

Designated Substance and Hazardous Materials Specifications– Pre-Renovation

**École élémentaire Micheline-Saint-Cyr
85 Forty First St, Etobicoke, Ontario**

March 10, 2026

Arcadis Project No. 30305976



Part 1 General

1.1 Scope of Work

- .1 Arcadis Professional Services (Canada) Inc. (Arcadis) was retained by the Conseil scolaire Viamonde (CSV) to conduct a pre-renovation designated substance and hazardous materials survey (DSHMS) of École élémentaire Micheline-Saint-Cyr, 85 Forty First Street, Etobicoke, Ontario.
- .2 The objective of the assessment was to identify designated substance and hazardous materials (DSHMs) in preparation for building renovation. This assessment is intended to be used for renovation purposes only and may not provide sufficient detail for long term management of hazardous materials as required by Health and Safety regulations. The results of this assessment are intended for use with a properly developed scope of work and performance specification.
- .3 The project consisted of a limited intrusive assessment of select areas of the building.
- .4 The DSHMS was conducted using a visual assessment with intrusive methods and was comprehensive in scope. However, additional hazardous materials may be uncovered during renovation activities. Any suspect materials encountered should be managed as designated substances and hazardous materials unless sampling and laboratory analysis confirm otherwise.
- .5 The following table summarizes the location of asbestos-containing materials and the suggested abatement method for the removal and handling of these materials. The bidding parties are responsible for the determination of the estimated quantities during the bidding process.

Designated Substance	Area	Material Description	Recommended Removal Measures
	Corridor C101	Caulking applied to door frame	Type 1 asbestos procedures without power tools.
	Room 118	Vinyl floor tile mastic	Type 2 enclosure asbestos procedures with power tools attached to dust collecting devices equipped with HEPA filters.
	Room 118	Gypsum board with asbestos-containing drywall joint taping compound	Type 2 enclosure asbestos procedures with power tools attached to dust collecting devices equipped with HEPA filters.
	Room B1	Textured finish on concrete block walls	Type 2 enclosure asbestos procedures without power tools, or power tools attached to dust collecting devices equipped with HEPA filters for areas <1m ² or Type 3 asbestos procedures for areas >1m ² .

- .6 The following table summarizes the material description of designated substances and other hazardous materials and the suggested abatement method for the removal and handling of these

materials. The bidding parties are responsible for the determination of the estimated quantities during the bidding process.

Designated Substance / Hazardous Material	Material Description	Recommended Action/Removal Measures
Lead	<p>Low-level lead paint (lead concentration less than or equal to 0.1% (1000 mg/Kg) by weight) is present within the Project Area.</p> <ul style="list-style-type: none"> White wall paint on concrete block walls throughout the study area. <p>Lead in the solder on the sweated-on joints between copper pipe fittings.</p> <p>Lead may also be present in the solder on the seals of bell joints of cast iron drainpipe and glazing on ceramic tiles.</p>	<p>The Ministry of Labour, Immigration, Training and Skills Development <i>Guideline – Lead on Construction Projects</i>, dated April 2011, provides guidance in the measures and procedures that should be followed when handling lead-containing materials during construction projects. In addition, the Environmental Abatement Council of Canada - <i>EACC Lead Abatement Guidelines, October 2014</i>, also provides guidance and recommended work practices.</p> <p>If lead-containing paint applications and surface coatings are not removed prior to the handling, disturbance, or removal of the substrate materials, then the contractor must:</p> <ul style="list-style-type: none"> Remove/scrap flaking paint to the best extent possible Encapsulate other surfaces in good condition <p>For building materials that are to be disposed at a landfill, all lead-based paints and associated substrate (concrete, plaster, wood, etc.) must undergo Toxicity Characteristic Leachate Properties (TCLP) testing to determine disposal procedures. The disposal of lead-containing paint is regulated under the Federal Transportation of Dangerous Goods Act and by the Ministry of the Environment, Conservation and Parks (MECP).</p>
Mercury	Mercury may be present in fluorescent bulbs.	<p>The presence of mercury within assembled units (e.g., fluorescent light tubes and bulbs) should not be considered a hazard provided that the assembled units remain sealed and intact. However, direct skin contact with mercury and inhalation of mercury vapour should be avoided. The fluorescent light tubes and bulbs should be sent for recovery and recycling of mercury. Prior to any demolition activities, the fluorescent lights that may have been disturbed must be handled and if necessary, disposed of in accordance with O. Reg. 490/09.</p>
Polychlorinated Biphenyls (PCBs)		<p>Light ballasts, such as those associated with the type of fluorescent lights (T8s) observed, 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, if required. All transformers observed were noted to be of the air-cooled variety and as such, would not contain PCBs.</p>

Designated Substance / Hazardous Material	Material Description	Recommended Action/Removal Measures
Silica	Building components containing silica such as in concrete, concrete block, mortar, drywall and drywall tapping joint compound.	Any work that involves disturbing materials potentially containing silica must be conducted in accordance with the requirements of Ontario Regulation 490/09 and the recommendations outlined in the Ministry of Labour, Immigration, Training and Skills Development's 'Guideline - Silica on Construction Projects' (April 2011).
Halocarbon-Containing Equipment:	No equipment was observed.	

1.2 General Requirements

- .1 Comply with Federal, Provincial, and local requirements, regulations and guidelines pertaining to identified materials. 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/guidelines. Should there be any discrepancy or conflict between the specifications and the regulation/guidelines, the most stringent shall apply.
- .2 Replacement of the removed materials is not part of this contract unless otherwise noted.
- .3 Coordinate all work with the General Contractor and sub trades as required.
- .4 Refer to Architectural Drawings and project specifications for additional details.
- .5 Where required, mechanical, electrical, communication and life systems isolations and disconnects will be performed by the General Contractor's sub trades prior to commencement of remedial work.
- .6 The Abatement Contractor is responsible for making all arrangements, and for paying for the disposal of all waste materials in accordance with Federal, Provincial, and local requirements, regulations and guidelines.
- .7 The Abatement 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 Owner's Representative shall be advised in writing at least four days in advance of the proposed working hours.
- .8 The Abatement 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.
- .9 All precautions shall be taken to control the release of asbestos fibres within the work areas, preventing the release of asbestos fibres outside the work areas, to protect all parties including Demolition/Abatement Contractor's personnel, Owner's Representative, Owner's personnel and the public from asbestos dust exposure during the course of the work. The Contract Documents prescribe required asbestos containment provisions, but are not limited to, complying with all Regulations. Failure to meet any of these conditions will be considered a fundamental breach of the contractual obligations.

- .10 If the Abatement Contractor fails to comply with requirements dealing with the control of asbestos fibres and the health and safety of Abatement Contractor's employees, Owner's Representative, Owner personnel or the Public; the Owner, or the Owner's Representative, may verbally instruct the Abatement Contractor to cease work immediately with written confirmation to follow within two working days. If the Owner's Representative gives a written statement to the Owner and the Abatement Contractor that sufficient cause exists, the Owner may notify the Abatement Contractor in writing that they are in default of their contractual obligations.
- .11 The Owner's Representative shall have the authority to immediately stop the Work through a written instruction if, in their 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 Owner's Representative.
- .12 The Owner's Representative will visit the site at his/her discretion to familiarize themselves with the progress and quality of the Work and to determine if the Work is proceeding in accordance with the Contract Documents.
- .13 Any employee shall be replaced, at the written request of the Owner's Representative, if working, or causing others to work, in violation of O.Reg. 278/05.
- .14 Provide a Certificate signed by the insurance agency naming the Owner, and Owner's representative as additional-insureds.
- .15 The Demolition/Abatement 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.
- .16 The Abatement Contractor must provide thirty (30) days' notice of cancellation or amendment of coverage.
- .17 The Abatement Contractor's supervisor must have proven experience and proficiency in the type of Work being undertaken under this Contract.
- .18 The Abatement Contractor's supervisor shall be replaced, at the written request of the Owner's Representative, if found to be incompetent or inattentive to the needs of the project.
- .19 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 Owner's Representative. Any subsequent testing shall be done at the Asbestos Contractor's expense.

END OF SECTION

Designated Substance and Hazardous Materials Survey - Pre-Renovation
Arcadis Project Name: École élémentaire Micheline-Saint-Cyr, 85 41st St.
Arcadis Project No.: 30305976

DSHMS Summary

March 10, 2026

Designated Substances and Hazardous Materials Summary

Section 02 81 00 – Hazardous Materials

Section 02 82 00.01 – Asbestos Abatement - Type 1 Precautions

Section 02 82 00.02 – Asbestos Abatement - Type 2 Precautions

Section 02 82 00.03 – Asbestos Abatement - Type 3 Precautions

Part 1 General

1.1 Related Requirements

- .1 Section 02 82 00.01 – Asbestos Abatement – Type 1 Precautions.
- .2 Section 02 82 00.02 – Asbestos Abatement – Type 2 Precautions.
- .3 Section 02 82 00.03 – Asbestos Abatement – Type 3 Precautions.

1.2 References:

- .1 A Guide to the Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations released in November 2007, <http://www.labour.gov.on.ca/english/hs/asbestos/index.html>.
- .2 Arcadis report titled “*Designated Substances and Hazardous Materials Survey – Pre-Renovation, École élémentaire Micheline-Saint-Cyr, 85 Forty First Street, Etobicoke, Ontario*”, March 10, 2026.
- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.205-2003, Sealer for Application to Asbestos-Fibre-Releasing Materials.
- .4 Canadian Standards Association (CSA International).
 - .1 CAN/CSA Z94.4.1:21, Performance of filtering respirators.
 - .2 CAN/CSA Z94.4-18(R2023), Selection, use and care of respirators.
- .5 Department of Justice Canada
 - .1 Canadian Environmental Protection Act (CEPA), 1999.
 - .2 SOR/2018-196 Prohibition of Asbestos and Products Containing Asbestos Regulations.
- .6 Environmental Abatement Council of Canada (EACC) – Lead Abatement Guideline, 2015.
- .7 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Safety Data Sheets (SDS).
- .8 Province of Ontario
 - .1 Ontario Regulation 213/91, Construction Projects.
 - .2 Ontario Regulation 278/05, Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations.
 - .3 Ontario Regulation 347/90, General – Waste Management.
 - .4 Ontario Regulation 490/09, Designated Substances.
 - .5 Ontario Regulation 632/05, Confined Spaces.
 - .6 Ontario Regulation 833/90 (as amended) – “Control of Exposure to Biological or Chemical Agents” (O. Reg. 833/90).
 - .7 Ontario Regulation 860/90, Workplace Hazardous Materials Information System (WHMIS).

- .8 Ontario Ministry of Labour, Immigration, Training and Skills Development publication *Guideline – Lead on Construction Projects* (Issued September 2004, Updated April 2011).
- .9 Ontario Ministry of Labour, Immigration, Training and Skills Development publication *Guideline – Silica Construction Projects* (Issued September 2004, Updated April 2011).
- .10 Ontario Occupational Health and Safety Act, R.S.O. 1990, c. O.1
- .11 Ontario Ministry of the Environment, Conservation and Parks
 - .1 Ontario Environmental Protection Act, R.S.O. 1990, c. E.19
- .12 Transport Canada (TC)
 - .1 Transportation of Dangerous Goods Act, 1992 (TDGA).
 - .2 Transportation of Dangerous Goods Regulations (T-19.01-SOR/2001-286)
- .13 Underwriters' Laboratories of Canada (ULC).
- .14 U.S. Environmental Protection Agency (EPA).
- .15 U.S. Department of Health and Human Services/Centers for Disease Control and Prevention (CDC)/National Institute for Occupational Safety and Health (NIOSH)
 - .1 NIOSH 94-113-August 1994, NIOSH Manual of Analytical Methods (NMAM), 4th Edition.

1.3 Definitions:

- .1 Dangerous Goods: product, substance, or organism specifically listed or meets hazard criteria established in Transportation of Dangerous Goods Regulations.
- .2 Hazardous Material: product, substance, or organism used for its original purpose; and is either dangerous goods or material that will cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into the environment.
- .3 Hazardous Waste: hazardous material no longer used for its original purpose and that is intended for recycling, treatment, or disposal.
- .4 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 used historically as additives in latex paint to protect the paint from mildew and bacteria during production and storage.
- .5 Owner: The entity that holds legal responsibility for the project, typically the client, property owner, or organization commissioning the work. The Owner has contractual authority over the project and makes key decisions regarding scope, budget, and compliance.
- .6 Owner's Representative: A person or organization designated by the Owner to act on

their behalf in overseeing the project.

- .7 Ozone Depleting Substances (ODS): Ozone depleting substances and other Halocarbons, which include, for example, refrigerants used in refrigeration equipment and chillers.
- .8 Polychlorinated Biphenyls (PCBs): 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.
- .9 WHMIS: Workplace Hazardous Materials Information System

1.4 Action and Informational Submittals

- .1 Quality Control:
 - .1 Provide proof satisfactory to Owner's Representative that employees have had instruction on hazards of WHMIS, lead exposure, asbestos exposure, respirator use, fit testing, PPE use (including Tyvek dress), and aspects of work procedures and protective measures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for hazardous materials and include product characteristics, performance criteria, physical size, finish, and limitations.
 - .2 Submit one copy of WHMIS SDS in accordance to the Owner's Representative for each hazardous material required prior to bringing hazardous material on site.

1.5 Existing Conditions

- .1 The Arcadis report titled "*Designated Substances and Hazardous Materials Survey – Pre-Renovation, École élémentaire Micheline-Saint-Cyr, 85 Forty First Street, Etobicoke, Ontario*", March 10, 2026, indicates the locations of hazardous materials present. Areas requiring special handling under hazardous material precautions are outlined in this Specification package. Asbestos-containing and lead-containing materials identified in the above-referenced report include:
 - .1 Thermal insulation applied to pipe fittings containing 46% Chrysotile in Room 118.
 - .2 Mastic under non asbestos vinyl floor tile containing 0.67% Chrysotile in Room 118.
 - .3 Drywall with asbestos-containing joint taping compound containing 2.5% Chrysotile applied to ceiling bulkhead in Room 118.
 - .4 Thermal insulation paper assumed to be present on brackets attaching radiators to walls containing 30% Chrysotile in Room 118.
 - .5 Textured coating on concrete block walls containing 1.6% -3.1% Chrysotile in Corridor C101 and Room B1.

- .6 Caulking on door frames containing 0.63% Chrysotile in Corridor C101.
- .7 White paint on concrete block walls containing lead less than or equal to 0.1% (1000 ppm) is present within the study area.
- .8 Lead may also be present in the solder on the seals of bell joints of any cast iron drainpipe, in the solder of on the sweated-on joints between copper pipe and fittings and glazing on ceramic tiles.
- .2 Silica-containing materials should be handled in accordance with the measures and procedures outlined the Ontario Ministry of Labour, Immigration, Training and Skills Development Guideline, Silica on Construction Projects, April 2011, should be followed.
- .3 Prior to undertaking demolition activities that involve fluorescent lights, ensure that a licensed electrician inspects ballasts to determine whether or not any light ballasts may contain PCBs. Guidance in identification of PCB ballasts is provided in the Environment Canada publication titled "Identification of Lamp Ballasts Containing PCBs. Report EPS 2/CC/2 (revised)", August 1991.
- .4 Fluorescent light tubes and bulbs should be recycled for mercury.
- .5 All ODS-containing equipment should be removed prior to demolition in the following manner:
 - .1 Any equipment designated for disposal as scrap must be drained of its contents by a certified person and equipped with a label indicating that the equipment no longer contains any refrigerant. The specific requirements for information on the label, as specified in the regulation 2022:SOR/2022-110, must be adhered to;
 - .2 Equipment designated for relocation to another facility held by the owner must be drained and labelled as above; and
 - .3 Any equipment that is drained to facilitate relocation to another facility held by the owner must be tested for leaks prior to re-filling. The equipment must be re-filled within six months of the leak test.
- .6 Workers involved in the demolition of any mould-impacted materials encountered during any renovation or demolition activities should wear appropriate protective clothing and equipment and follow decontamination practices as outlined in the Canadian Construction Association Standard Construction Document CCA-82 2018 – Mould Guidelines for the Canadian Construction Industry, and the Mould Abatement Guidelines. Environmental Abatement Council of Canada. Edition 3. 2015.

1.6 Delivery, Storage and Handling

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Transport hazardous materials and wastes in accordance with Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.

.4 Storage and Handling Requirements:

- .1 Co-ordinate storage of hazardous materials with Owner's Representative and abide by internal requirements for labelling and storage of materials and wastes.
- .2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
- .3 Store and handle flammable and combustible materials in accordance with National Fire Code of Canada requirements.
- .4 Keep no more than 45 litres of flammable and combustible liquids such as gasoline, kerosene, and naphtha for ready use.
 - .1 Store flammable and combustible liquids in approved safety cans bearing the Underwriters' Laboratory of Canada or Factory Mutual seal of approval.
 - .2 Storage of quantities of flammable and combustible liquids exceeding 45 litres for work purposes requires the written approval of the Owner's Representative.
- .5 Transfer of flammable and combustible liquids is prohibited within buildings.
- .6 Transfer flammable and combustible liquids away from open flames or heat-producing devices.
- .7 Solvents or cleaning agents must be non-flammable or have flash point above 38 degrees C.
- .8 Store flammable and combustible waste liquids for disposal in approved containers located in safe, ventilated area. Keep quantities to minimum.
- .9 Observe smoking regulations, smoking is prohibited in areas where hazardous materials are stored, used, or handled.
- .10 Storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:
 - .1 Store hazardous materials and wastes in closed and sealed containers.
 - .2 Label containers of hazardous materials and wastes in accordance with WHMIS.
 - .3 Store hazardous materials and wastes in containers compatible with that material or waste.
 - .4 Segregate incompatible materials and wastes.
 - .5 Ensure that different hazardous materials or hazardous wastes are stored in separate containers.
 - .6 Store hazardous materials and wastes in secure storage area with controlled access.
 - .7 Maintain clear egress from storage area.
 - .8 Store hazardous materials and wastes in location that will prevent them from spilling into environment.

- .9 Have appropriate emergency spill response equipment available near storage area, including personal protective equipment.
- .10 Maintain inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.
- .11 When hazardous waste is generated on site:
 - .1 Co-ordinate transportation and disposal with the Owner's Representative.
 - .2 Comply with applicable federal, provincial, and municipal laws and regulations for generators of hazardous waste.
 - .3 Use licensed carrier authorized by provincial authorities to accept subject material.
 - .4 Before shipping material obtain written notice from intended hazardous waste treatment or disposal facility it will accept material and it is licensed to accept this material.
 - .5 Label containers with legible, visible safety marks as prescribed by federal and provincial regulations.
 - .6 Only trained personnel handle, offer for transport, or transport dangerous goods.
 - .7 Provide copy of shipping documents and waste manifests to Owner's Representative.
 - .8 Track receipt of completed manifests or Bills of Lading describing and listing waste created and final disposal locations from consignee after shipping dangerous goods, to the Owner's Representative.
 - .9 Report discharge, emission, or escape of hazardous materials immediately to the Owner's Representative and appropriate provincial authority. Take reasonable measures to control release.
- .11 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.
- .12 Report spills or accidents immediately to the Owner's Representative. Submit a written spill report to the Owner's Representative within 24 hours of incident.

Part 2 Products

2.1 Materials

- .1 Description:
 - .1 Bring on site only quantities hazardous material required to perform Work.
 - .2 Maintain SDS in proximity to where materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

Part 3 Execution

3.1 Cleaning

- .1 Progress Cleaning:
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools, and equipment.
- .3 Waste Management: separate waste materials for reuse and recycling.
 - .1 Dispose hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.
 - .2 Recycle hazardous wastes for which there is approved, cost effective recycling process available.
 - .3 Send hazardous wastes to authorized hazardous waste disposal or treatment facilities.
 - .4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.
 - .5 Disposal of hazardous materials in waterways, storm, or sanitary sewers, or in municipal solid waste landfills is prohibited.
 - .6 Dispose hazardous wastes in timely fashion in accordance with applicable provincial regulations.
 - .7 Minimize generation of hazardous waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.
 - .8 Identify and evaluate recycling and reclamation options as alternatives to land disposal, such as:
 - .1 Hazardous wastes recycled in manner constituting disposal.
 - .2 Hazardous waste burned for energy recovery.
 - .3 Lead-acid battery recycling.
 - .4 Hazardous wastes with economically recoverable precious metals.

END OF SECTION

Part 1 General

1.1 Summary

- .1 **All work shall be done in compliance with Ontario Regulation 278/05 – Regulation respecting 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.
- .2 Comply with requirements of this Section when performing the following work when wetted and using non-powered, hand-held tools only:
 - .1 Remove caulking applied to both sides of door frames in Corridor C101.Related Requirements
- .1 Section 02 80 00 – Hazardous Materials
- .2 Section 02 82 00.02 – Asbestos Abatement – Type 2 Precautions.
- .3 Section 02 82 00.03 – Asbestos Abatement – Type 3 Precautions.

1.2 References

- .1 A Guide to the Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations released in November 2007, <http://www.labour.gov.on.ca/english/hs/asbestos/index.html>.
- .2 Arcadis report titled “Designated Substances and Hazardous Materials Survey – Pre-Renovation, École élémentaire Micheline-Saint-Cyr, 85 Forty First Street, Etobicoke, Ontario”, March 10, 2026.
- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.205-2003, Sealer for Application to Asbestos-Fibre-Releasing Materials.
- .4 Canadian Standards Association (CSA International).
 - .1 CAN/CSA Z94.4.1:21, Performance of filtering respirators.
 - .2 CAN/CSA Z94.4-18(R2003), Selection, use, and care of respirators
 - .3 CAN/CSA Z317.13-22 Infection control during construction, renovation, and maintenance of health care facilities
- .5 Department of Justice Canada
 - .1 Canadian Environmental Protection Act (CEPA), 1999.
 - .2 SOR/2018-196 Prohibition of Asbestos and Products Containing Asbestos Regulations.
- .6 Environmental Abatement Council of Canada (EACC) – Lead Abatement Guideline, 2015.
- .7 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Safety Data Sheets (SDS).
- .8 Province of Ontario
 - .1 Ontario Regulation 213/91, Construction Projects.

- .2 Ontario Regulation 278/05, Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations.
- .3 Ontario Regulation 347/90, General – Waste Management.
- .4 Ontario Regulation 490/09, Designated Substances.
- .5 Ontario Regulation 632/05, Confined Spaces.
- .6 Ontario Regulation 833/90 (as amended) – “Control of Exposure to Biological or Chemical Agents” (O. Reg. 833/90).
- .7 Ontario Regulation 860/90, Workplace Hazardous Materials Information System (WHMIS).
- .8 Ontario Ministry of Labour, Immigration, Training and Skills Development publication *Guideline – Lead on Construction Projects* (Issued September 2004, Updated April 2011).
- .9 Ontario Ministry of Labour, Immigration, Training and Skills Development publication *Guideline – Silica Construction Projects* (Issued September 2004, Updated April 2011).
- .10 Ontario Occupational Health and Safety Act, R.S.O. 1990, c. O.1
- .11 Ontario Ministry of the Environment, Conservation and Parks
 - .1 Ontario Environmental Protection Act, R.S.O. 1990, c. E.19
- .9 Transport Canada (TC)
 - .1 Transportation of Dangerous Goods Act, 1992 (TDGA).
 - .2 Transportation of Dangerous Goods Regulations (T-19.01-SOR/2001-286)
- .10 Underwriters' Laboratories of Canada (ULC).
- .11 U.S. Environmental Protection Agency (EPA).
- .12 U.S. Department of Health and Human Services/Centers for Disease Control and Prevention (CDC)/National Institute for Occupational Safety and Health (NIOSH)
 - .1 NIOSH 94-113-August 1994, NIOSH Manual of Analytical Methods (NMAM), 4th Edition.

1.3 Definitions

- .1 Amended Water: water with non-ionic surfactant wetting agent added to reduce water tension to allow wetting of fibres.
- .2 Asbestos-Waste Containers: containers for dust and waste shall be dust tight, suitable for the type of waste, impervious to asbestos, identified as asbestos waste and cleaned with a damp cloth or High Efficiency Particulate Air (HEPA) filtered vacuum prior to being removed from the work areas.
 - .1 Waste shall be placed inside two separate containers.
 - .1 Inner container: 0.15 mm (6 mil) thick sealable polyethylene waste bag.
 - .2 Outer container: sealable metal or fibre type where there are sharp objects included in the waste material; otherwise, outer container may be a sealable metal or fibre type or a second 0.15 mm (6 mil) thick sealable polyethylene bag.

- .3 Labelling requirements: Affix a pre-printed cautionary asbestos warning in both official languages that is clearly visible when ready for removal to disposal site.
- .4 Asbestos Waste Containers shall be removed from work areas at regular intervals.
- .3 Asbestos-Containing Materials (ACMs): materials that contain 0.5 per cent or more asbestos by dry weight and are identified under Existing Conditions including fallen materials and settled dust.
- .4 Authorized Visitors: Engineers, Consultants or designated representatives, and representatives of regulatory agencies, third party consultant and Owner's Representatives.
- .5 Competent Person: in relation to specific work and regulatory/guideline requirements, means a worker who:
 - .1 Is qualified because of knowledge, training, and experience to perform the work.
 - .2 Is familiar with the provincial and federal laws and with the provisions of the regulations that apply to the work.
 - .3 Has knowledge of all potential or actual danger to health or safety in the work.
- .6 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.
- .7 Friable material: material that when dry can be crumbled, pulverized, or powdered by hand pressure and includes such material that is crumbled, pulverized, or powdered.
- .8 HEPA Vacuum: High Efficiency Particulate Air (HEPA) filtered vacuum equipment with a filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.
- .9 Integrity Test: testing method used to determine integrity of Negative Pressure unit/vacuum HEPA-filter leak test.
- .10 Landfill: Ministry of the Environment, Conservation and Parks (MECP) licensed landfill
- .11 Non-Friable Material: material that when dry cannot be crumbled, pulverized, or powdered by hand pressure.
- .12 Occupied Area: any area of building or work site that is outside work area.
- .13 Owner: The entity that holds legal responsibility for the project, typically the client, property owner, or organization commissioning the work. The Owner has contractual authority over the project and makes key decisions regarding scope, budget, and compliance.
- .14 Owner's Representative: A person or organization designated by the Owner to act on their behalf in overseeing the project.
- .15 Polyethylene: polyethylene sheeting or rip-proof polyethylene sheeting with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide protection and isolation.
- .16 Wetting Agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with water in concentration to provide thorough wetting of asbestos containing material.
- .17 Sealer: flame spread, and smoke developed rating less than 50.

- .18 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual asbestos fibres.
- .19 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must have appropriate capacity for scope of work.
- .20 Tape: tape suitable for sealing polyethylene to surfaces under both dry and wet conditions using amended water.
- .21 Work Area: area where work takes place which will, or may, disturb ACMs.

1.4 Action and Informational Submittals

- .1 Before beginning work:
 - .1 Submit proof satisfactory to the Owner's Representative that all asbestos workers have received appropriate training and education by a competent person on hazards of asbestos exposure, good personal hygiene, entry and exit from work area, aspects of work procedures and protective measures while working in work areas, and the use, cleaning and disposal of respirators and protective clothing. Submit copies of all training certificates indicating that:
 - .1 *every supervisor of a worker involved in a 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).*
 - .2 Ensure supervisory personnel have attended asbestos abatement course, of not less than two days duration, approved by the Owner's Representative. Submit proof of attendance in form of certificate. Minimum of one Supervisor for every ten workers. Supervisor must remain on site at all times asbestos removal or cleanup is occurring.
 - .3 Submit proof satisfactory to the Owner's Representative that employees have respirator fitting and testing in accordance with CAN/CSA Z94.4. Workers must be fit tested (irritant smoke test) with respirator that is personally issued.
 - .4 Submit provincial and/or local requirements for Notice of Project form.
 - .5 Submit Workplace Safety and Insurance Board status and transcription of insurance.
 - .6 Submit proof satisfactory to the Owner's Representative that suitable arrangements have been made to dispose of asbestos containing waste in accordance with requirements of authority having jurisdiction.
 - .7 Submit to Owner's Representative necessary permits for transportation and disposal of asbestos-containing waste and proof that asbestos-containing waste has been received and properly disposed within 24 hours of leaving Owner's property.
 - .8 Submit documentation including test results, fire and flammability data, and Safety Data Sheets (SDS) for chemicals or materials.
- .2 Submittals upon completion of work:
 - .1 Asbestos waste haulage and disposal documentations including Bills of Lading, waste transfer documents and disposal receipts within 24 hours of removal from Owner's

property.

- .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.

1.5 Quality Assurance

- .1 Regulatory Requirements: comply with federal, provincial, and local requirements pertaining to asbestos, provided that in case of conflict among these requirements or with these specifications, more stringent requirement applies. Comply with regulations in effect at time Work is performed.
- .2 Health and Safety:
 - .1 Safety Requirements: worker protection.
 - .1 Protective equipment and clothing to be worn by workers while in work area include:
 - .1 Air purifying half-mask respirator with N-100, R-100, or P-100 particulate filter, personally issued to worker and marked as to efficiency and purpose, suitable for protection against asbestos and acceptable to Provincial Authority having jurisdiction. The respirator to be fitted so that there is an effective seal between the respirator and the worker's face, unless the respirator is equipped with a hood or helmet. The respirator to be cleaned, disinfected, and inspected after use on each shift, or more often, if necessary, when issued for the exclusive use of one worker, or after each use when used by more than one worker. The respirator to have damaged or deteriorated parts replaced prior to being used by a worker; and, when not in use, to be stored in a convenient, clean and sanitary location. The employer to establish written procedures regarding the selection, use and care of respirators, and a copy of the procedures to be provided to and reviewed with each worker who is required to wear a respirator. A worker not to be assign physically able to perform the operation while using the respirator.
 - .2 Disposable-type protective clothing that does not readily retain or permit penetration of asbestos fibres. Protective clothing to be provided by the employer and worn by every worker who enters the work area, and the protective clothing shall consist of a head covering and full body covering that fits snugly at the ankles, wrists and neck, in order to prevent asbestos fibres from reaching the garments and skin under the protective clothing to include suitable footwear, and to be repaired or replaced if torn.
 - .2 Before leaving work area, the worker must decontaminate his or her protective clothing by using a vacuum equipped with a HEPA filter, or by damp wiping, before removing the protective clothing, or, if the protective clothing will not be reused, place it in a container for dust and waste. The container to be dust tight, suitable for asbestos waste, impervious to asbestos, identified as asbestos waste, cleaned with a damp cloth or a vacuum equipped with a HEPA filter immediately before removal from the work area, and removed from the work area frequently and at regular intervals.

- .3 Ensure workers wash hands and face when leaving work area. Facilities for washing are to be in close proximity to the work area.
- .4 Eating, drinking, chewing, and smoking are not permitted in work area.
- .5 Provide and post in Clean Change Room and in Equipment and Access Room the procedures described in this section, in both official languages.
- .6 Ensure that no person required to enter a work area has facial hair that affects seal between respirator and face.
- .7 Visitor Protection:
 - .1 Provide protective clothing and approved respirators to Authorized Visitors to work areas.
 - .2 Instruct Authorized Visitors in the use of protective clothing, respirators, and procedures.
 - .3 Instruct Authorized Visitors in proper procedures to be followed in entering into and exiting from work area.

1.6 Waste Management and Disposal

- .1 Separate waste materials for reuse and recycling and place in designated containers.
- .2 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, packaging material in appropriate on-site bins for recycling.
- .3 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .4 Place materials defined as hazardous or toxic in designated containers.
- .5 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, federal, provincial, and municipal regulations.
- .6 Disposal of asbestos waste generated by removal activities must comply with federal, provincial, and municipal regulations. Dispose asbestos waste in sealed double thickness 0.152 mm thick (6 mil) bags or leak proof drums. Label containers with appropriate warning labels.
- .7 Provide Bills of Lading to the Owner's Representative describing and listing waste created and final disposal location. Transport containers by approved means to licensed landfill for burial.
- .8 Submit to Owner's Representative proof that asbestos-containing waste has been received and properly disposed within 24 hours of leaving Owner's property.

1.7 Existing Conditions

- .1 Arcadis report titled "*Designated Substances and Hazardous Materials Survey – Pre-Renovation, École élémentaire Micheline-Saint-Cyr, 85 Forty First Street, Etobicoke, Ontario*", March 10, 2026, indicates the locations of hazardous materials present. Areas requiring special handling under hazardous material precautions are outlined in this Specification package. Asbestos-containing materials identified in the above-referenced report and covered in applicable sections of this specification package include:
 - .1 Thermal insulation applied to pipe fittings containing 46% Chrysotile in Room 118.
 - .2 Mastic under non asbestos vinyl floor tile containing 0.67% Chrysotile in Room 118.

- .3 Drywall with asbestos-containing joint taping compound containing 2.5% Chrysotile applied to ceiling bulkhead in Room 118.
- .4 Thermal insulation paper assumed to be present on brackets attaching radiators to walls containing 30% Chrysotile in Room 118.
- .5 Textured coating on concrete block walls containing 1.6% -3.1% Chrysotile in Corridor C101 and Room B1.
- .6 Caulking on door frames containing 0.63% Chrysotile in Corridor C101.
- .2 Notify the Owner's Representative of suspect asbestos-containing material discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by Owner's Representative.

1.8 Scheduling

- .1 Hours of Work: perform work during normal working hours (8:00 to 16:00) according to Owner's instructions. Hourly rates are to be provided should after hours work be required. Work beyond the normal working hours may be authorized if the contractor submits the request in writing.
- .2 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.

1.9 Personnel Training

- .1 Submit proof satisfactory to the Owner's Representative that all asbestos workers and/or supervisor have received appropriate training and education by a competent person in the hazards of asbestos exposure, good personal hygiene and work practices while working in work areas, and the use, cleaning and disposal of respirators and protective clothing.
- .2 Submit proof satisfactory to the Owner's Representative that employees have respirator fitting and testing. Workers must be fit tested (irritant smoke test) with respirator that is personally issued in accordance with CAN/CSA Z94.4.
- .3 Instruction and training related to respirators includes, at minimum:
 - .1 Proper fitting of equipment.
 - .2 Inspection and maintenance of equipment.
 - .3 Disinfecting of equipment.
 - .4 Limitations of equipment.
- .4 Submit proof that supervisory personnel have attended asbestos abatement course, of not less

than two days duration, approved by the Owner's Representative. Minimum of one supervisor for every ten workers.

Part 2 Products

2.1 Materials

- .1 Asbestos Waste Containers: contain waste in two separate containers.
 - .1 Inner container: 0.15 mm (6 mil) thick sealable polyethylene waste bag.
 - .2 Outer container: sealable metal or fibre type where there are sharp objects included in the waste material; otherwise, outer container may be a sealable metal or fibre type or a second 0.15 mm (6 mil) thick sealable polyethylene bag.
 - .3 Labelling requirements: Affix a pre-printed cautionary asbestos warning in both official languages that is clearly visible when ready for removal to disposal site.
- .2 Drop Sheets:
 - .1 Polyethylene: 0.15 mm thick.
 - .2 FR polyethylene: 0.15 mm thick woven fibre reinforced fabric bonded both sides with polyethylene.
- .3 Wetting Agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with water in a concentration to provide thorough wetting of asbestos-containing material.
- .4 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual asbestos fibres.
- .5 Tape: tape suitable for sealing polyethylene to surfaces under both dry and wet conditions using amended water.

Part 3 Execution

3.1 Supervision

- .1 Supervisor must meet the requirements of this specification.
- .2 Minimum of one Supervisor for every ten workers is required.
- .3 Approved Supervisor must remain within work area during disturbance, removal, or other handling of asbestos-containing materials.

3.2 Asbestos Abatement

- .1 Do not begin work until Owner's Representative has provided authorization to proceed.
- .2 Before beginning Work, isolate work area using, minimum, preprinted cautionary asbestos warning signs in sizing as per O. Reg. 278/05 in both official languages in upper case 'Helvetica Medium' letters reading as follows, where number in parentheses indicates font size to be used: 'CAUTION ASBESTOS HAZARD AREA (25 mm) / NO UNAUTHORIZED ENTRY (19 mm) / WEAR ASSIGNED PROTECTIVE EQUIPMENT (19 mm) / BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM (7 mm), that are visible at access routes to work area.
- .3 Before beginning Work remove visible dust from surfaces in work area where dust is likely to be disturbed during course of work.

- .1 Use HEPA vacuum or damp cloths where damp cleaning does not create a hazard and is otherwise appropriate.
- .2 Do not use compressed air to clean up or remove dust from any surface.
- .4 Prevent spread of dust from work area using measures appropriate to work to be done.
 - .1 Use FR polyethylene drop sheets over flooring such as carpeting that absorbs dust and over flooring in work area where dust and contamination cannot otherwise be safely contained. Drop sheets are not to be reused.
- .5 Separate the work areas using rope barriers, signage and other appropriate methods.
- .6 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.
- .7 Do not use any power tools. All work is to be completed by non-powered hand tools only.
- .8 Remove any loose materials by HEPA vacuum; thoroughly wet material containing asbestos to be removed or disturbed before and during Work unless wetting creates hazard or causes damage.
 - .1 Use garden reservoir type low - velocity sprayer or airless spray equipment capable of producing mist or fine spray.
 - .2 Perform Work in a manner to reduce dust creation to lowest levels practicable.
 - .3 Work is subject to visual inspection.
 - .4 Contamination of surrounding areas indicated by visual inspection or air monitoring will require complete enclosure and clean-up of affected areas at no cost to the Owner.

3.3 Cleanup

- .1 Frequently during Work and immediately after completion of work, clean up dust and asbestos containing waste using HEPA vacuum or by damp mopping.
- .2 Place dust and asbestos containing waste in sealed dust tight waste bags. Treat drop sheets and disposable protective clothing as asbestos waste and wet and fold to contain dust and then place in waste bags.
- .3 Immediately before their removal from work area and disposal, clean each filled waste bag using damp cloths or HEPA vacuum and place in second clean waste bag.
- .4 Seal and remove double bagged waste from site. Dispose in accordance with requirements of Provincial and Federal Authority having jurisdiction. Supervise dumping and ensure that landfill operator is fully aware of hazardous nature of material to be dumped and that guidelines and regulations for asbestos disposal are followed.
- .5 Perform final thorough clean-up of work areas and adjacent areas affected by Work using HEPA vacuum.

3.4 Inspection

- .1 Prior to the beginning of removal, Owner's Representative will perform a pre-abatement inspection on the work area. The pre-abatement inspection will be completed to ensure all equipment required to complete the measures and procedures that apply to Type 1/low-risk

activities are present. Deviation from these requirements that have not been approved in writing by the Owner's Representative and/or Owner may result in work stoppage, at no cost to the Owner.

- .2 Following completion of the work, the Owner's Representative must be contacted to complete a final visual inspection. This inspection must be organised by the contractor with a minimum of twenty-four (24) hours notice.
- .3 Owner's Representative will inspect work for:
 - .1 Adherence to specific procedures and materials requirements.
 - .2 Compliance with specification and governing authority requirements prior to contaminated work; and,
 - .3 Final cleanliness and completion. Work area will be considered clean when all visible dust and debris is removed from the substrate to which it was adhered and deemed acceptable to the Owner's Representative. No distinction will be made about the content of the dust or debris.
- .4 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

3.5 Re-Establishment of Objects and Systems

- .1 Not Applicable.

END OF SECTION

Part 1 General

1.1 Summary

- .1 **All work shall be done in compliance with Ontario Regulation 278/05 – Regulation respecting 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.
- .2 Comply with requirements of this Section when performing the following work when wetted and using power tools connected to a dust-collecting device equipped with a HEPA filter where non-powered hand tools cannot be used.
 - .1 Remove vinyl floor tile mastic below non-asbestos vinyl floor tiles in Room 118.
 - .2 Remove gypsum board with asbestos-containing joint compound applied to ceiling bulkhead in Room 118.
 - .3 Remove small quantities (<1m²) of textured plaster applied to concrete block walls in Room B1.

1.2 Related Requirements

- .1 Section 02 80 00 – Hazardous Materials
- .2 Section 02 82 00.01 – Asbestos Abatement – Type 1 Precautions.
- .3 Section 02 82 00.03 – Asbestos Abatement – Type 3 Precautions.

1.3 References

- .1 A Guide to the Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations released in November 2007, <http://www.labour.gov.on.ca/english/hs/asbestos/index.html>.
- .2 Arcadis report titled “Designated Substances and Hazardous Materials Survey – Pre-Renovation, École élémentaire Micheline-Saint-Cyr, 85 Forty First Street, Etobicoke, Ontario”, March 10, 2026.
- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.205-2003, Sealer for Application to Asbestos-Fibre-Releasing Materials.
- .4 Canadian Standards Association (CSA International).
 - .1 CAN/CSA Z94.4.1:21, Performance of filtering respirators.
 - .2 CAN/CSA Z94.4-18(R2003), Selection, use, and care of respirators
 - .3 CAN/CSA Z317.13-22 Infection control during construction, renovation, and maintenance of health care facilities
- .5 Department of Justice Canada
 - .1 Canadian Environmental Protection Act (CEPA), 1999.
 - .2 SOR/2018-196 Prohibition of Asbestos and Products Containing Asbestos Regulations.
- .6 Environmental Abatement Council of Canada (EACC) – Lead Abatement Guideline, 2015.

- .7 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Safety Data Sheets (SDS).
- .8 Province of Ontario
 - .1 Ontario Regulation 213/91, Construction Projects.
 - .2 Ontario Regulation 278/05, Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations.
 - .3 Ontario Regulation 347/90, General – Waste Management.
 - .4 Ontario Regulation 490/09, Designated Substances.
 - .5 Ontario Regulation 632/05, Confined Spaces.
 - .6 Ontario Regulation 833/90 (as amended) – “Control of Exposure to Biological or Chemical Agents” (O. Reg. 833/90).
 - .7 Ontario Regulation 860/90, Workplace Hazardous Materials Information System (WHMIS).
 - .8 Ontario Ministry of Labour, Immigration, Training and Skills Development publication *Guideline – Lead on Construction Projects* (Issued September 2004, Updated April 2011).
 - .9 Ontario Ministry of Labour, Immigration, Training and Skills Development publication *Guideline – Silica Construction Projects* (Issued September 2004, Updated April 2011).
 - .10 Ontario Occupational Health and Safety Act, R.S.O. 1990, c. O.1
 - .11 Ontario Ministry of the Environment, Conservation and Parks
 - 1. Ontario Environmental Protection Act, R.S.O. 1990, c. E.19
- .9 Transport Canada (TC)
 - .1 Transportation of Dangerous Goods Act, 1992 (TDGA).
 - .2 Transportation of Dangerous Goods Regulations (T-19.01-SOR/2001-286)
- .10 Underwriters' Laboratories of Canada (ULC).
- .11 U.S. Environmental Protection Agency (EPA).
- .12 U.S. Department of Health and Human Services/Centers for Disease Control and Prevention (CDC)/National Institute for Occupational Safety and Health (NIOSH)
 - .1 NIOSH 94-113-August 1994, NIOSH Manual of Analytical Methods (NMAM), 4th Edition.

1.4 Definitions

- .1 Airlock: system for permitting ingress or egress without permitting air movement between contaminated area and uncontaminated area, typically consisting of two curtained doorways at least 2 m apart.
- .2 Air clearance: final air monitoring undertaken at the completion of the asbestos abatement operation.
- .3 Amended Water: water with non-ionic surfactant wetting agent added to reduce water tension to allow wetting of fibres.

- .4 Asbestos-Waste Containers: containers for dust and waste shall be dust tight, suitable for the type of waste, impervious to asbestos, identified as asbestos waste and cleaned with a damp cloth or High Efficiency Particulate Air (HEPA) filtered vacuum prior to being removed from the work areas.
 - .1 Waste shall be placed inside two separate containers.
 - .1 Inner container: 0.15 mm (6 mil) thick sealable polyethylene waste bag.
 - .2 Outer container: sealable metal or fibre type where there are sharp objects included in the waste material; otherwise, outer container may be a sealable metal or fibre type or a second 0.15 mm (6 mil) thick sealable polyethylene bag.
 - .3 Labelling requirements: Affix a pre-printed cautionary asbestos warning in both official languages that is clearly visible when ready for removal to disposal site.
 - .4 Asbestos Waste Containers shall be removed from work areas at regular intervals.
- .5 Asbestos-Containing Materials (ACMs): materials that contain 0.5 per cent or more asbestos by dry weight and are identified under Existing Conditions including fallen materials and settled dust.
- .6 Authorized Visitors: Engineers, Consultants or designated representatives, and representatives of regulatory agencies, third party consultant and Owner's Representatives.
- .7 Competent Person: in relation to specific work and regulatory/guideline requirements, means a worker who:
 - .1 Is qualified because of knowledge, training, and experience to perform the work.
 - .2 Is familiar with the provincial and federal laws and with the provisions of the regulations that apply to the work.
 - .3 Has knowledge of all potential or actual danger to health or safety in the work.
- .8 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.
- .9 Curtained doorway: arrangement of closures to allow ingress and egress from one room to another while permitting minimal air movement between rooms, typically constructed as follows:
 - .1 Place two overlapping sheets of polyethylene over existing or temporarily framed doorway, secure each along top of doorway, secure vertical edge of one sheet along one vertical side of doorway, and secure vertical edge of other sheet along opposite vertical side of doorway.
 - .2 Reinforce free edges of polyethylene with duct tape and weight bottom edge to ensure proper closing.
 - .3 Overlap each polyethylene sheet at openings not less than 1.5 m on each side.

- .10 Friable material: material that when dry can be crumbled, pulverized, or powdered by hand pressure and includes such material that is crumbled, pulverized, or powdered.
- .11 Glove Bag: prefabricated glove bag as follows:
 - .1 Minimum thickness 0.25 mm (10 mil) polyvinyl-chloride bag.
 - .2 Integral 0.25 mm (10 mil) thick polyvinyl-chloride gloves and elastic ports.
 - .3 Equipped with reversible double pull double throw zipper on top and at approximately mid-section of the bag.
 - .4 Straps for sealing ends around pipe.
- .12 HEPA Vacuum: High Efficiency Particulate Air (HEPA) filtered vacuum equipment with a filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.
- .13 Integrity Test: testing method used to determine integrity of Negative Pressure unit/vacuum HEPA-filter leak test.
- .14 Landfill: Ministry of the Environment, Conservation and Parks (MECP) licensed landfill
- .15 Negative pressure: system that extracts air directly from work area, filters such extracted air through High Efficiency Particulate Air filtering system, and discharges this air directly outside work area to exterior of building.
 - .1 System to maintain minimum pressure differential of 0.05 mm (0.02 inches) WC (5 Pa) relative to adjacent areas outside of work areas, be equipped with alarm to warn of system breakdown, and be equipped with instrument to continuously monitor and automatically record pressure differences.
 - .2 Exhaust units fitted with High Efficiency Particulate Aerosol (HEPA) filters used to affect 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.
 - .3 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.
 - .4 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 is to be provided to the Owner's Representative. Retesting may be requested by the Owner's Representative and performed by the Contractor should the unit be damaged or modified during the work.

- .5 Differential Pressure Recorder/Manometer:
 - .1 Instrument to monitor and record the differential pressure between the Work Area and Clean Area.
 - .1 sensitivity: 0.05 mm (0.02 inches) WC increments between +0.25 mm to -2.5 mm (+0.010 to 0.100 inches) WC (5Pa) WC increments between +0.25 mm to -2.5 mm (+0.010 to 0.100 inches) WC (5Pa)
 - .2 accuracy: +/- 1 %
 - .3 pressure alarms: audible high- and low-level alarm programmable within operating range
 - .4 printout: minimum 24-hour period at 15 minute intervals
- .16 Non-Friable Material: material that when dry cannot be crumbled, pulverized or powdered by hand pressure.
- .17 Occupied Area: any area of building or work site that is outside work area.
- .18 Owner: The entity that holds legal responsibility for the project, typically the client, property owner, or organization commissioning the work. The Owner has contractual authority over the project and makes key decisions regarding scope, budget, and compliance.
- .19 Owner's Representative: A person or organization designated by the Owner to act on their behalf in overseeing the project.
- .20 Polyethylene: polyethylene sheeting or rip-proof polyethylene sheeting with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide protection and isolation.
- .21 Wetting Agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with water in concentration to provide thorough wetting of asbestos containing material.
- .22 Sealer: flame spread, and smoke developed rating less than 50.
- .23 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual asbestos fibres.
- .24 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must have appropriate capacity for scope of work.
- .25 Tape: tape suitable for sealing polyethylene to surfaces under both dry and wet conditions using amended water.
- .26 Work Area: area where work takes place which will, or may, disturb ACMs.

1.5 Action and Informational Submittals

- .1 Before beginning work:
 - .1 Submit proof satisfactory to the Owner's Representative that all asbestos workers have received appropriate training and education by a competent person on hazards of asbestos exposure, good personal hygiene, entry and exit from work area, aspects of work procedures and protective measures while working in work areas, and the use, cleaning and disposal of respirators and protective clothing. Submit copies of all training

certificates indicating that:

- .1 *every supervisor of a worker involved in a 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).*
 - .2 Ensure supervisory personnel have attended asbestos abatement course, of not less than two days duration, approved by the Owner's Representative. Submit proof of attendance in form of certificate. Minimum of one Supervisor for every ten workers. Supervisor must remain on site at all times asbestos removal or cleanup is occurring.
 - .3 Submit proof satisfactory to the Owner's Representative that employees have respirator fitting and testing in accordance with CAN/CSA Z94.4. Workers must be fit tested (irritant smoke test) with respirator that is personally issued.
 - .4 Submit provincial and/or local requirements for Notice of Project form.
 - .5 Submit Workplace Safety and Insurance Board status and transcription of insurance.
 - .6 Submit proof satisfactory to the Owner's Representative that suitable arrangements have been made to dispose of asbestos containing waste in accordance with requirements of authority having jurisdiction.
 - .7 Submit to Owner's Representative necessary permits for transportation and disposal of asbestos-containing waste and proof that asbestos-containing waste has been received and properly disposed within 24 hours of leaving Owner's property.
 - .8 Submit layout of proposed enclosures and decontamination facilities to the Owner's Representative for review.
 - .9 Proposed work area emergency exit procedures.
 - .10 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.
 - .11 Submit proof that each negative pressure filter/fan unit has been integrity tested at the work site (and passed the test criteria) in accordance with CAN/CSA Z317.13, prior to commencement of asbestos removal operation.
 - .12 Submit documentation including test results, fire and flammability data, and Safety Data Sheets (SDS) for chemicals or materials.
- .2 Submittals upon completion of work:
- .1 Asbestos waste haulage and disposal documentations including Bills of Lading, waste transfer documents and disposal receipts within 24 hours of removal from Owner's property.
 - .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.

1.6 Quality Assurance

- .1 Regulatory Requirements: comply with federal, provincial, and local requirements pertaining to asbestos, provided that in case of conflict among these requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at the time work is performed.
- .2 Health and Safety:
 1. Safety Requirements: worker and visitor protection.
 - .1 Protective equipment and clothing to be worn by workers while in work area include:
 - .1 Air purifying half-mask respirator with N-100, R-100, or P-100 particulate filter, personally issued to worker and marked as to efficiency and purpose, suitable for protection against asbestos and acceptable to Provincial Authority having jurisdiction. The respirator to be fitted so that there is an effective seal between the respirator and the worker's face, unless the respirator is equipped with a hood or helmet. The respirator to be cleaned, disinfected, and inspected after use on each shift, or more often, if necessary, when issued for the exclusive use of one worker, or after each use when used by more than one worker. The respirator to have damaged or deteriorated parts replaced prior to being used by a worker; and, when not in use, to be stored in a convenient, clean and sanitary location. The employer to establish written procedures regarding the selection, use and care of respirators, and a copy of the procedures to be provided to and reviewed with each worker who is required to wear a respirator. A worker not to be assign physically able to perform the operation while using the respirator.
 - .2 Disposable-type protective clothing that does not readily retain or permit penetration of asbestos fibres. Protective clothing to be provided by the employer and worn by every worker who enters the work area, and the protective clothing shall consist of a head covering and full body covering that fits snugly at the ankles, wrists and neck, in order to prevent asbestos fibres from reaching the garments and skin under the protective clothing to include suitable footwear, and to be repaired or replaced if torn.
 2. Before leaving work area, the worker must decontaminate his or her protective clothing by using a vacuum equipped with a HEPA filter, or by damp wiping, before removing the protective clothing, or, if the protective clothing will not be reused, place it in a container for dust and waste. The container to be dust tight, suitable for asbestos waste, impervious to asbestos, identified as asbestos waste, cleaned with a damp cloth or a vacuum equipped with a HEPA filter immediately before removal from the work area, and removed from the work area frequently and at regular intervals.
 3. Ensure workers wash hands and face when leaving work area. Facilities for washing are to be in close proximity to the work rea.
 4. Eating, drinking, chewing, and smoking are not permitted in work area.

5. Provide and post in Clean Change Room and in Equipment and Access Room the procedures described in this section, in both official languages.
6. Ensure that no person required to enter a work area has facial hair that affects seal between respirator and face.
7. Visitor Protection:
 - .1 Provide protective clothing and approved respirators to Authorized Visitors to work areas.
 - .2 Instruct Authorized Visitors in the use of protective clothing, respirators, and procedures.
 - .3 Instruct Authorized Visitors in proper procedures to be followed in entering into and exiting from work area.

1.7 Waste Management and Disposal

- .1 Separate waste materials for reuse and recycling and place in designated containers.
- .2 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, packaging material in appropriate on-site bins for recycling.
- .3 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .4 Place materials defined as hazardous or toxic in designated containers.
- .5 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, federal, provincial and municipal regulations.
- .6 Disposal of asbestos waste generated by removal activities must comply with federal, provincial, and municipal regulations. Dispose asbestos waste in sealed double thickness 0.152 mm thick (6 mil) bags or leak proof drums. Label containers with appropriate warning labels.
- .7 Provide Bills of Lading to the Owner's Representative describing and listing waste created and final disposal location. Transport containers by approved means to licensed landfill for burial.
- .8 Submit to Owner's Representative proof that asbestos-containing waste has been received and properly disposed within 24 hours of leaving Owner's property.

1.8 Existing Conditions

- .1 Arcadis report titled "*Designated Substances and Hazardous Materials Survey – Pre-Renovation, École élémentaire Micheline-Saint-Cyr, 85 Forty First Street, Etobicoke, Ontario*", March 10, 2026, indicates the locations of hazardous materials present. Areas requiring special handling under hazardous material precautions are outlined in this Specification package. Asbestos-containing materials identified in the above-referenced report and covered in applicable sections of this specification package include:
 - .1 Thermal insulation applied to pipe fittings containing 46% Chrysotile in Room 118.
 - .2 Mastic under non asbestos vinyl floor tile containing 0.67% Chrysotile in Room 118.

- .3 Drywall with asbestos-containing joint taping compound containing 2.5% Chrysotile applied to ceiling bulkhead in Room 118.
- .4 Thermal insulation paper assumed to be present on brackets attaching radiators to walls containing 30% Chrysotile in Room 118.
- .5 Textured coating on concrete block walls containing 1.6% -3.1% Chrysotile in Corridor C101 and Room B1.
- .6 Caulking on door frames containing 0.63% Chrysotile in Corridor C101.
- .2 Notify the Owner's Representative of suspect asbestos-containing material discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by Owner's Representative.

1.9 Scheduling

- .1 Hours of Work: perform work during normal working hours (8:00 to 16:00) according to Owner's instructions. Hourly rates are to be provided should after hours work be required. Work beyond the normal working hours may be authorized if the contractor submits the request in writing.
- .2 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.

1.10 Personnel Training

- .1 Submit proof satisfactory to the Owner's Representative that all asbestos workers and/or supervisor have received appropriate training and education by a competent person in the hazards of asbestos exposure, good personal hygiene and work practices while working in work areas, and the use, cleaning and disposal of respirators and protective clothing.
- .2 Submit proof satisfactory to the Owner's Representative that employees have respirator fitting and testing. Workers must be fit tested (irritant smoke test) with respirator that is personally issued in accordance with CAN/CSA Z94.4.
- .3 Instruction and training related to respirators includes, at minimum:
 - .1 Proper fitting of equipment.
 - .2 Inspection and maintenance of equipment.
 - .3 Disinfecting of equipment.
 - .4 Limitations of equipment.

- .4 Submit proof that supervisory personnel have attended asbestos abatement course, of not less than two days duration, approved by the Owner's Representative. Minimum of one supervisor for every ten workers.

Part 2 Products

2.1 Materials

- .1 Asbestos Waste Containers: contain waste in two separate containers.
 - .1 Inner container: 0.15 mm thick sealable polyethylene bag (or where glove bag method is used, glove bag itself).
 - .2 Outer container: sealable metal or fibre type where there are sharp objects included in waste material; otherwise, outer container may be sealable metal or fibre type or second 0.15 mm thick sealable polyethylene bag.
 - .3 Labelling requirements: affix preprinted cautionary asbestos warning, in both official languages, that is visible when ready for removal to disposal site.
- .2 Drop and Enclosure Sheets:
 - .1 Polyethylene: 0.15 mm thick.
 - .2 FR polyethylene: 0.15 mm thick woven fibre reinforced fabric bonded both sides with polyethylene.
- .3 Glove bag:
 - .1 Acceptable materials: safe-T-Strip products or suitable alternative, in configuration suitable for Work, or Alternative material approved by addendum during tendering period in accordance with Instructions to Tenderers.
 - .2 The glove bag to be equipped with:
 1. Sleeves and gloves that are permanently sealed to the body of the bag to allow the worker to access and deal with the insulation and maintain a sealed enclosure throughout the work period.
 2. Valves or openings 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.
 3. A tool pouch with a drain.
 4. A seamless bottom and a means of sealing off the lower portion of the bag.
 5. A high strength double throw zipper and removable straps, if the bag is to be moved during the removal operation.
- .4 Wetting Agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with water in concentration to provide thorough wetting of asbestos containing material.
- .5 Sealer: flame spread, and smoke developed rating less than 50.
- .6 Sealant: Slow - drying sealant non-staining, clear, water – dispersible type) that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual asbestos fibres.
- .7 Tape: tape suitable for sealing polyethylene to surfaces under both dry and wet conditions using

amended water.

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 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 Owner's Representative.
 - .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 Owner's Representative prior to installation of the Panel on site.
- .6 Negative Pressure Units:
 - .1 Exhaust units fitted with High Efficiency Particulate Aerosol (HEPA) filters used to affect 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 **If installed, 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.

Part 3 Execution

3.1 Supervision

- .1 Supervisor must meet the requirements of this specification.
- .2 Minimum of one Supervisor for every ten workers is required.
- .3 Approved Supervisor must remain within work area during disturbance, removal, or other handling of asbestos-containing materials.

3.2 Asbestos Abatement

- .1 Do not begin work until Owner's Representative has provided authorization to proceed.
- .2 Before beginning Work, at each access to work area, install warning signs in both official languages in upper case 'Helvetica Medium' letters reading as follows, where number in parentheses indicates font size to be used: 'CAUTION ASBESTOS HAZARD AREA (25 mm) / NO UNAUTHORIZED ENTRY (19 mm) / WEAR ASSIGNED PROTECTIVE EQUIPMENT (19 mm) / BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM (7 mm).
- .3 Before beginning Work remove visible dust from surfaces in work area where dust is likely to be disturbed during course of work.
 - .1 Use HEPA vacuum or damp cloths where damp cleaning does not create hazard and is otherwise appropriate.
 - .2 Do not use compressed air to clean up or remove dust from any surface.
- .4 Prevent spread of dust from work area using measures appropriate to work to be done.
 - .1 Use FR polyethylene drop sheets over flooring such as carpeting that absorbs dust and over flooring in work areas where dust or contamination cannot otherwise be safely contained.
 - .2 When removing suspended ceilings and walls themselves do not enclose work area and when removing asbestos containing material from piping or equipment and "glove bag" method is not used, erect enclosure of polyethylene sheeting around work area, shut off mechanical ventilation system serving work area and seal ventilation ducts to and from work area.
- .5 Separate the work areas using rope barriers, signage and other appropriate methods.
- .6 Construct a two-chamber decontamination facility/frame for the enclosure from 50 mm x 100 mm (2" x 4") studs or other suitable material.

- .7 Cover all sides of the enclosure with clear 0.15 mm opaque polyethylene sheeting sealed with duct tape. Curtains of polyethylene sheeting must be fitted on each side of the entrance of the enclosure (curtain flaps may require weights at the bottom to ensure proper closing).
- .8 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.
- .9 Only power tools connected to a dust-collecting device equipped with a HEPA filter are permitted to be used.
- .10 Remove any loose materials by HEPA vacuum; thoroughly wet material containing asbestos to be removed or disturbed before and during Work unless wetting creates hazard or causes damage.
 - .1 Use garden reservoir type low - velocity sprayer or airless spray equipment capable of producing mist or fine spray.
 - .2 Perform Work in a manner to reduce dust creation to lowest levels practicable.
 - .3 Work is subject to visual inspection.
 - .4 Contamination of surrounding areas indicated by visual inspection or air monitoring will require complete enclosure and clean-up of affected areas at no cost to the Owner.

3.3 Cleanup

- .1 Frequently during Work and immediately after completion of work, clean up dust and asbestos containing waste using HEPA vacuum or by damp mopping.
- .2 Place dust and asbestos containing waste in sealed dust tight waste bags. Treat drop sheets and disposable protective clothing as asbestos waste and wet and fold to contain dust and then place in waste bags.
- .3 Immediately before their removal from work area and disposal, clean each filled waste bag using damp cloths or HEPA vacuum and place in second clean waste bag.
- .4 Seal and remove double bagged waste from site. Dispose in accordance with requirements of Provincial and Federal Authority having jurisdiction. Supervise dumping and ensure that landfill operator is fully aware of hazardous nature of material to be dumped and that guidelines and regulations for asbestos disposal are followed.
- .5 Perform final thorough clean-up of work areas and adjacent areas affected by Work using HEPA vacuum.

3.4 Inspection

- .1 Prior to the beginning of removal, Owner's Representative will perform a pre-abatement inspection on the work area. The pre-abatement inspection will be completed to ensure all equipment required to complete the measures and procedures that apply to Type 2/moderate-risk activities are present. Deviation from these requirements that have not been approved in writing by the Owner's Representative and/or Owner may result in work stoppage, at no cost to the Owner.
- .2 Following completion of the work, the Owner's Representative must be contacted to complete a final visual inspection. This inspection must be organised by the contractor with a minimum of twenty-four (24) hours notice.
- .3 Owner's Representative will inspect work for:
 - .1 Adherence to specific procedures and materials requirements.

- .2 Compliance with specification and governing authority requirements prior to contaminated work; and,
- .3 Final cleanliness and completion. Work area will be considered clean when all visible dust and debris is removed from the substrate to which it was adhered and deemed acceptable to the Owner's Representative. No distinction will be made about the content of the dust or debris.
- .4 When asbestos leakage from work area has occurred or is likely to occur the Owner's Representative may order Work shutdown.
- .5 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

3.4 Air Monitoring

- .1 Not Applicable.

3.5 Clearance Air Sampling

- .1 Not Applicable.

3.4 Final Cleanup

- .1 Not Applicable.

3.5 Re-Establishment of Objects and Systems

- .1 Not Applicable.

END OF SECTION

Part 1 General

1.1 Summary

- .1 **All work shall be done in compliance with Ontario Regulation 278/05 – Regulation respecting 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.
- .2 Comply with requirements of this Section when performing the following work:
 - .1 Removing large quantities (>1m²) of textured finish applied to concrete block walls in Room B1.

1.2 Related Requirements

- .1 Section 02 80 00 – Hazardous Materials
- .2 Section 02 82 00.01 – Asbestos Abatement – Type 1 Precautions.
- .3 Section 02 82 00.02 – Asbestos Abatement - Type 2 Precautions

1.3 References

- .1 A Guide to the Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations released in November 2007, <http://www.labour.gov.on.ca/english/hs/asbestos/index.html>.
- .1 Arcadis report titled “Designated Substances and Hazardous Materials Survey – Pre-Renovation, École élémentaire Micheline-Saint-Cyr, 85 Forty First Street, Etobicoke, Ontario”, March 10, 2026.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.205-2003, Sealer for Application to Asbestos-Fibre-Releasing Materials.
- .3 Canadian Standards Association (CSA International).
 - .1 CAN/CSA Z94.4.1:21, Performance of filtering respirators.
 - .2 CAN/CSA Z94.4-18(R2003), Selection, use, and care of respirators
 - .3 CAN/CSA Z317.13-22 Infection control during construction, renovation, and maintenance of health care facilities
- .4 Department of Justice Canada
 - .1 Canadian Environmental Protection Act (CEPA), 1999.
 - .2 SOR/2018-196 Prohibition of Asbestos and Products Containing Asbestos Regulations.
- .5 Environmental Abatement Council of Canada (EACC) – Lead Abatement Guideline, 2015.
- .6 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Safety Data Sheets (SDS).
- .7 Province of Ontario
 - .1 Ontario Regulation 213/91, Construction Projects.

- .2 Ontario Regulation 278/05, Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations.
- .3 Ontario Regulation 347/90, General – Waste Management.
- .4 Ontario Regulation 490/09, Designated Substances.
- .5 Ontario Regulation 632/05, Confined Spaces.
- .6 Ontario Regulation 833/90 (as amended) – “Control of Exposure to Biological or Chemical Agents” (O. Reg. 833/90).
- .7 Ontario Regulation 860/90, Workplace Hazardous Materials Information System (WHMIS).
- .8 Ontario Ministry of Labour, Immigration, Training and Skills Development publication *Guideline – Lead on Construction Projects* (Issued September 2004, Updated April 2011).
- .9 Ontario Ministry of Labour, Immigration, Training and Skills Development publication *Guideline – Silica Construction Projects* (Issued September 2004, Updated April 2011).
- .10 Ontario Occupational Health and Safety Act, R.S.O. 1990, c. O.1
- .11 Ontario Ministry of the Environment, Conservation and Parks
 - 1. Ontario Environmental Protection Act, R.S.O. 1990, c. E.19
- .8 Transport Canada (TC)
 - .1 Transportation of Dangerous Goods Act, 1992 (TDGA).
 - .2 Transportation of Dangerous Goods Regulations (T-19.01-SOR/2001-286)
- .9 Underwriters' Laboratories of Canada (ULC).
- .10 U.S. Environmental Protection Agency (EPA).
- .11 U.S. Department of Health and Human Services/Centers for Disease Control and Prevention (CDC)/National Institute for Occupational Safety and Health (NIOSH)
 - .1 NIOSH 94-113-August 1994, NIOSH Manual of Analytical Methods (NMAM), 4th Edition.

1.4 Definitions

- .1 Airlock: system for permitting ingress or egress without permitting air movement between contaminated area and uncontaminated area, typically consisting of two curtained doorways at least 2 m apart.
- .2 Air clearance: final air monitoring undertaken at the completion of the asbestos abatement operation.
- .3 Amended Water: water with non-ionic surfactant wetting agent added to reduce water tension to allow wetting of fibres.
- .4 Asbestos-Waste Containers: containers for dust and waste shall be dust tight, suitable for the type of waste, impervious to asbestos, identified as asbestos waste and cleaned with a damp cloth or High Efficiency Particulate Air (HEPA) filtered vacuum prior to being removed from the work areas.

- .1 Waste shall be placed inside two separate containers.
 - .1 Inner container: 0.15 mm (6 mil) thick sealable polyethylene waste bag.
 - .2 Outer container: sealable metal or fibre type where there are sharp objects included in the waste material; otherwise, outer container may be a sealable metal or fibre type or a second 0.15 mm (6 mil) thick sealable polyethylene bag.
 - .3 Labelling requirements: Affix a pre-printed cautionary asbestos warning in both official languages that is clearly visible when ready for removal to disposal site.
 - .4 Asbestos Waste Containers shall be removed from work areas at regular intervals.
- .5 Asbestos Containing Materials (ACMs): materials that contain 0.5 per cent or more asbestos by dry weight and are identified under Existing Conditions including fallen materials and settled dust.
- .6 Authorized Visitors: Engineers, Consultants or designated representatives, and representatives of regulatory agencies, third party consultant and Owner's Representatives.
- .7 Competent Person: in relation to specific work and regulatory/guideline requirements, means a worker who:
 - .1 Is qualified because of knowledge, training, and experience to perform the work.
 - .2 Is familiar with the provincial and federal laws and with the provisions of the regulations that apply to the work.
 - .3 Has knowledge of all potential or actual danger to health or safety in the work.
- .8 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.
- .9 Curtained doorway: arrangement of closures to allow ingress and egress from one room to another while permitting minimal air movement between rooms, typically constructed as follows:
 - .1 Place two overlapping sheets of polyethylene over existing or temporarily framed doorway, secure each along top of doorway, secure vertical edge of one sheet along one vertical side of doorway, and secure vertical edge of other sheet along opposite vertical side of doorway.
 - .2 Reinforce free edges of polyethylene with duct tape and weight bottom edge to ensure proper closing.
 - .3 Overlap each polyethylene sheet at openings not less than 1.5 m on each side.
- .10 Friable Materials: material that when dry can be crumbled, pulverized, or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.
- .11 Glove Bag: prefabricated glove bag as follows:
 - .1 Minimum thickness 0.25 mm (10 mil) polyvinyl-chloride bag.
 - .2 Integral 0.25 mm (10 mil) thick polyvinyl-chloride gloves and elastic ports.

- .3 Equipped with reversible double pull double throw zipper on top and at approximately mid-section of the bag.
- .4 Straps for sealing ends around pipe. .12 High Efficiency Particulate Air (HEPA) filtered vacuum equipment with a filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.
- .12 HEPA Vacuum: High Efficiency Particulate Air (HEPA) filtered vacuum equipment with a filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.
- .13 Integrity Test: testing method used to determine integrity of Negative Pressure unit/vacuum HEPA-filter leak test.
- .14 Landfill: Ministry of the Environment, Conservation and Parks (MECP) licensed landfill
- .15 Negative pressure: system that extracts air directly from work area, filters such extracted air through High Efficiency Particulate Air filtering system, and discharges this air directly outside work area to exterior of building.
 - .1 System to maintain minimum pressure differential of 0.05 mm (0.02 inches) WC (5 Pa) relative to adjacent areas outside of work areas, be equipped with alarm to warn of system breakdown, and be equipped with instrument to continuously monitor and automatically record pressure differences.
 - .2 Exhaust units fitted with High Efficiency Particulate Aerosol (HEPA) filters used to affect 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.
 - .3 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.
 - .4 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 is to be provided to the Owner's Representative. Retesting may be requested by the Owner's Representative and performed by the Contractor should the unit be damaged or modified during the work.
 - .5 Differential Pressure Recorder/Manometer:
 - .1 Instrument to monitor and record the differential pressure between the Work Area and Clean Area.
 - .1 sensitivity:0.05 mm (0.02 inches) WC increments between +0.25 mm to -2.5 mm (+0.010 to 0.100 inches) WC (5Pa) WC increments between +0.25 mm to -2.5 mm (+0.010 to 0.100 inches) WC (5Pa)

- .2 accuracy: +/- 1 %
- .3 pressure alarms: audible high- and low-level alarm programmable within operating range
- .4 printout: minimum 24-hour period at 15 minute intervals
- .16 Non-Friable Material: material that when dry cannot be crumbled, pulverized or powdered by hand pressure.
- .17 Occupied Area: any area of building or work site that is outside work area.
- .18 Owner: The entity that holds legal responsibility for the project, typically the client, property owner, or organization commissioning the work. The Owner has contractual authority over the project and makes key decisions regarding scope, budget, and compliance.
- .19 Owner's Representative: A person or organization designated by the Owner to act on their behalf in overseeing the project.
- .20 Polyethylene: polyethylene sheeting or rip-proof polyethylene sheeting with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide protection and isolation.
- .21 Wetting Agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with water in concentration to provide thorough wetting of asbestos containing material.
- .22 Sealer: flame spread, and smoke developed rating less than 50.
- .23 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual asbestos fibres.
- .24 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must have appropriate capacity for scope of work.
- .25 Tape: tape suitable for sealing polyethylene to surfaces under both dry and wet conditions using amended water.
- .26 Work Area: area where work takes place which will, or may, disturb ACMs.

1.5 Action and Informational Submittals

- .1 Before beginning work:
 - .1 Submit proof satisfactory to the Owner's Representative that all asbestos workers have received appropriate training and education by a competent person on hazards of asbestos exposure, good personal hygiene, entry and exit from work area, aspects of work procedures and protective measures while working in work areas, and the use, cleaning and disposal of respirators and protective clothing. Submit copies of all training certificates indicating that:
 - .1 *every supervisor of a worker involved in a 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).*
 - .2 Ensure supervisory personnel have attended asbestos abatement course, of not less than two days duration, approved by the Owner's Representative. Submit proof of attendance in form of certificate. Minimum of one Supervisor for every ten workers.

- Supervisor must remain on site at all times asbestos removal or cleanup is occurring.
- .3 Submit proof satisfactory to the Owner's Representative that employees have respirator fitting and testing in accordance with CAN/CSA Z94.4. Workers must be fit tested (irritant smoke test) with respirator that is personally issued.
 - .4 Submit provincial and/or local requirements for Notice of Project form.
 - .5 Submit Workplace Safety and Insurance Board status and transcription of insurance.
 - .6 Submit proof satisfactory to the Owner's Representative that suitable arrangements have been made to dispose of asbestos containing waste in accordance with requirements of authority having jurisdiction.
 - .7 Submit to Owner's Representative necessary permits for transportation and disposal of asbestos-containing waste and proof that asbestos-containing waste has been received and properly disposed within 24 hours of leaving Owner's property.
 - .8 Submit layout of proposed enclosures and decontamination facilities to the Owner's Representative for review.
 - .9 Proposed work area emergency exit procedures.
 - .10 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.
 - .11 Submit proof that each negative pressure filter/fan unit has been integrity tested at the work site (and passed the test criteria) in accordance with CAN/CSA Z317.13, prior to commencement of asbestos removal operation.
 - .12 Submit documentation including test results, fire and flammability data, and Safety Data Sheets (SDS) for chemicals or materials.
- .2 Submittals upon completion of work:
- .1 Asbestos waste haulage and disposal documentations including Bills of Lading, waste transfer documents and disposal receipts within 24 hours of removal from Owner's property.
 - .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.

1.6 Quality Assurance

- .1 Regulatory Requirements: comply with federal, provincial and local requirements pertaining to asbestos, provided that in case of conflict among those requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at time work is performed.
- .2 Health and Safety:
 - 1. Safety Requirements: worker and visitor protection.
 - .1 Protective equipment and clothing to be worn by workers while in work area include:

- .1 Air purifying full-mask respirator with N-100, R-100, or P-100 particulate filter, personally issued to worker and marked as to efficiency and purpose, suitable for protection against asbestos and acceptable to Provincial Authority having jurisdiction. The respirator to be fitted so that there is an effective seal between the respirator and the worker's face, unless the respirator is equipped with a hood or helmet. The respirator to be cleaned, disinfected, and inspected after use on each shift, or more often, if necessary, when issued for the exclusive use of one worker, or after each use when used by more than one worker. The respirator to have damaged or deteriorated parts replaced prior to being used by a worker; and, when not in use, to be stored in a convenient, clean and sanitary location. The employer to establish written procedures regarding the selection, use and care of respirators, and a copy of the procedures to be provided to and reviewed with each worker who is required to wear a respirator. A worker not to be assign physically able to perform the operation while using the respirator.
- .2 Disposable type protective clothing that does not readily retain or permit penetration of asbestos fibres. Protective clothing to be provided by the employer and worn by every worker who enters the work area, and the protective clothing to consist of a head covering and full body covering that fits snugly at the ankles, wrists and neck, in order to prevent asbestos fibres from reaching the garments and skin under the protective clothing. It includes suitable footwear, and it to be repaired or replaced if torn.
Requirements for each worker:
 - .1 Remove street clothes in clean change room and put on respirator with new filters or reusable filters that have been tested as satisfactory, clean coveralls and head covers before entering Equipment and Access Rooms or work area. Store street clothes, uncontaminated footwear, towels, and similar uncontaminated articles in clean change room.
 - .2 Remove gross contamination from clothing before leaving work area then proceed to Equipment and Access Room and remove clothing except respirators. Place contaminated work suits in receptacles for disposal with other asbestos - contaminated materials. Leave reusable items except respirator in Equipment and Access Room. Still wearing the respirator, proceed naked to showers. Using soap and water, wash body and hair thoroughly. Clean outside of respirator with soap and water while showering; remove respirator; remove filters and wet them and dispose of filters in container provided for purpose; and wash and rinse inside of respirator. When not in use in work area, store work footwear in Equipment and Access Room. Upon completion of asbestos abatement, dispose of footwear as contaminated waste or clean thoroughly inside and out using soap and water before removing from work area or from Equipment and Access Room.

1.8 Existing Conditions

- .1 Arcadis report titled “*Designated Substances and Hazardous Materials Survey – Pre-Renovation, École élémentaire Micheline-Saint-Cyr, 85 Forty First Street, Etobicoke, Ontario*”, March 10, 2026, indicates the locations of hazardous materials present. Areas requiring special handling under hazardous material precautions are outlined in this Specification package. Asbestos-containing materials identified in the above-referenced report and covered in applicable sections of this specification package include:
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 - .3 Drywall with asbestos-containing joint taping compound containing 2.5% Chrysotile applied to ceiling bulkhead in Room 118.
 - .4 Thermal insulation paper assumed to be present on brackets attaching radiators to walls containing 30% Chrysotile in Room 118.
 - .5 Textured coating on concrete block walls containing 1.6% -3.1% Chrysotile in Corridor C101 and Room B1.
 - .6 Caulking on door frames containing 0.63% Chrysotile in Corridor C101.
- .2 Notify the Owner’s Representative of suspect asbestos-containing material discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by Owner’s Representative.

1.9 Scheduling

- .1 Hours of Work: perform work during normal working hours (8:00 to 16:00) according to Owner’s instructions. Hourly rates are to be provided should after hours work be required. Work beyond the normal working hours may be authorized if the contractor submits the request in writing.
- .2 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.

1.10 Personnel Training

- .1 Submit proof satisfactory to the Owner’s Representative that all asbestos workers and/or supervisor have received appropriate training and education by a competent person in the hazards of asbestos exposure, good personal hygiene and work practices while working in work areas, and the use, cleaning and disposal of respirators and protective clothing. Training requires:
 - .1 *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

- .2 *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).*
- .2 Submit proof satisfactory to the Owner's Representative that employees have respirator fitting and testing. Workers must be fit tested (irritant smoke test) with respirator that is personally issued in accordance with CAN/CSA Z94.4.
- .3 Instruction and training related to respirators includes, at minimum:
 - .1 Proper fitting of equipment.
 - .2 Inspection and maintenance of equipment.
 - .3 Disinfecting of equipment.
 - .4 Limitations of equipment.
- .4 Submit proof that supervisory personnel have attended asbestos abatement course, of not less than two days duration, approved by the Owner's Representative. Minimum of one supervisor for every ten workers.

Part 2 Products

2.1 Materials

- .1 Asbestos Waste Containers: contain waste in two separate containers.
 - .1 Inner container: 0.15 mm thick sealable polyethylene bag (or where glove bag method is used, glove bag itself).
 - .2 Outer container: sealable metal or fibre type where there are sharp objects included in waste material; otherwise, outer container may be sealable metal or fibre type or second 0.15 mm thick sealable polyethylene bag.
 - .3 Labelling requirements: affix preprinted cautionary asbestos warning, in both official languages, that is visible when ready for removal to disposal site.
- .2 Drop and Enclosure Sheets:
 - .1 Polyethylene: 0.15 mm thick.
 - .2 FR polyethylene: 0.15 mm thick woven fibre reinforced fabric bonded both sides with polyethylene.
- .3 Glove bag:
 - .1 Acceptable materials: safe-T-Strip products or suitable alternative, in configuration suitable for Work, or Alternative material approved by addendum during tendering period in accordance with Instructions to Tenderers.
 - .2 The glove bag to be equipped with:
 - 1. Sleeves and gloves that are permanently sealed to the body of the bag to allow the worker to access and deal with the insulation and maintain a sealed

enclosure throughout the work period.

2. Valves or openings 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.
 3. A tool pouch with a drain.
 4. A seamless bottom and a means of sealing off the lower portion of the bag.
 5. A high strength double throw zipper and removable straps, if the bag is to be moved during the removal operation.
- .4 Wetting Agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with water in concentration to provide thorough wetting of asbestos containing material.
 - .5 Sealer: flame spread, and smoke developed rating less than 50.
 - .6 Sealant: Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual asbestos fibres.
 - .7 Tape: tape suitable for sealing polyethylene to surfaces under both dry and wet conditions using amended water.

2.2 Equipment

- .1 All equipment brought on site must be thoroughly clean and free of all fibre, asbestos. The Contractor will be fully responsible for the replacement of equipment rejected by the Owner's Representative and for all costs resulting from site contamination due to dirty or faulty
 - .1 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.
 - .2 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.**
 - .3 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.
 - .4 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 Owner's Representative.
- .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 Owner's Representative prior to installation of the Panel on site.
- .5 Negative Pressure Units:
 - .1 Exhaust units fitted with High Efficiency Particulate Aerosol (HEPA) filters used to affect 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 **If installed, 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.

Part 3 Execution

3.1 Supervision

- .1 Supervisor must meet the requirements of this specification.
- .2 Minimum of one Supervisor for every ten workers is required.
- .3 Approved Supervisor must remain within work area during disturbance, removal, or other handling of asbestos containing materials.

3.2 Preparation

- .1 Work Areas:
 - .1 Plumbing and drainage
 - .1 Provide a constant supply of water by means of copper or PVC pipe, fittings and valves to the worker area, equipment decontamination room and the shower facility. High pressure hose with appropriate connections may be used with the approval of the Owner's Representative. A master shut-off valve shall be installed adjacent to, and on the clean side, of the decontamination facility. Any

hose and hose connections must have a high-pressure rating and be limited to downstream of the master shut-off valve and are not to be left under pressure unattended.

- .2 Water will be made available to the Contractor within the building, location to be determined during the prior to project commencement. The Contractor is responsible for all tie-ins to existing systems, providing hot water including supply and installation of a temporary hot water tank, as necessary, and making good on completion.
- .3 The effluent from the shower may be disposed of, through a filter, to the sanitary sewer, location to be determined prior to project commencement. Only shower water may be disposed in this fashion, no asbestos-containing debris, cleaning solutions, encapsulants, sealants, body wastes, etc., may be disposed in the shower. The Contractor is responsible for all tie-ins to the existing systems and making good on completion. Free flowing shower effluent on to the floor or ground is not acceptable.
- .4 All Work shall be carried out in accordance with the Ontario Plumbing Code.

.2 Electrical

- .1 The Contractor shall become completely familiar with the existing electrical installation prior to project commencement.
- .2 The Contractor is responsible to provide and install all electrical requirements for the project including but not limited to:
 - .1 De-energize and lockout all electrical circuits in the work area wherever practicable.
 - .2 Identify all systems that cannot be de-energized, and all low voltage systems such as controls and alarms.
 - .3 Identify any electrical conditions which need special protection or consideration during the work.
 - .4 Disconnect, if practicable, or provide suitable protection for, smoke and heat detectors, if any, and advise the authorities.
 - .5 Protect existing electrical equipment including but not limited to: transformers, circuit breakers, switch gear, panels, buss ducts, fixtures, conduits, etc., within the work area, de-energized or not. Cover with a minimum of two independently sealed layers of poly, at least one of the layers to be of reinforced poly.
 - .6 Provide all additional transformers, circuit breakers, switch gear, panels, ground fault protection and temporary lighting required for the project. The ground fault panel is to have sufficient capacity to service the project needs and have two spare circuits to serve as backup. The work area lighting is to provide appropriate levels of illumination for the work, with a minimum of two separate circuits. Bulbs are to be fitted with

cages or other suitable protection against breakage and/or direct contact with insulation materials (wood, plastic, etc.).

- .7 All electrical power within the work area must be ground fault protected.
 - .1 The power cable to the Ground Fault Panel and the panel itself is not typically protected by an interrupter and, as such, it must be located outside the work area or suitably protected from water and physical damage.
 - .2 All Work shall be performed by a licensed electrician and comply with the latest edition of the Ontario Electrical Safety Code and any other local codes and requirements which may govern the installation. The Contractor is responsible for, and shall arrange for, all inspections and approvals which may be required by government regulations, Electrical Safety Authority (ESA) or any other authorities having jurisdiction. The Client is to receive copies of all inspection reports.
- .3 Heat detectors
 - .1 Protect and seal heat detectors with 0.04 mm (1.5 mil) polyethylene, sealed with tape. Tape is not to interfere with function of the unit.
 - .2 System is to be activated and deactivated as arranged with Owner's and monitoring agency with the intent of leaving the entire system active when the Contractor is not on site.
 - .3 Provide an emergency name and contact number to Owner's and monitoring agency.
- .4 Shut off and isolate air handling and ventilation systems to prevent fibre dispersal to other building areas during work phase. Conduct smoke tests to ensure that duct work is airtight. Seal and caulk joints and seams of active return air ducts within work area.
- .5 Preclean fixed casework, plant, and equipment within proposed work areas, using HEPA vacuum and cover with polyethylene sheeting sealed with tape.
- .6 Clean proposed work areas using, where practicable, HEPA vacuum cleaning equipment. If not practicable, use wet cleaning method. Do not use methods that raise dust, such as dry sweeping, or vacuuming using other than HEPA vacuum equipment.
- .7 The spread of dust from the work area to be prevented by:
 - .1 Using enclosures of polyethylene or other suitable material that is impervious to asbestos (including, if the enclosure material is opaque, one or more transparent window areas to allow observation of the entire work area from outside the enclosure), if the work area is not enclosed by walls.
 - .2 Using curtains of polyethylene sheeting or other suitable material that is impervious to asbestos, fitted on each side of each entrance or exit from the work area.

- .8 Cover ground and wall surfaces, where required, with polyethylene sheeting sealed with tape. Use two layers of FR polyethylene on floors. Cover floors first so that polyethylene extends at least 300 mm up walls then cover walls to overlap floor sheeting.
 - .9 Build airlocks at entrances to and exits from work areas so that work areas are always closed off by one curtained doorway when workers enter or exit.
 - .10 At each access to work areas install warning signs in both official languages in upper case "Helvetica Medium" letters reading as follows where number in parentheses indicates font size to be used: "CAUTION ASBESTOS HAZARD AREA (25 mm) NO UNAUTHORIZED ENTRY (19 mm) WEAR ASSIGNED PROTECTIVE EQUIPMENT (19 mm) BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM (7 mm)".
 - .11 Maintain emergency and fire exits that may exist from work areas, or establish alternative exits satisfactory to the Owner's Representative and Provincial Fire Marshall Authority having jurisdiction.
 - .12 Where application of water is required for wetting asbestos containing materials, shut off electrical power, provide 24-volt safety lighting and ground fault interrupter circuits on power source for electrical tools, in accordance with applicable CSA Standard and this specification. Ensure safe installation of electrical lines and equipment.
 - .13 After preparation of work areas and Decontamination Enclosure Systems, as described below, for the removal of all asbestos-containing materials, remove within work area and dispose as contaminated waste in specified containers. Spray asbestos debris and immediate work area with amended water to reduce dust, as work progresses.
- .2 Worker Decontamination Enclosure System:
- .1 Worker Decontamination Enclosure System includes Equipment and Access Room, Shower Room, and Clean Room, as follows:
 - .1 Equipment and Access Room: build Equipment and Access Room between Shower Room and work areas, with two curtained doorways, one to Shower Room and one to work areas. Install portable toilet, waste receptor, and storage facilities for workers' shoes and protective clothing to be re-worn in work areas. Build Equipment and Access Room large enough to accommodate specified facilities, other equipment needed, and at least one worker allowing him /her sufficient space to undress comfortably.
 - .2 Shower Room: build Shower Room between Clean Room and Equipment and Access Room, with two curtained doorways, one to Clean Room and one to Equipment and Access Room. Provide one shower for every five workers. Provide constant supply of hot and cold or warm water. Cold and hot water will be provided at the site. Drains to common sewers are available at the site. Provide piping and connect to water sources and drains. Pump wastewater through 5 micrometre filter system before directing into drains. Provide soap, clean towels, and appropriate containers for disposal of used respirator filters.
 - .3 Clean Room: build Clean Room between Shower Room and clean areas outside of enclosures, with two curtained doorways, one to outside of enclosures and one to Shower Room. Provide lockers or hangers and hooks for workers' street

clothes and personal belongings. Provide storage for clean protective clothing and respiratory equipment. Install mirror to permit workers to fit respiratory equipment properly.

.3 Container and Equipment Decontamination Enclosure System:

.1 Container and Equipment Decontamination Enclosure System consists of Staging Area within work area, Washroom, Holding Room, and Unloading Room. Purpose of system is to provide means to decontaminate waste containers, scaffolding, waste and material containers, vacuum and spray equipment, and other tools and equipment for which Worker Decontamination Enclosure System is not suitable.

.1 Staging Area: designate Staging Area in work area for gross removal of dust and debris from waste containers and equipment, labelling and sealing of waste containers, and temporary storage pending removal to Washroom. Equipment Staging Area with curtained doorway to Washroom.

.2 Washroom: build Washroom between Staging Area and Holding Room with two curtained doorways, one to Staging Area and one to Holding Room. Provide high - pressure low - volume sprays for washing of waste containers and equipment. Pump wastewater through 5 micrometre filter system before directing into drains. Provide piping and connect to water sources and drains.

.3 Holding Room: build Holding Room between Washroom and Unloading Room, with two curtained doorways, one to Washroom and one to Unloading Room. Build Holding Room sized to accommodate at least two waste containers and largest item of equipment used.

.4 Unloading Room: build Unloading Room between Holding Room and outside, with two curtained doorways, one to Holding Room and one to outside.

.4 Construction of Decontamination Enclosures:

.1 Build suitable framing for enclosures, and line with polyethylene sheeting sealed with tape. Use two layers of FR polyethylene on the floor.

.2 Build curtained doorways between enclosures so that when people move through or when waste containers and equipment are moved through doorway, one of two closures comprising doorway always remains closed.

.5 Separation of Work Areas from Adjacent Areas:

.1 Separate parts of building required to remain in use from parts of building used for asbestos abatement by means of airtight barrier system constructed as follows:

.1 Build suitable floor to ceiling lumber (50 mm x 100 mm spruce studs) or metal stud framing at 600 mm centres, cover with polyethylene sheeting sealed with tape, and apply 9 mm minimum thick plywood. Seal joints between plywood sheets and between plywood and adjacent materials with surface film forming type sealer, to create airtight barrier.

.2 Cover plywood barrier with polyethylene sealed with tape, as specified for work areas.

- .6 Maintenance of Enclosures:
 - .1 Maintain enclosures in tidy condition.
 - .2 Ensure that barriers and polyethylene linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.
 - .3 Visually inspect enclosures at beginning of each working period.
 - .4 Use smoke methods to test effectiveness of barriers when directed by Owner's Representative.
- .7 Do not begin Asbestos Abatement work until:
 - .1 Arrangements have been made for disposal of waste.
 - .2 For wet stripping techniques, arrangements have been made for containing, filtering, and disposal of waste water.
 - .3 Work areas and decontamination enclosures and parts of building required to remain in use are to be effectively segregated.
 - .4 Tools, equipment, and materials waste containers are on hand.
 - .5 Arrangements have been made for building security.
 - .6 Warning signs are displayed where access to contaminated areas is possible.
 - .7 Notifications have been completed and other preparatory steps have been taken.

3.3 Asbestos Abatement

- .1 Do not begin work until Owner's Representative has provided authorization to proceed.
- .2 Spray asbestos materials with water containing specified wetting agent, using airless spray equipment capable of providing "mist" application to prevent release of fibres. Spray asbestos material repeatedly during work process to minimize asbestos fibre dispersion.
- .3 Remove saturated asbestos material in small sections. Do not allow waste materials to dry out. As it is being removed pack material in sealable plastic bags 0.15 mm minimum thick and place in labelled containers for transport.
- .4 Seal filled containers. Clean external surfaces thoroughly by wet sponging. Remove from immediate working area to Staging Area. Clean external surfaces thoroughly again by wet sponging before moving containers to decontamination Washroom. Wash containers thoroughly in decontamination Washroom and store in Holding Room pending removal to Unloading Room and outside. Ensure that containers are removed from Holding Room by workers who have entered from uncontaminated areas dressed in clean coveralls.
- .5 After completion of stripping work, wire brushed and wet sponged surfaces from which asbestos has been removed to remove visible material. During this work keep surfaces wet.
- .6 After wire brushing and wet sponging to remove visible asbestos, wet clean entire work area including Equipment and Access Room, and equipment used in process. After 24-hour period to allow for dust settling, wet clean these areas and objects again. During this settling period no entry, activity, or ventilation will be permitted. After inspection by Owner's Representative, apply

continuous coat of slow drying sealer to surfaces of work area. Allow at least 16 hours with no entry, activity, ventilation, or disturbance other than operation of negative pressure units during this period.

- .7 Work is subject to visual inspection and air monitoring.
- .8 Contamination of surrounding areas indicated by visual inspection or air monitoring will require complete enclosure and clean-up of affected areas.

3.4 Cleanup

- .1 Frequently during Work and immediately after completion of work, clean up dust and asbestos containing waste using HEPA vacuum or by damp mopping.
- .2 Place dust and asbestos containing waste in sealed dust tight waste bags. Treat drop sheets and disposable protective clothing as asbestos waste and wet and fold to contain dust and then place in waste bags.
- .3 Immediately before their removal from work area and disposal, clean each filled waste bag using damp cloths or HEPA vacuum and place in second clean waste bag.
- .4 Seal and remove double bagged waste from site. Dispose of in accordance with requirements of Provincial and Federal Authority having jurisdiction. Supervise dumping and ensure that landfill operator is fully aware of hazardous nature of material to be dumped and that guidelines and regulations for asbestos disposal are followed.
- .5 Perform final thorough clean-up of work areas and adjacent areas affected by Work using HEPA vacuum.

3.5 Inspection

- .1 Prior to the beginning of removal, Owner's Representative will perform a pre-abatement inspection on the work area. The pre-abatement inspection will be completed to ensure all equipment required to complete the measures and procedures that apply to Type 3/high-risk activities are present. Deviation from these requirements that have not been approved in writing by the Owner's Representative and/or Owner may result in work stoppage, at no cost to the Owner.
- .2 Following completion of the work, the Owner's Representative must be contacted to complete a final visual inspection. This inspection must be organised by the contractor with a minimum of twenty-four (24) hours notice.
- .3 Owner's Representative will inspect work for:
 - .1 Adherence to specific procedures and materials requirements.
 - .2 Compliance with specification and governing authority requirements prior to contaminated work; and,
 - .3 Final cleanliness and completion. Work area will be considered clean when all visible dust and debris is removed from the substrate to which it was adhered and deemed acceptable to the Owner's Representative. No distinction will be made about the content of the dust or debris.

- .4 When asbestos leakage from work area has occurred or is likely to occur the Owner's Representative may order Work shutdown.
- .5 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

3.4 Air Monitoring

- .1 Not Applicable.

3.5 Clearance Air Sampling

- .1 Air clearance monitoring to be conducted as follows: After Asbestos Work Area has passed visual inspection and an acceptable coat of lock-down agent has been applied to surfaces within enclosure, and appropriate settling period (minimum of 8-hours) has passed, the Owner's Representative will perform air monitoring within the Asbestos Work Area as detailed in O. Reg. 278/05 and COHSR. Air monitoring requirements also need to comply with Section 10.26.9 of the Canada Occupational Health and Safety Regulations.
 - .1 Before dismantling a containment system and after all asbestos dust, waste and debris have been cleaned up, removed or encapsulated, an employer shall ensure that clearance air samples are taken inside the enclosure and that the concentration of airborne asbestos fibres is determined in accordance with Method 7400 set out in the document entitled NIOSH Manual of Analytical Methods, published by the National Institute for Occupational Safety and Health, as amended from time to time, or in accordance with a scientifically proven method used to collect and analyze a representative sample of airborne asbestos fibres.
 - .2 When conducting clearance air sampling, the employer shall ensure that forced air is used inside the enclosure to dislodge any asbestos fibres from all surfaces and keep them airborne.
 - .3 Clearance air sampling shall be taken until the concentrations of airborne asbestos fibres do not exceed the value of 0.01 f/cc as prescribed in O. Reg. 278/05 and the PSPC Asbestos Management Standard of <0.01 f/cc.
- .2 Air Clearance monitoring results must show airborne asbestos fibres levels less than 0.01 f/cc, or must show that airborne fibres are not detected above the analytical detection limit.
- .3 If air monitoring results show airborne asbestos fibre levels in excess of 0.01 f/cc, or detects airborne fibres above the analytical detection limit, re-clean Asbestos Work Area and apply another acceptable coat of lock down agent to surfaces.
- .4 Repeat as necessary until airborne asbestos fibre levels are less than 0.01 f/cc, or when airborne fibres are not detected above the analytical detection limit.
- .5 Within 24 hours after obtaining air sampling results, the Owner shall post a copy of the results in a conspicuous place in the workplace; and make the results available to the policy committee (if any), the work place committee and the health and the safety representative,

3.4 Final Cleanup

- .1 Not Applicable.

Designated Substance and Hazardous Materials Survey - Pre-Renovation
Arcadis Project Name: École élémentaire Micheline-Saint-Cyr, 85 41st St.
Arcadis Project No.: 30305976

Section 02 82 00.03 Asbestos
Abatement Type 3 Precautions

March 10, 2026

3.6 Re-Establishment of Objects and Systems

.1 Not Applicable.

END OF SECTION