PROJECTS, APRIL 2011

Type 1 Operations	Type 2 Operations		Type 3 Operations	
	Type 2a	Type 2b	Type 3a	Type 3b
<0.05 mg/m^3	>0.05 to 0.50 mg/m^3	>0.50 to 1.25 mg/m^3	>1.25 to 2.50 mg/m^3	>2.50 mg/m^3

Note: The classification of Type 1, 2 and 3 operations is based on presumed airborne concentrations of lead, as shown above.

TYPE 1 OPERATIONS

- 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, babbit or similar material;
- removal of lead-containing coatings or materials using non-powered hand tools, other than manual scraping or sanding;
- soldering.

TYPE 2 OPERATIONS

Type 2a Operations

- 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 non-powered hand tools;
- manual demolition of lead-painted plaster walls or building components by striking a wall with a sledgehammer or similar tool.

Type 2b Operations

- spray application of lead-containing coatings.

TABLE C-2 (Continued)
SUMMARY OF CLASSIFICATION OF LEAD-CONTAINING CONSTRUCTION TASKS
MOL GUIDELINE – LEAD ON CONSTRUCTION PROJECTS, APRIL 2011

TYPE 3 OPERATIONS

Type 3a Operations

- 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

Type 3b Operations

- abrasive blasting of lead-containing coatings or materials;
- removal of lead-containing dust using an air mist extraction system.

TABLE C-3

SUMMARY OF CLASSIFICATION OF SILICA-CONTAINING CONSTRUCTION TASKS

MOL GUIDELINE, SILICA ON CONSTRUCTION PROJECTS, APRIL 2011

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

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

TYPE 1 OPERATIONS

- The drilling of holes in concrete or rock that is not part of a tunnelling operation or road construction.
- Milling of asphalt from concrete highway pavement.
- 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).
- 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.
- 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.
- Working within 25 metres of an area where compressed air is being used to remove silica-containing dust outdoors.

TYPE 2 OPERATIONS

- Removal of silica containing refractory materials with a jackhammer.
- The drilling of holes in concrete or rock that is part of a tunnelling or road construction.
- The use of a power tool to cut, grind, or polish concrete, masonry, terrazzo or refractory materials.
- The use of a power tool to remove silica containing materials.
- Tunnelling (operation of the tunnel boring machine, tunnel drilling, tunnel mesh installation).
- Tuckpoint and surface grinding.
- Dry mortar removal with an electric or pneumatic cutting device.
- Dry method dust cleanup from abrasive blasting operations.
- The use of compressed air outdoors for removing silica dust.
- Entry into area where abrasive blasting is being carried out for more than 15 minutes.

TABLE C-3 (Continued)
SUMMARY OF CLASSIFICATION OF SILICA-CONTAINING CONSTRUCTION TASKS
MOL GUIDELINE, SILICA ON CONSTRUCTION PROJECTS, APRIL 2011

TYPE 3 OPERATIONS

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

Arcadis Canada Inc.

121 Granton Drive, Suite 12, Richmond Hill, Ontario L4B 3N4

Tel 905 764 9380

www.arcadis.com

ASBESTOS ABATEMENT SPECIFICATIONS
GLADYS SPEERS PUBLIC SCHOOL

ASBESTOS ABATEMENT SPECIFICATIONS
Gladys Speers Public School

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At Rear:

Drawing No. 30125139-1 - Locations of Work Areas – First Floor Plan

ASBESTOS ABATEMENT SPECIFICATIONS
Gladys Speers Public School

1.0 PART 1 – GENERAL

1.1 GENERAL

.1 The requirements as set out in these specifications may, at times, exceed the procedures detailed in the various applicable regulations. All work shall be done in compliance with the specifications AND the regulations. Should there be any discrepancy or conflict between the documents, the most stringent shall apply.

1.2 OUTLINE OF WORK

.1 The intent of the work is to remove select asbestos-containing materials to the extent practicable, and to assist the General Contractor in making attachments to asbestos-containing building materials in designated areas in the facility prior to and during renovation work.

.2 Replacement of removed materials is not part of this contract.

.3 Coordinate all work with the General Contractor and sub trades as required.

.4 Refer to architectural, mechanical, electrical, and structural drawings for additional details.

.5 All mechanical, electrical, communication and life safety system isolations and disconnects, and localized demolition of select non-asbestos-containing building materials as required to access asbestos-containing building materials slated for removal, will be performed by the General Contractor's sub trades prior to commencement of remedial work.

.6 Each negative pressure unit and HEPA vacuums shall be integrity tested at the work site prior to commencement of asbestos removal operations.

.7 Provide all supervision, labour, equipment, tools, materials, waste management, haulage and disposal, and other services, as required, for undertaking and completing all work, as detailed below.

.8 **Work Area 1 - Rooms 23 (Partial), 23A and 24 (Partial)**

.1 Prepare the areas as indicated above and on the attached floor plan for Type 2 Enclosure asbestos removal operations.

.2 Refer Drawings A2, M2.1, M-211, M-3.1 for additional details.

.1 Please note: Room numbers in rooms included Work Area 1 provided on Architectural, Mechanical and Electrical drawings do not correspond with room numbers provided with the Arcadis asbestos abatement specifications and Arcadis pre-renovation designated substances and hazardous materials survey report. Arcadis Room 23 (Staff Room) is Room 20 on other contract drawings, Arcadis Room 23A (Storage Room) is Room 21A on other contract drawings, and Arcadis Room 24 (Gymnasium) is Room 21 on other contract drawings.

.3 Removal of door and associated hardware in Room 23A and removal of T-bar ceiling assemblies, as required, to access asbestos-containing building materials slated for removal, will be performed by the General Contractor's sub trades prior to commencement of remedial work.

.4 Supply and install scaffolding, in accordance with all applicable regulations, in order to provide sufficient and safe access to the work areas.

.5 Establish a measurable negative pressure differential in the enclosure work areas by using fan/filter units equipped with High Efficiency Particulate Air (HEPA) filters. Units must be integrity-tested on site and are to be exhausted directly outdoors.

.6 Using Type 2 asbestos removal procedures, inside the enclosure work areas, remove and dispose as asbestos waste, select pockets of concrete block and associated asbestos-containing mortar in areas pre-determined by the General Contractor to allow for wall shoring operations, which will be performed by the General Contractors sub trades, in the concrete block wall separating Rooms 23A and 24. Where saw cuts are required in masonry, use power tools that are attached to dust collecting devices equipped with HEPA filters. Following completion of above remedial work, Asbestos Abatement Contractor will demobilize from the work areas to allow the General Contractors sub trades to perform shoring operations.

.1 Following completion of shoring operations, using Type 2 asbestos removal procedures, remove and dispose as asbestos waste, select sections of concrete block and associated asbestos-containing mortar in areas pre-determined by the General Contractor in the wall separating Rooms 23A and 24 to facilitate installation of steel lintels which will be performed by the General Contractors sub trades. Where cuts are required in masonry, use power tools that are attached to dust collecting devices equipped with HEPA filters. Following completion of above remedial work, Asbestos Abatement Contractor will demobilize from the work areas to allow the General Contractors sub trades to install lintels.

.2 Following completion of lintel installations, using Type 2 enclosure asbestos removal procedures, remove and dispose as asbestos waste, select concrete block walls sections and associated asbestos-containing mortar in the concrete block wall separating Rooms 23A and 24 to facilitate a new door opening, select concrete block wall sections and associated asbestos-containing mortar in the wall separating Rooms 23 and 23A to facilitate installation of new mechanical systems and metal door frame and associated asbestos-containing mortar in Room 23A. Where saw cuts are required in masonry, use power tools that are attached to dust collecting devices equipped with HEPA filters. The General Contractor will clearly identify all areas of concrete block removals. For costing purposes, allow for the removal of a total of eight (8) square metres of concrete block.

.7 Using glovebags inside the Type 2 enclosure work areas, remove and dispose as asbestos waste, all accessible asbestos-containing thermal insulation applied to piping inside the ceiling cavity in Room 23A. For costing purposes, allow for the removal of asbestos-containing thermal insulation from fifteen (15) pipe fittings and the removal of asbestos-containing thermal insulation from five (5) linear metres of pipe straights.

.9 **Work Area 2 – Rooms 1, 2, 3, 4, 5, 6, 12, 13, 14, 15, 17, 18, 19, 19D, 21 and 22**

.1 Prepare the areas as indicated above and on the attached floor plan for Type 2 Enclosure asbestos removal operations.

.2 Refer Drawings A2, M2.1, M-211, M-3.1 and M-3.2 for additional details.

.3 Removal of select sections of T-bar ceiling assemblies and non-asbestos-containing gypsum board applied to ceilings above T-bar ceiling assemblies, as required, to access asbestos-containing building materials slated for removal, will be performed by the General Contractor's sub trades prior to commencement of remedial work.

.4 Removal of select sections of plywood bulkheads in Rooms 2, 3, 5, and 6, as required, to access asbestos-containing building materials slated for removal, will be performed by the General Contractor's sub trades prior to commencement of remedial work.

.5 Supply and install scaffolding, in accordance with all applicable regulations, in order to provide sufficient and safe access to the work areas.

.6 Using Type 2 asbestos removal procedures, inside enclosure work areas, remove and dispose the following gypsum board applications as asbestos waste:

.1 All gypsum board and associated asbestos-containing joint compounds on horizontal and vertical sections of bulkheads in Rooms 12, 13, 14 and 15. Care must be taken to not damage bulkhead framing materials that will remain.

.2 Select sections of gypsum board and associated asbestos-containing joint compounds on the ceiling in Room 18. Care must be taken to not damage ceiling framing materials that will remain. The General Contractor will clearly identify all areas of gypsum board removals.

.7 Using Type 2 asbestos removal procedures, inside enclosure work areas, remove and dispose as asbestos waste, select concrete block walls sections and associated asbestos-containing mortar in concrete block walls separating Rooms 1 and 2, 2 and 3, 4 and 5, 5 and 6, 12 and 13, 14 and 15, 17 and 18, 18 and 19D, 19 and 19D, and 21 and 22 to facilitate installation of new ducting and mechanical systems. Where saw cuts are required in masonry, use power tools that are attached to dust collecting devices equipped with HEPA filters. The General Contractor will clearly identify all areas of concrete block removals. For costing purposes, allow for the removal of a total of ten (10) square metres of concrete block.

.10 **Work Area 3 – Exits E and F**

.1 Prepare the areas as indicated above and on the attached floor plan for Type 2 Enclosure asbestos removal operations.

.2 Refer Drawing A2 for additional details.

.3 Doors and associated hardware will be removed by the General Contractor's sub trades prior to commencement of remedial work.

.4 Supply and install scaffolding, in accordance with all applicable regulations, in order to provide sufficient and safe access to the work areas.

.5 Remove and dispose the following as asbestos waste:

.1 All asbestos-containing caulking applied to the interior and exterior sides of the door frames.

.2 Metal door frames and associated asbestos-containing mortar. Care must be taken when removing door frames to limit damage to the asbestos-containing plaster on exterior soffits directly above door frames.

.11 **Work Area 4 – Room 23 and Exterior Room 23**

.1 Prepare the areas as indicated above and on the attached floor plan for Type 2 Enclosure asbestos removal operations.

.2 Type 2 containment enclosure is only required inside Room 23.

.3 Refer Drawings M-3.1 for additional details.

.4 Supply and install scaffolding, in accordance with all applicable regulations, in order to provide sufficient and safe access to the work areas.

.5 Using power tools that are attached to dust collecting devices equipped with HEPA filters, core drill holes in areas pre-determined by the General Contractor in concrete block wall with asbestos-containing mortar and through exterior brick to the exterior to facilitate installation of new piping. Alternately, wet core drilling is acceptable. All waste generated by coring operations is to be disposed as asbestos waste. The General Contractor will clearly identify all areas for core drilling operations and final core diameters.

.12 **Work Area 5 - Areas to be Determined**

.1 Prepare locations pre-determined by the General Contractor for Type 2 Enclosure asbestos removal operations.

.2 Where required, supply and install scaffolding, in accordance with all applicable regulations, in order to provide sufficient and safe access to the work areas.

.3 Remove and dispose as asbestos waste, select sections of concrete block walls and associated asbestos-containing mortar and/or select sections of gypsum board applications with asbestos-containing joint compounds. If power tools are used, they must be attached to dust collecting devices equipped with HEPA filters.

.4 Using power tools that are attached to dust collecting devices equipped with HEPA filters, core drill holes in areas pre-determined by the General Contractor in concrete block walls with asbestos-containing mortar and/or gypsum board applications with asbestos-containing joint compounds to facilitate installation of new mechanical and/or electrical systems. Alternately, wet core drilling is acceptable. All waste generated by coring operations is to be disposed as asbestos waste. The General Contractor will clearly identify all areas for core drilling operations and final core diameters.

.5 For costing purposes, allow for tools, materials, disposal, expenses and labour costs (two workers over a 10-hour shift during regular business hours including travel time) per mobilization. Allow for three (3) separate mobilizations.

.13 **Work Area 6 – Areas to be Determined**

.1 Prepare locations pre-determined by the General Contractor for Type 2/glovebag asbestos removal operations.

.2 Where required, supply and install scaffolding, in accordance with all applicable regulations, in order to provide sufficient and safe access to the work areas.

.3 Remove and dispose, as asbestos waste, accessible asbestos-containing thermal insulation from select pipe fittings and/or pipe straight sections to allow for modifications to mechanical systems and mechanical tie-ins. The General Contractor will clearly mark all locations for thermal insulation removals.

.4 For costing purposes, allow for allow for tools, materials, disposal, expenses and labour costs (two workers over a 10-hour shift during regular business hours including travel time) to perform twelve glovebag removal operations of less than one square metre of asbestos thermal insulation per glovebag location per mobilization. Allow for two (2) separate mobilizations.

.14 **Work Area 7 – To be Determined**

.1 Prepare locations pre-determined by the General Contractor for Type 2 Non-Enclosure asbestos removal operations.

.2 If scaffolding and/or lift equipment is required to provide sufficient and safe access to the work areas, scaffolding and/or lift equipment will be supplied by the General Contractor and shall be in compliance with all applicable regulations.

.3 During the rebuild phase, assist General Contractor's sub trades in attaching items to concrete block walls with asbestos-containing mortar and/or gypsum board applications with asbestos-containing joint compounds.

.4 Using Type 2 Non-Enclosure asbestos removal procedures and using power tools attached to dust collecting devices equipped with HEPA filters, mechanically fasten items supplied by the General Contractor to concrete block walls with asbestos-containing mortar and/or gypsum board applications with asbestos-containing joint compounds. The General Contractor will supply mechanical fasteners and items to be fastened and will clearly identify locations where attachments are required.

.5 For costing purposes, allow for tools, materials, disposal, expenses and labour costs (two workers over a 10-hour shift during regular business hours including travel time) per mobilization. Allow for three (3) separate mobilizations.

.15 Mortar associated with concrete block applications contains 0.83% to 1.1% chrysotile asbestos. Plaster on exterior soffits contains 0.5% chrysotile asbestos. Caulking contains 1% chrysotile asbestos. Joint compounds associated with gypsum board applications contain 2% chrysotile asbestos. Thermal insulation on pipe fittings contains 22% chrysotile asbestos. Thermal insulation ("air-cell") contains 56% chrysotile asbestos.

.16 All waste is to be removed from the site and disposed. Asbestos waste disposal bins are not to be left on School property unless fully enclosed with an integral metal roof system and locked. Disposal bins must be removed immediately on completion of work.

.17 Schedule

.1	Mobilization	To be Coordinated with the General Contractor
.2	Complete Work and Demobilize	To be Coordinated with the General Contractor

1.3 GENERAL REQUIREMENTS

.1 The location and availability of utilities including water, sewer and electrical power is to be determined on site. The Asbestos Contractor shall co-operate with all others on site. Should there be any disagreement, or should Contractors be unable to reach a satisfactory working arrangement, the Asbestos Consultant shall determine the manner for proceeding. The Asbestos Contractor shall not be entitled to any additional payment.

.2. The Asbestos Contractor is responsible for making all arrangements, and for paying for the disposal of all waste materials in accordance to all applicable government laws and regulations including local, provincial and federal.

.3 The Asbestos Contractor is advised that extended hours of work may be required to meet the schedules as detailed in the Scope of Work and shall allow for the cost thereof including shift premiums and overtime. The Asbestos Consultant shall be advised in writing at least four days in advance of the proposed working hours.

.4 The Asbestos Contractor shall furnish and post on site the name and current phone number of an authorized representative(s) who can be contacted on a 24-hour basis in case of an emergency.

.5 All precautions will be taken to prevent the spread of contaminated material and to protect all parties including Asbestos Contractor's personnel, Owner's employees and the public from asbestos dust exposure during the course of the work. The documents outline the minimum levels of precaution to be taken.

.6 **All work shall be done in compliance with the specifications and the Ontario Regulation 278/05 – *Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations* – made under the *Occupational Health and Safety Act***. Should there be any discrepancy or conflict between the documents, the most stringent shall apply.

.7 Contract conditions include, but are not limited to, complying with all Regulations, taking all precautions necessary to control the release of asbestos fibres within the work areas, preventing the release of asbestos fibres outside the work areas, and providing appropriate protection from exposure to asbestos fibres for all parties. Failure to meet any of these conditions will be considered a fundamental breach of the Contract.

.8 The Asbestos Consultant will visit the site at his/her discretion to familiarize himself/herself with the progress and quality of the Work and to determine if the Work is proceeding in accordance with the Contract Documents.

.9 The Asbestos Consultant shall have the authority to immediately stop the Work through a written instruction if, in his opinion, the Work does not conform to the requirements of the Contract Documents, or if continuance of the Work could subject the Owner, his employees or the public to a hazardous condition. The Work shall not recommence until such time as the deficiency or hazardous situation has been corrected and a written notice to proceed has been issued by the Asbestos Consultant.

.10 If the Asbestos Contractor fails to comply with requirements dealing with the control of asbestos fibres and the health and safety of Asbestos Contractor employees, Asbestos Consultant and Owner personnel or the Public, the Owner, or the Owner's representative, may verbally instruct the Asbestos Contractor to cease work immediately with written confirmation to follow within two working days. If the Asbestos Consultant gives a written statement to the Owner and the Asbestos Contractor that sufficient cause exists, the Owner may notify the Asbestos Contractor in writing that he is in default of his contractual obligations.

.11 Any employee shall be replaced, at the written request of the Asbestos Consultant, if working, or causing others to work, in violation of O.Reg. 278/05.

.12 The Asbestos Contractor's insurance coverage limits, per occurrence, shall equal or exceed the following and shall name the Owner and Arcadis Canada Inc. as additional insureds:

.1 General Liability $5 million;
.2 Automotive Liability $2 million;
.3 Pollution Liability $5 million including asbestos operations.

.13 The supervisor must have proven experience and proficiency in the type of Work being undertaken under this Contract.

.14 The supervisor shall be replaced, at the written request of the Asbestos Consultant, if found to be incompetent or inattentive to the needs of the project.

.15 Where standards of performance are specified or implied and the Work does not comply with the performance specified or implied, such deficiencies shall be corrected as directed by the Asbestos Consultant. Any subsequent testing shall be done at the Asbestos Contractor's expense.

1.4 DEFINITIONS

.1 *HEPA Vacuum:*

.1 High Efficiency Particulate Aerosol (HEPA) filtered vacuum equipment acceptable to Health and Welfare Canada and meeting U.S. Military Standard 282. This vacuum equipment shall have a filtering system capable of collecting and retaining asbestos fibres to an efficiency of 99.97% for fibres of 0.3 micrometer or larger.

.2 *Polyethylene sheeting sealed with tape:*

.1 Polyethylene sheeting of thickness specified sealed with tape along all edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide a continuous polyethylene membrane to protect underlying surfaces from

water damage or damage by sealants, and to prevent escape of asbestos fibres through the sheeting into a clean area.

.3 *Inspector:*

.1 Representative of Arcadis Canada Inc. (Arcadis) designated by the owner to provide inspection and air monitoring of the Contractor's work.

.4 *Authorized Visitor:*

.1 Representative of the building owner, Arcadis, and/or persons representing regulatory agencies.

.5 *Amended Water:*

.1 Water with a non-ionic surfactant added to reduce water tension to allow thorough wetting of asbestos fibres.

.6 *Airlock:*

.1 A system for permitting ingress or egress without permitting air movement between a contaminated area and an uncontaminated area typically consisting of two curtained doorways at least 1.5 m apart.

.7 *Curtained Doorways:*

.1 An arrangement of closures to allow ingress and egress from one room to another while permitting minimal air movement between rooms, typically constructed by placing two overlapping sheets of polyethylene over an existing or temporarily framed doorway, securing each along the top of the doorway, securing the vertical edge of one sheet along one vertical side of the doorway and securing the vertical edge of the other sheet along the opposite vertical side of the doorway.

.2 All free edges of polyethylene shall be reinforced with duct tape and the bottom edge shall be weighted to ensure proper closing. Each polyethylene sheet shall overlap openings an additional 1/3 of the doorway width.

.8 *Operating Area:*

.1 Area where no removal or repair Work is underway.

.9 *Clean Area:*

.1 Either an operating area or an area in which removal Work has already been completed.

.10 *Work Area:*

.1 Where the actual removal of asbestos-containing materials take place.

.11 *Negative Pressure:*

.1 A system which extracts air from the work area and discharges this air directly outside the building, sufficient to maintain a minimum pressure differential of 0.5 mm (0.02 inch) of water column relative to adjacent areas outside of work areas. This air extraction system is to be equipped with a High Efficiency Particulate Aerosol filtering system before discharge.

.12 *Confined Space:*

.1 A fully or partially enclosed space,

.1 that is not both designed and constructed for continuous human occupancy, and

.2 in which atmospheric hazards may occur because of its construction, location or contents or because of work that is done in it.

1.5 REGULATORY AGENCIES

.1 Comply with Federal, Provincial, and local requirements pertaining to asbestos, provided that in any case of conflict among those requirements or with these Specifications the more stringent requirement shall apply. These include, but are not limited to, the following:

.1 Ontario Ministry of Labour, Occupational Health and Safety Division, *Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations*, O. Reg. 278/05, as amended 62/18, March 2, 2018 – made under the *Occupational Health and Safety Act, R.S.O. 1990, c. E. 19,* as amended.

.2 Ontario Ministry of the Environment *Regulation 347* under the Environmental Protection Act, 19 as amended by O. Reg. 509/21, June 30, 2021.

.3 Government of Canada *Regulations Respecting the Handling, Offering for Transport and Transporting of Dangerous Goods*. (Extract from the Canada Gazette Part II, dated February 6, 1985.)

.4 Government of Ontario *Occupational Health and Safety Act, -R.S.O. 1990, c. E. 19, as amended, and Regulations for Construction Projects* O. Reg. 213/91, as amended.

.5 Office of the Fire Commissioner of Canada.

.6 Ontario Electrical Safety Code.

.7 Government of Ontario, Building Code O. Reg. 332/12, as amended 137/19, May 2, 2019.

.2 *Patents:*

.1 It shall be the Contractor's responsibility to ensure that all applicable patent laws are complied with.

1.6 FIRE SAFETY PLAN

.1 Prior to initiating any work on the site, the Contractor shall prepare and submit in writing to the Engineer a Fire Safety Plan. The Plan shall be in accordance to the requirements set forth in Section 2.14, Construction and Demolition Sites, of the National Fire Code and shall include:

.1 the designation and organization of site personnel to carry out fire safety duties, including fire water services if applicable;

.2 the emergency procedures to be used in the case of fire, including:

.1 sounding the fire alarm;

.2 notifying the fire department;

.3 instructing site personnel on procedures to be followed when the alarm sounds; and

.4 fire fighting procedures;

.3 the control of fire hazards in and around the building;

.4 maintenance of fire fighting facilities; and

.5 special requirements as may be identified by the building owner.

.2 Implementation of the Fire Safety Plan shall be the sole responsibility of the Contractor, and the above shall, in no way, limit the Contractor's statutory and regulatory obligations. During the work, the Fire Safety Plan shall be prominently displayed at the site and its requirements included in site safety training and awareness programs.

1.7 SUBMITTALS

1.7.1 Submittals Before Commencing Work

.1 The following documentation shall be submitted to the Inspector with a dated covering letter listing attachments a minimum 48 hours prior to commencement of the Work:

.1 *Permits and Notifications:*

.1 All necessary permits for transporting and disposal of asbestos waste. Submit proof satisfactory to Inspector that suitable arrangements have been made to receive and properly dispose of asbestos waste. Copies of all Notifications required by Section 1.11.

.2 *Material Safety Data Sheets:*

.1 Material Safety Data Sheets, or equivalent, for any sealant, surfactant or other material proposed for use. Include a separate attachment for each sheet indicating the specific worker protective equipment proposed for use with the material indicated.

.3 *Supervisory Personnel:*

.1 Names of supervisory personnel who will be responsible for work area(s). **One of these supervisors must remain on site at all times asbestos removal or cleanup is occurring**. Submit proof that supervisory personnel have over 2000 hours experience on asbestos abatement projects, have performed supervisory functions on at least two other asbestos projects and have achieved the level of training as set out by the Regulation.

.4 *Schedule:*

.1 Provide a bar chart indicating planned progress for critical activities as required under **Scope of Work** as well as additional information listed below a minimum of 48 hours prior to commencement of any preparatory work indicating:

.1 shifts to be worked;

.2 proposed workforce;

.3 starting date;

.4 estimated date of commencement of asbestos removal;

.5 estimated date of completion of asbestos removal;

.6 estimated completion date.

.5 *Insurance:*

.1 Provide a Certificate signed by the insurance agency naming the Owner and Arcadis Canada Inc. as co-insureds.

2. The Asbestos Contractor's insurance coverage limits, per occurrence, shall equal or exceed the following:

.1 General Liability $5 million;
.2 Automotive Liability $2 million;
.3 Pollution Liability $5 million including asbestos operations.

.3 The Asbestos Contractor must provide thirty (30) days notice of cancellation or amendment of coverage.

.6 *Fire Safety Plan*:

.1 In accordance to Article 1.6 above.

.7 *Confined Space:*

.1 If a work area, or part thereof, is a confined space, the contractor shall submit:

.1 a co-ordination document (see Section 1.13.1.1);

.2 a written program (see Section 1.13.1.2); and

.3 a written plan (see Section 1.13.1.4).

.8 *Asbestos Training:*

.1 A letter certifying that:

(a) every worker involved in a Type 3 operation has successfully completed the Asbestos Abatement Worker Training Program approved by the Ministry of Training, Colleges and Universities; and

(b) every supervisor of a worker involved in a Type 3 operation has successfully completed the Asbestos Abatement Supervisor Training Program approved by the Ministry of Training, Colleges and Universities. O.Reg. 278/05, s. 20(1).

1.7.2 Submittals Before Commencing Asbestos Removal

.1 Results of integrity tests of fan/filter units.

.2 Proposed Work Area emergency exit procedures.

.3 Proposed locations of negative pressure units exhaust routing.

.4 When required, evidence (letter or other suitable documentation) of proper construction, inspection and installation of GFI panel by licensed electrician in compliance to all regulatory requirements and codes.

1.7.3 Submittals Upon Completion of Work

.1 Asbestos waste haulage and disposal documentations including Bills of Lading, waste transfer documents and dump receipts.

.2 All documentation as specified in the contract General Conditions including, but not limited to, Workplace Safety and Insurance Board Certificate, Statutory Declarations and Proof of Publication of Substantial Performance.

1.8 EXISTING CONDITIONS

.1 Mortar associated with concrete block applications contains 0.83% to 1.1% chrysotile asbestos. Plaster on exterior soffits contains 0.5% chrysotile asbestos. Caulking contains 1% chrysotile asbestos. Joint compounds associated with gypsum board applications contain 2% chrysotile asbestos. Thermal insulation on pipe fittings contains 22% chrysotile asbestos. Thermal insulation (“air-cell”) contains 56% chrysotile asbestos

.2 Existing conditions are documented in a report prepared by Arcadis Canada Inc. for the Halton District School Board entitled *“Pre-Renovation Designated Substances and Hazardous Materials Survey, Gladys Speers Public School, 2150 Samway Road, Oakville, Ontario”* dated May 10, 2022, which is included with the tender documents.

.3 Masonry applications may contain silica. Paint applications contain lead and mercury. Appropriate dust control procedures and respiratory protective equipment are to be used if disturbing these materials.

1.9 RESTRICTIONS

.1 Do not allow smoking, eating or drinking in the work area.

.2 Do not allow entry to work area by unauthorized persons.

.3 Compressed air shall not be used in the work area.

.4 Open flames will not be permitted in the work area (including but not limited to torches and propane-fired heaters).

1.10 WORKER PROTECTION

.1 *Instructions:*

.1 Before commencing Work, instruct workers in all aspects of work procedures and protective measures.

.2 *Respiratory Protection:*

.1 Provide workers with personally issued and marked respiratory equipment acceptable to the Occupational Health and Safety Division of the Ontario Ministry of Labour, suitable for the asbestos exposure in the work area.

.2 Ensure that suitable respiratory protective equipment is worn by every worker who enters the work area. A respirator provided by an employer and used by a worker:

.1 shall be in accordance to O.Reg. 278/05, Section 13, respirators.

.2 shall be fitted so that there is an effective seal between the respirator and the worker's face;

.3 shall be assigned to a worker for the worker's exclusive use;

.4 shall be used and maintained in accordance with the procedures specified by the equipment manufacturer;

.5 shall be cleaned, disinfected and inspected after use on each shift, or more often if necessary;

.6 shall have damaged or deteriorated parts replaced prior to being used by a worker; and

.7 when not in use, shall be stored in a convenient, clean and sanitary location.

.3 *Protective Clothing:*

.1 Provide workers with protective clothing which shall:

.1 be worn by every worker who enters the work area,

.2 be made of a material which does not readily retain nor permit penetration of asbestos fibres,

.3 consist of full body covering including head covering with snug fitting cuffs at the wrists, ankles and neck,

.4 include suitable footwear, and

.5 be repaired or replaced if torn.

1.11 NOTIFICATIONS

.1 Notify, in writing, the local Fire Department of the extent of the work, including a copy of the Fire Safety Plan detailed in Article 1.6 above.

.2 Notify, orally and in writing, an inspector at the office of the Ministry of Labour nearest the work place of the operation. O.Reg. 278/05, Section 11.

.1 The written notice required by subsection (1) shall set out:

.1 the name and address of the person giving the notice;

.2 the name and address of the owner of the place where the work will be carried out;

.3 the municipal address or other description of the place where the work will be carried out sufficient to permit the inspector to locate the place, including the location with respect to the nearest public highway;

.4 a description of the work that will be carried out;

.5 the starting date and expected duration of the work; and

.6 the name and address of the supervisor in charge of the work.

.3 Notify the Inspector a minimum of eight hours prior to initiation of the following phases of the project:

.1 commencement of asbestos removal;

.2 commencement of sealant application;

.3 dismantling of the enclosure; and

.4 removing asbestos waste from the work area.

1.12 PROTECTION, REPAIR AND REPLACEMENT OF EQUIPMENT AND MATERIALS

.1 All equipment within and surrounding the work area shall be suitably protected by the Contractor during the work periods.

.2 All equipment damaged by the Contractor shall be replaced by the Contractor at no additional cost to the Owner.

1.13 CONFINED SPACES

Not Applicable.

2.0 PART 2 – PRODUCTS

2.1 MATERIALS

.1 *Polyethylene:*

.1 In 0.15 mm (6 mil) minimum thickness unless otherwise specified; in sheet size to minimize joints.

.2 *Tape:*

.1 Reinforced duct tape suitable for sealing polyethylene under both wet conditions using amended water, and dry conditions.

.3 *Wetting Agent:*

.1 50% polyoxethylene ester and 50% polyglycol or polyxyethylene ether, or equivalent approved product, and shall be mixed with water to a concentration to provide adequate penetration and wetting of asbestos-containing material.

.4 *Asbestos Waste Receptors:*

.1 0.15 mm (6 mil) minimum thickness appropriately labelled, sealable polyethylene bags and 0.15 mm (6 mil) minimum thickness sealable clear polyethylene bags.

.5 *Rip-Proof Polyethylene:*

.1 0.20 mm (8 mil) fabric made up from 0.13 mm (5 mil) weave and 2 layers 0.04 mm (1.5 mil) poly laminate, in sheet size to minimize joints.

.6 *Sealant:*

.1 Slow-drying sealant which remains tacky on surface for a minimum of 8 hours for purpose of trapping residual airborne fibre during settling period. Product must have flame spread and smoke development ratings both less than 50. **Product shall leave a clear finish when dry. Acceptable products "Childers Chil-Lock CP-240" or equivalent.**

2.2 EQUIPMENT

.1 All equipment brought on site must be thoroughly clean and free of all fibre, asbestos or otherwise, to the satisfaction of the Field Inspector. The Contractor will be fully responsible for the replacement of equipment rejected by the Inspector and for all costs resulting from site contamination due to dirty or faulty equipment.

.2 *Airless Sprayer:*

.1 Spray equipment for the application of amended water and sealant such as Graco Hydrospray or equivalent:

.1 Fine atomizing spray nozzle: Nozzle for airless sprayer capable of delivering not less than 4.5 L per minute of fine particle spray of amended water.

.3 *Garden Sprayer:*

.1 Hand pump-type pressure-can garden sprayer fabricated out of either metal or plastic equipped with a wand at the end of a hose that can deliver a stream or spray of liquid under pressure. **Only to be used on small removal and repair projects with the approval of the site inspector.**

.4 *HEPA Vacuum:*

.1 High Efficiency Particulate Aerosol filtered vacuum equipment. Must have a filtering system capable of collecting and retaining asbestos fibres to an efficiency of 99.97% for fibres of 0.3 um or larger. HEPA filters must have been individually tested and certified by the manufacturer.

.2 All HEPA vacuums brought onto the job site shall be visibly clean, shall be in a good state of repair and shall be maintained in such state through completion of the project.

.5 *Glovebag:*

.1 Prefabricated, purposely made, 0.20 mm minimum thickness, polyvinyl chloride bag with integral 0.25 mm thick polyvinyl chloride gloves.

.2 Bag equipped with reversible double-pull, double-throw zipper on top to facilitate installation on pipe and progressive movement along pipe, with straps for sealing ends of bag around pipe, and with plastic flap under zipper for strength on pipe and to provide effective seal and with “ziploc” feature. Bags shall be secured using manufacturer’s prescribed securing devices. Approval must be obtained from the Inspector for use of Glovebags. Bag must be acceptable to the Inspector for use.

.3 Bag must have valves to allow insertion of a vacuum hose and the nozzle of a water sprayer while maintaining the seal to the pipe, duct or similar structure.

.6 *Negative Pressure Units:*

.1 Exhaust units fitted with High Efficiency Particulate Aerosol (HEPA) filters used to effect a negative pressure differential in the work area as compared to the immediate surrounding or clean area. The filtering system must be capable of collecting and retaining asbestos fibres to an efficiency of 99.97% for fibres of 0.3 um or larger. The HEPA filters must have been individually tested and certified by the manufacturer and bear a label certifying performance. The unit is to be fitted with instrumentation to indicate pressure differential across the HEPA filter with an audible alarm to sound at a preset low differential pressure.

.2 Construction of HEPA filter/fan cabinet units shall be airtight and all joints shall be caulked. The gasket seal between the filter housing and the retaining frame inside the cabinet shall provide a zero-leakage seal to avoid filter bypassing.

.3 **Each negative pressure unit shall be integrity tested at the work site prior to commencement of asbestos removal.** The procedure must include the testing of the integrity of the entire cabinet. Written confirmation of the test results are to be provided to the Inspector. Retesting may be requested by the Inspector and

performed by the Contractor should the unit be damaged or modified during the work.

.7 *Differential Pressure Recorder:*

.1 Instrument to monitor and record the differential pressure between the Work Area and Clean Area.

.1	sensitivity:	0.025 mm (0.001 inches) WC increments between +0.25 mm to -2.5 mm (+0.010 to -0.100 inches) WC
.2	accuracy:	+/- 1 %
.3	pressure alarms:	audible high and low level alarm programmable within operating range
.4	printout:	minimum 24 hr period at 15 minute intervals

.8 *Ground Fault Panel:*

.1 Electrical Panel equipped with ground fault circuit breakers of sufficient capacity to power all electrical equipment and lights in work area. All breakers shall have 5 mA ground fault protection. Panel should be complete with all necessary accessories including ground fault interrupter lights, test switch to ensure unit is working, and reset switch. Ground fault receptacles on extension cords shall not be used without written authorization by the Consultant.

.2 The GFI Panel must be constructed under the direction of a licensed Electrician and inspected by a licensed Electrician on a regular basis. Evidence of such construction and inspection shall be submitted to the Consultant prior to installation of the Panel on site.

3.0 PART 3 – EXECUTION

3.1 MAJOR ASBESTOS WORK (TYPE 3 OPERATIONS)

Not Applicable.

3.2 GLOVEBAG REMOVAL METHOD

Not Applicable.

3.3 TYPE 2 ENCLOSURE METHOD

.1 Preparation

.1 Separate the work area from the rest of the building using rope barriers, signage and other appropriate means. The extent of the work area will depend on the amount of work to be done, potential for fibre release and the height of the work above floor level.

.2 Identify the work area with clearly visible warning signs.

.3 Construct a frame for the enclosure from 50 mm x 100 mm (2” x 4”) studs or other suitable material (scaffolding, for example); if the potential exists for the disturbance of asbestos-containing material during the construction of the enclosure, wear a respirator and suitable protective clothing; ensure that the enclosure is of adequate size to permit the storage of equipment and waste.

.4 If the room where the work is to take place is small, the room itself may serve as an enclosure, provided that all openings are sealed, the mechanical ventilation system servicing the room is disabled and the ventilation ducts to and from the work area are sealed.

.5 Shut off the source of heat for piping systems (i.e., boiler or steam line header), where possible.

.6 Cover the walls, floor and ceiling of the enclosure with clear 0.15 mm polyethylene sheeting sealed with duct tape. Curtains of polyethylene sheeting must be fitted on each side of the entrance to the enclosure (curtain flaps may require weights at the bottoms to ensure proper closing).

.7 Disable the ventilation system servicing the enclosure; seal ventilation ducts to and from the work area.

.8 Shut off and lock out electrical power within the enclosure.

.9 Wear an appropriate respirator approved for use with asbestos and suitable protective equipment. Only persons wearing protective clothing and equipment shall be allowed to enter the work area. If the type of asbestos is other than chrysotile, a powered air purifying respirator shall be used.

.10 Do not use compressed air.

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

.12 Vacuum surfaces of insulated material in the work area using a HEPA vacuum.

.2 Asbestos Removal and Cleanup

.1 Only non-powered hand-tools, or power tools **FITTED WITH A DUST COLLECTION DEVICES EQUIPED HEPA FILTERS** are permitted to be used.

.2 Thoroughly wet the asbestos-containing material with amended water using a garden sprayer.

.3 Remove wetted asbestos material and place directly into a waste receptor (polyethylene bag). **MAINTAIN ASBESTOS IN WET CONDITION AT ALL TIMES DURING REMOVAL AND/OR HANDLING. SEAL BAGS TIGHTLY.** Double bag when removing debris from work area.

.4 Clean surfaces exposed by asbestos removal with a brush and wet sponge. Ensure that all surfaces of piping and other equipment are clean of all residue.

.5 Immediately after removal of asbestos, clean all surfaces and equipment within the work area, including polyethylene sheeting, using a HEPA vacuum or by damp wiping.

.6 Seal all surfaces of pipe or other equipment, enclosure, and ends of exposed insulation with a suitable encapsulant.

.7 After satisfactory completion of cleaning and before leaving the work area, decontaminate protective clothing (including boots) and equipment, etc., using a HEPA vacuum or by damp wiping.

.8 Dismantle the enclosure and wet and dispose of all polyethylene sheeting, brushes and sponges as asbestos waste.

.9 Dispose of protective clothing as asbestos waste.

.10 Wash hands and face at the completion of the work (before leaving the work area); damp wipe the respirator and store in a proper place.

.11 Make arrangements for disposal of all asbestos-containing waste material.

3.4 TYPE 2 NON-ENCLOSURE METHOD

.1 Preparation

.1 Control the spread of dust from the work being performed by use of drop sheets, keeping doors closed, providing signage, etc. Ensure that appropriate equipment and materials are at hand.

.2 Restrict access to the work area using rope barriers, barricades, and other appropriate measures.

.3 Disable ventilation systems servicing the work area.

.4 Provide and wear a non-powered air purifying respirator with high efficiency cartridges approved for use with asbestos and disposable coveralls including hood, elasticized cuffs and zipper over work clothes.

.2 Asbestos Removal and Cleanup

.1 Only non-powered hand-tools, or power tools **FITTED WITH A DUST COLLECTION DEVICE AND HEPA FILTER** are permitted to be used.

.2 Do not eat, drink, chew or smoke within the work area.

.3 *Vinyl Floor Tile/Vinyl Floor Sheeting (without asbestos-containing paper backing)*: Disconnect all floor-mounted electrical fixtures and outlets and seal with duct tape. Seal other floor penetrations as required. Spray amended water on tiles to be removed to reduce dust. Remove tiles and immediately place into waste receptor. Double bag when removing debris from work area.

.4 *Exterior Cement Board*: Place polyethylene sheet over ground to prevent soil contamination. Apply amended water as required to reduce dust. Remove material by hand with minimal breakage and place immediately into waste receptor. Do not throw or allow the asbestos waste to fall to the ground from the work area. Ensure that all asbestos debris is removed including that on fasteners, embedded in caulking, etc.

.5 *Drywall with Asbestos-Containing Joint Compound*: Apply amended water to the surface of the material using an airless sprayer. Application of a fine mist at low volumes will avoid excessive water dripping. Remove gypsum board by hand and place directly into waste receptor. Do not throw or allow waste to fall to the floor from the work area. Ensure that all asbestos debris is removed from the ceiling/wall assembly. Ensure that all asbestos debris is removed including that on fasteners. Double bag when removing debris from work area.

.6 *Ceiling Tiles*: Apply amended water to the surface of the material using an airless sprayer. Application of a fine mist at low volumes will avoid excessive water dripping to the floor. Remove tiles by hand and place directly into waste receptor. Do not throw or allow waste to fall to the floor from the work area. Ensure that all

asbestos debris is removed from the all T-bar and J-moulding. Double bag when removing debris from work area.

.7 *Caulking*: Apply amended water as required to reduce dust. Remove material by hand and place immediately into waste receptor. Do not throw asbestos waste. Double bag when removing debris from work area.

.8 *Mastic*: Apply amended water as required to reduce dust. Remove material by hand and place immediately into waste receptor. Do not throw asbestos waste. Double bag when removing debris from work area.

.9 Do not allow waste to accumulate.

.10 Clean dust and debris at regular intervals and at the end of each shift with a damp cloth or HEPA vacuum.

.11 Ensure that there is no visible airborne dust in the work area during the removal and cleanup operation.

.12 All duct tape, polyethylene sheets, disposable clothing and other consumables used for, and during the removal of asbestos shall be contained and disposed as asbestos waste.

.13 After satisfactory completion of cleaning and before leaving the work area, decontaminate protective clothing (including boots) and equipment, etc., using a HEPA vacuum or by damp wiping.

.14 Dispose of protective clothing as asbestos waste.

.15 Wash hands and face prior to taking breaks and at completion of the work before leaving the work area. Damp-wipe the respirator after use and store in an appropriate place.

.16 Make arrangements for disposal of all asbestos-containing waste material.

3.5 TYPE 1 OPERATION

Not Applicable.

3.6 WASTE DISPOSAL

.1 Asbestos-containing wastes shall be disposed of in accordance with procedures established by the Ontario Ministry of the Environment *Regulation 347 (as amended) under the Environmental Protection Act* and the Government of Canada *Transportation of Dangerous Goods Regulations*.

.2 All waste is to be removed from the site and disposed. Disposal containers are not to be left on the property unattended unless fully enclosed and locked. Bins must be removed immediately on completion of work.

.3 Both sides of every vehicle used for the transportation of asbestos and every waste container must display in large easily legible letters that contrast in colour with the background the word "CAUTION" in letters not less than 10 cm in height and the words:

CONTAINS ASBESTOS FIBRES
Avoid Creating Dust and Spillage
Asbestos May Be Harmful To Your Health
Wear Approved Protective Equipment

.4 Both sides of every waste container must display in large easily legible letters the words **'ASBESTOS, WHITE, PRODUCT IDENTIFICATION NUMBER 2590'** or **'ASBESTOS, BLUE, PRODUCT IDENTIFICATION NUMBER 2212'** in accordance with the type of asbestos being transported.

.5 Every vehicle used for the transportation of asbestos waste shall display a Class 9 placard on the front, back and two sides of the vehicle.

.6 The waste must be transported in a fully-enclosed truck, or alternatively, in a waste disposal skip. The driver must be familiar with cleanup and handling procedures and be trained to deal with spills or container breakage.

.7 The truck must be equipped with a shovel and broom, wetting agent, protective clothing, respiratory protective equipment, polyethylene bags of at least 0.15 mm (6 mil) thickness, and bag closures and duct tape.

.8 All waste must be transported with a **Bill of Lading** directly from the work area to the waste disposal site. The Bill of Lading is to indicate the source and type of asbestos, the Carrier, the amount, the destination (disposal site) and date all in accordance to applicable regulations. A copy of the Bill of Lading and disposal site receipt is to be provided to the Inspector.

3.7 AIR MONITORING

.1 Air tests will be taken at the discretion of the Asbestos Consultant using the Phase Contrast Microscopy (PCM) method from the time asbestos-containing materials may be disturbed until the final visual inspection of the work areas.

.1 *Outside Asbestos Removal Work Areas:*

.1 The maximum allowable fibre concentration outside the Work Areas during asbestos removal or cleanup shall be 0.05 f/cc. Should readings exceed this value, the work shall stop at the discretion of the inspector and proceed only after the cause of the high fibre counts has been remedied.

.2 All costs associated with the cleaning, monitoring, and disruption caused by excessive fibre levels outside the Work Area and related to the work, are to be borne by the Asbestos Contractor including but not limited to:

.1 thorough cleaning with wet wiping and HEPA vacuuming by the Asbestos Contractor to the extent and satisfaction of the Inspector,

.2 all activities deemed necessary by the Inspector including area isolation, personnel relocation, additional visual inspections and air monitoring to confirm that the area has been adequately cleaned,

.3 disruption of plant production, office routine, and delays.

END OF SECTION

Scale

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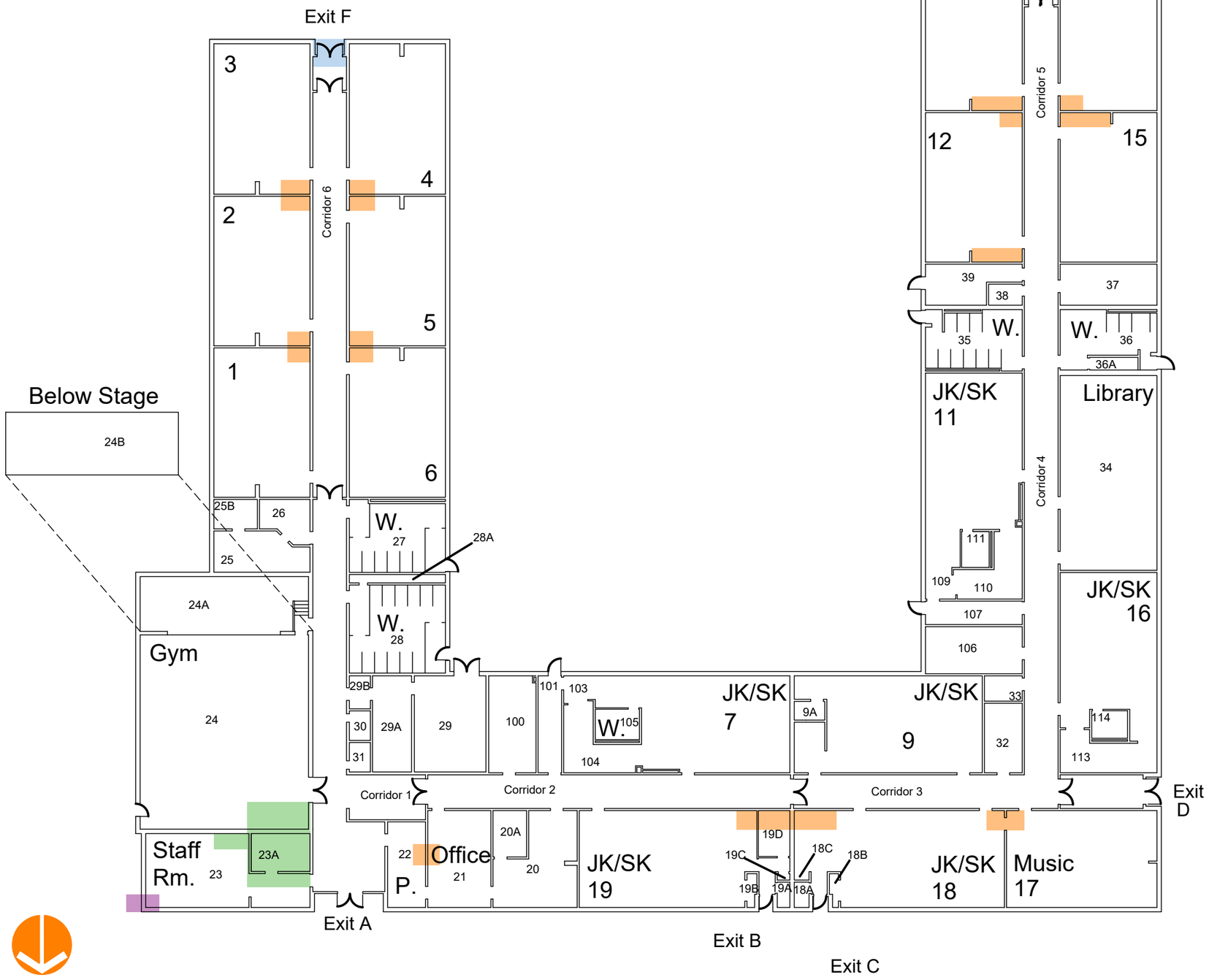
METRES

5 0 3 10 20 30 40 50

FEET



TRUE NORTH

PROJECT NORTH

LEGEND:

19 FUNCTIONAL SPACE

WORK AREA 1

WORK AREA 2

WORK AREA 3

WORK AREA 4

NOTES:

ARCADIS

HALTON DISTRICT SCHOOL BOARD

ASBESTOS ABATEMENT SPECIFICATIONS

GLADYS SPEERS PUBLIC SCHOOL
2150 SAMWAY ROAD, OAKVILLE, ONTARIO

LOCATIONS OF WORK AREAS

FIRST FLOOR PLAN

Drawn By: B.R	Approved By: J.D	Project No: 30125139	
Date: MAY 2022	Scale: N.T.S	Drawing No: 30125139-1	

CITY:(Read) DIV/GROUP:(Read) DB:(Read) LD:(Opt) PIC:(Opt) PM:(Read) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
C:\Users\byrappa\8346\ACCDocs\Arcadis\AUS-HALTON DIST SCHOOL BOARD-HALTON Ontario\Project Files\2022\01-In Progress\01-DWG\30125139 Gladys Speers\30125139 asbestos batement specifications.dwg LAYOUT: 30125139-1ST FL SAVED: 5/12/2022 1:03 PM ACADVER: 24.1S (LMS TECH)
PAGESETUP: A3 PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 5/12/2022 1:37 PM BY: BYRAPPA, BYRAREDDY
XREFS: IMAGES: PROJECTNAME: ---
Arcadis_LOGO_Lizard.TIF
BASE.tif

PART 1 - GENERAL

1.1 Reference Standards

.1 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.

.2 CAN/CGSB-71.25-M88, Adhesive, for Bonding Drywall to Wood Framing and Metal Studs.

.2 Underwriters Laboratories of Canada (ULC)

.1 CAN/ULC-S102-M88, Building Materials and Assemblies, Standard Method of Test for Surface Burning Characteristics of.

.3 American Society for Testing and Materials (ASTM)

.1 ASTM A 653/A 653M-02a, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.2 ASTM C 36/C 36M-01, Specification for Gypsum Wallboard.

.3 ASTM C 79/C 79M-01, Specification for Gypsum Sheathing Board.

.4 ASTM C 442/C 442M-01, Specification for Gypsum Backing Board and Coreboard.

.5 ASTM C 475/C 475M-02, Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.

.6 ASTM C 514-01, Specification for Nails for the Application of Gypsum Board.

.7 ASTM C 630/C 630M-01 630M-96a 630M-96a 630M-96a 630M-96a, Specification for Water-Resistant Gypsum Backing Board.

.8 ASTM C 840-02, Specification and Finishing of Gypsum Board.

.9 ASTM C 931/C 931M-02, Specification for Exterior Gypsum Soffit Board.

.10 ASTM C 954-00, Specification for Steel Drill Screws for the Application of Gypsum Board.

.11 ASTM C 960/C 960M-01, Specification for Predecorated Gypsum Board.

.12 ASTM C 1047-99, Accessories for Gypsum Wallboard and Gypsum Veneer.

.13 ASTM C 1280-99, Specification for Application of Gypsum Sheathing Board.

.14 ASTM C 1177/C 1177M-01 1178M-96 1178M-96 1178M-96 1178M-96, Specification for Glass Mat Gypsum Substrate for Use as Sheathing.

.15 ASTM C 1178/C 1178M-01 1178M-96 1178M-96 1178M-96 1178M-96, Specification for Glass Mat Water-Resistant Gypsum Backing Board.

1.2 Environmental Requirements

.1 Maintain temperature minimum 10°C, maximum 21°C for 48 hours prior to and during application of gypsum boards and joint treatment, and for at least 48 hours after completion of joint treatment.

.2 Apply board and joint treatment to dry, frost free surfaces.

PART 2 - PRODUCTS

2.1 Gypsum Board

.1 Standard board: to CAN/CSA-A82.27-M91 regular, 12 mm thick and Type X, 16 mm thick, 1200 mm wide x maximum practical length, ends square cut, edges beveled.

.2 Exterior sheathing: to CAN/CSA-A82.27-M91 16 mm thick, 1200 mm wide x maximum practical length. Georgia Pacific Densglas Gold or equal.

.3 Reinforced cement board: aggregated portland cement board with vinyl-coated, woven glass-fibre mesh embedded in front and back surfaces, specially formulated to resist water and steam, square cut and smooth finished edges, 900 mm wide x 1800 mm long.

.4 Impact resistant gypsum board: to CAN/CSA-A82.27-M91, 16mm thick, 1200mm wide x maximum practical length, ends square cut, edges beveled. CGC Sheetrock Abuse Resistant or equal.

2.2 Metal Furring and Suspension Systems

.1 Metal furring runners, hangers, tie wires, inserts, anchors: to CSA A82.30-M1980, galvanized .

.2 Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.

.3 Resilient drywall furring: 0.5 mm base steel thickness galvanized steel for resilient attachment of gypsum board.

2.3 Fastenings and Adhesives

.1 Nails, screws and staples: to CAN/CSA-A82.31-M91.

.2 Stud adhesive: to CAN/CGSB 7125 ASTM C 557-99.

.3 Laminating compound: as recommended by manufacturer, asbestos-free.

2.4 Accessories

.1 Casing beads, corner beads fill type: 0.5 mm base thickness commercial grade sheet steel to ASTM C 1047-99 with Z275 zinc finish to ASTM A 525-93, perforated flanges; one piece length per location.

.2 Acoustic sealant: to CAN/CGSB-19.21-M87 and Section 07900.

.3 Polyethylene: to CAN/CGSB-51.34-M86, Type 2.

.4 Insulating strip: rubberized, moisture resistant, 3 mm thick closed cell neoprene strip, 12 mm wide, with self sticking permanent adhesive on one face, lengths as required.

.5 Joint compound: to CAN/CSA-A82.31-M91, asbestos- free.

PART 3 - EXECUTION

3.1 Suspended and Furred Ceilings

.1 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with CAN/CSA-A82.31-M91 except where specified otherwise.

.2 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.

.3 Install work level to tolerance of 1:1200.

.4 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, and grilles.

.5 Install 19 x 64 mm furring channels parallel to, and at exact locations of steel stud partition header track.

3.2 Ceiling Bulkheads

.1 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.

.2 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.

3.3 Wall Furring

.1 Install wall furring for gypsum board wall finishes in accordance with CAN/CSA-A82.31-M91, except where specified otherwise.

.2 Furr openings and around built-in equipment, cabinets, access panels, on four sides. Extend furring into reveals. Check clearances with equipment suppliers.

.3 Furr duct shafts, beams, columns, pipes and exposed services where indicated.

3.4 Resilient Furring

.1 Erect drywall resilient furring transversely across studs spaced maximum 600 mm oc and not more than 150 mm from ceiling/wall juncture.

Secure to each support with 38 mm common nail 25 mm drywall screw.

.2 Install 150 mm continuous strip of 12.7 mm gypsum board along base of partitions where resilient furring installed.

3.5 Bracing

.1 Brace suspended assemblies as required to structure at 1200mm o.c. max. Conform strictly to manufacturer's specifications and instructions. Maintain continuity of fire separations at all times. Review method of suspension with Consultant prior to commencement of Work. Failure to do so will result in immediate rejection of Work.

3.6 Gypsum Board Application

.1 Do not apply gypsum board until bucks, anchors, blocking, electrical and mechanical work are approved.

.2 Apply single or double layer gypsum board to metal furring or framing using screw fasteners for first layer, screw fasteners for second layer. Maximum spacing of screws 300 mm oc.

.3 Apply single or double layer gypsum board to concrete concrete block surfaces, where indicated, using laminating adhesive.

.4 Apply 12 mm diameter bead of acoustic sealant continuously around periphery of each face of partitioning to seal gypsum board/structure junction where partitions abut fixed building components. Seal full perimeter of cut-outs around electrical boxes, ducts, and other penetrations, in partitions where perimeter sealed with acoustic sealant.

3.7 Fire Rated Assemblies

.1 Construct fire rated assemblies where indicated in strict accordance with specified ULC Design..

3.8 Accessories

.1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure at 150 mm oc using contact adhesive for full length.

.2 Install casing beads around perimeter of suspended ceilings.

.3 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.

.4 Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior door frames, to provide thermal break.

.5 Install shadow mould at gypsum board/ceiling juncture as indicated. Minimize joints; use corner pieces and splicers.

3.9 Control Joints

.1 Construct control joints of preformed units or two back-to-back casing beads set in gypsum board facing and supported independently on both sides of joint.

.2 Provide continuous polyethylene dust barrier behind and across control joints.

.3 Locate control joints at changes in substrate construction at approximate 10 m spacing on long corridor runs at approximate 15 m spacing on ceilings.

.4 Install control joints straight and true.

3.10 Expansion Joints

.1 Construct expansion joints as detailed, at building expansion and construction joints. Provide continuous dust barrier.

.2 Install expansion joint straight and true.

3.11 Access Doors

.1 Install access doors to electrical and mechanical fixtures specified in respective Sections.

.2 Rigidly secure frames to furring or framing systems.

3.12 Taping and Filling

.1 Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.

.2 Finish corner beads, control joints and trim as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.

.3 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.

.4 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.

.5 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.

3.13 Skim Coat

.1 Mix joint compound slightly thinner than for joint taping.

.2 Apply thin coat to entire surface using trowel or drywall broadknife to fill surface texture differences, variations or tool marks.

.3 Allow skim coat to dry completely.

.4 Remove ridges by light sanding or wiping with damp cloth.

3.14 Reinforced Cement Board

.1 Pre-cut board to required sizes and make necessary cutouts.

.2 Fit ends and edges closely but not forced together.

.3 Fasten board to wood studs with 38 mm galvanized roofing nails, or blued or galvanized annular ring nails at 200 mm oc.

.4 Fasten board to steel studs with rust proof self-drilling, self-threading case hardened screws at 200 mm oc.

.5 Filling and reinforcing of joints between board is specified in Section 09310 - Ceramic Tile.

3.15 Impact Resistant Gypsum Board

.1 Provide impact resistant gypsum board at all exterior soffits.

.2 Provide in accordance with manufacturer's specifications including recommended accessories and materials.