



Halton District School Board

Addendum No. 1

RFT 22-155 Library Renovations – Aldershot High School

The following, issued by the Halton District School Board June 3, 2022, shall be incorporated in the specifications and shall form part of the proposal document for the above.

ATTACHED:

- Asbestos Abatement Specifications – Aldershot High School (49 pages)

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

PAGE 1 OF 50
END OF ADDENDUM 1

**ASBESTOS ABATEMENT SPECIFICATIONS
ALDRSHOT HIGH SCHOOL**

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

TABLE OF CONTENTS

1.0	PART 1 – GENERAL	2
1.1	GENERAL	2
1.2	OUTLINE OF WORK	2
1.3	GENERAL REQUIREMENTS	5
1.4	DEFINITIONS	7
1.5	REGULATORY AGENCIES.....	8
1.6	FIRE SAFETY PLAN	9
1.7	SUBMITTALS.....	9
	1.7.1 Submittals Before Commencing Work.....	9
	1.7.2 Submittals Before Commencing Asbestos Removal	11
	1.7.3 Submittals Upon Completion of Work	11
1.8	EXISTING CONDITIONS	12
1.9	RESTRICTIONS	12
1.10	WORKER PROTECTION	12
1.11	NOTIFICATIONS	13
1.12	PROTECTION, REPAIR AND REPLACEMENT OF EQUIPMENT AND MATERIALS.....	14
1.13	CONFINED SPACES.....	14
2.0	PART 2 – PRODUCTS	15
2.1	MATERIALS	15
2.2	EQUIPMENT.....	15
3.0	PART 3 – EXECUTION.....	18
3.1	MAJOR ASBESTOS WORK (TYPE 3 OPERATIONS).....	18
3.2	GLOVEBAG REMOVAL METHOD	32
3.3	TYPE 2 ENCLOSURE METHOD	34
3.4	TYPE 2 NON-ENCLOSURE METHOD	35
3.5	TYPE 1 OPERATION	37
3.6	WASTE DISPOSAL.....	37
3.7	AIR MONITORING.....	38

At Rear:

Drawing No. 30134419-1 - Locations of Work Areas – First Floor Plan
Drawing No. 30134419-2 - Locations of Work Areas – First Floor Plan
Drawing No. 30134419-3 - Locations of Work Areas – Second Floor Plan
Pre-contamination Checklist
Daily Procedures Checklist
Final Visual Inspection Checklist
Final Clearance Test Checklist
Typical Decontamination Enclosures
Electrician’s Submittal Form

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

1.0 PART 1 – GENERAL

1.1 GENERAL

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

1.2 OUTLINE OF WORK

- .1 The intent of the work is to remove select asbestos-containing materials to the extent practicable in designated areas in the facility prior to renovation work.
- .2 Replacement of removed materials is not part of this contract.
- .3 Coordinate all work with the General Contractor and sub trades as required.
- .4 Refer to architectural, mechanical, and electrical drawings for additional details.
- .5 All mechanical, electrical, communication and life safety system isolations and disconnects, will be performed by the General Contractor's sub trades prior to commencement of remedial work.
- .6 Removal of florescent light tubes in light fixtures in ceiling assemblies specified for demolition by the asbestos abatement contractor, will be performed by the General Contractor's sub trades prior to commencement of remedial work.
- .7 Removal of select millwork and mechanical systems to allow for access to asbestos-containing materials to be remediated, will be performed by the General Contractor's sub trades prior to commencement of remedial work.
- .8 If required, electrical hookups of GFI panels and temporary panels for power equipment (power grinders, etc.) will be performed by the General Contractor's licensed electrician in compliance to all regulatory requirements and codes.
- .9 Each negative pressure units shall be integrity tested at the work site prior to commencement of asbestos removal operations.
- .10 Provide all supervision, labour, equipment, tools, materials, waste management, haulage and disposal, and other services, as required, for undertaking and completing all work, as detailed below.
- .11 **Work Area 1 – Room 128B**
- .1 Prepare the areas as indicated above and on the attached floor plans for a Type 3 asbestos removal operation.
- .2 Supply and install scaffolding and/or lift equipment, in accordance with all applicable regulations, in order to provide sufficient and safe access to the work areas.

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

- .3 Remove and dispose as asbestos waste, entire ceiling assembly including, but not limited to, asbestos-containing textured plaster, plaster lath and substrate materials, underlying materials, ceiling support systems, plaster overspray, and light fixtures. Ceiling support systems and light fixtures may be disposed as clean demolition waste provided, they are thoroughly cleaned of all plaster dust and debris.
 - .4 Remove and dispose as asbestos waste all asbestos-containing thermal insulation applied to pipe fittings located inside ceiling cavity. For costing purposes allow for the removal of asbestos-containing thermal insulation from ten (10) pipe fittings.
- .12 **Work Area 2 – Rooms 128C and 128D**
- .1 Prepare the areas as indicated above and on the attached floor plans for a Type 2 Enclosure and Glovebag asbestos removal operations.
 - .2 Supply and install scaffolding, in accordance with all applicable regulations, in order to provide sufficient and safe access to the work areas.
 - .3 Establish a measurable negative pressure differential in the enclosure work areas by using fan/filter units equipped with High Efficiency Particulate Air (HEPA) filters. Units must be integrity-tested on site and are to be exhausted directly outdoors.
 - .4 Remove and dispose as clean demolition waste, all vinyl baseboards.
 - .5 Remove and dispose the following as asbestos waste:
 - .1 All asbestos-containing vinyl floor tiles and associated asbestos-containing mastic.
 - .2 Using power tools (power grinders) that are attached to dust collecting devices equipped with HEPA filters, completely remove all asbestos-containing vinyl floor tile mastic from concrete floors. Chemical mastic removers are not to be used.
 - .1 Dust collecting devices with HEPA filters (HEPA vacuums) that are attached to power tools, must have adequate CFM capacity to properly collect mastic and residual dust generated by the power grinding operations.
 - .2 All power tools used to remove mastics, must have an integral shrouding system designed to properly contain dust and debris generated by the power grinding operations.
 - .6 Inside enclosure work area in Room 128C, carefully remove and retain lay-in acoustic ceiling tiles, as required, to access piping inside ceiling cavity. Ceiling tiles are to be reinstalled following completion of remedial work.
 - .1 Using glovebags, remove and dispose as asbestos waste, all asbestos-containing thermal insulation applied to pipe fittings. For costing purposes allow for the removal of thermal insulation from six (6) pipe fittings.

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

.13 Work Area 3 – Rooms 128A, 128E, 128F, 128G, 128H and 128I

- .1 Prepare the areas as indicated above and on the attached floor plans for Type 2 Non-Enclosure/Glovebag asbestos removal operations.
- .2 Supply and install scaffolding, in accordance with all applicable regulations, in order to provide sufficient and safe access to the work areas.
- .3 Carefully remove and retain lay-in acoustic ceiling tiles, as required, to access piping inside ceiling cavities. Ceiling tiles are to be reinstalled following completion of remedial work.
- .4 Using glovebags, remove and dispose as asbestos waste, all asbestos-containing thermal insulation applied to pipe fittings. For costing purposes allow for the removal of thermal insulation from sixty (60) pipe fittings.

.14 Work Area 4 – Rooms 104, 104A and 104B

- .1 Prepare the areas as indicated above and on the attached floor plans for Type 2 Non-Enclosure/Glovebag asbestos removal operations.
- .2 Supply and install scaffolding and/or lift equipment, in accordance with all applicable regulations, in order to provide sufficient and safe access to the work areas.
- .3 Using glovebags, remove and dispose as asbestos waste, all asbestos-containing thermal insulation applied to pipe fittings. For costing purposes allow for the removal of thermal insulation from fifty-five (55) pipe fittings.

.15 Work Area 5 – Room 254 Sections A and B

- .1 Prepare the areas as indicated above and on the attached floor plans for a Type 2 Enclosure asbestos removal operation.
- .2 Supply and install scaffolding, in accordance with all applicable regulations, in order to provide sufficient and safe access to the work areas.
- .3 Establish a measurable negative pressure differential in the enclosure work areas by using fan/filter units equipped with High Efficiency Particulate Air (HEPA) filters. Units must be integrity-tested on site and are to be exhausted directly outdoors.
- .4 Remove and dispose as clean demolition waste, all vinyl baseboards.
- .5 Remove and dispose the following as asbestos waste:
 - .1 All asbestos-containing 9" x 9" vinyl floor tiles in Room 254 Section A.
 - .2 All non-asbestos-containing 12" x 12" vinyl floor tiles and associated asbestos-containing mastic in Room 254 Section B.
 - .3 Using power tools (power grinders) that are attached to dust collecting devices equipped with HEPA filters, completely remove all asbestos-containing vinyl floor tile mastic from concrete floor in Room 254 Section B. Chemical mastic removers are not to be used.

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

- .1 Dust collecting devices with HEPA filters (HEPA vacuums) that are attached to power tools, must have adequate CFM capacity to properly collect mastic and residual dust generated by the power grinding operations.
- .2 All power tools used to remove mastics, must have an integral shrouding system designed to properly contain dust and debris generated by the power grinding operations.
- .16 Textured plaster contains 0.75% to 6% chrysotile asbestos. Vinyl floor tiles contain 4% to 13.5% chrysotile asbestos. Mastic associated with vinyl floor tiles contains 5.1% to 15.4% chrysotile asbestos. Vinyl floor tile mastic contains 1% chrysotile asbestos. Thermal insulation on pipe fittings contains 65% chrysotile asbestos.
- .17 All waste is to be removed from the site and disposed. Asbestos waste disposal bins are not to be left on School property unless fully enclosed with an integral metal roof system and locked. Disposal bins must be removed immediately on completion of work.
- .18 Schedule
 - .1 Mobilization To be Coordinated with the General Contractor
 - .2 Complete Work and Demobilize To be Coordinated with the General Contractor

1.3 GENERAL REQUIREMENTS

- .1 The location and availability of utilities including water, sewer and electrical power is to be determined on site. The Asbestos Contractor shall co-operate with all others on site. Should there be any disagreement, or should Contractors be unable to reach a satisfactory working arrangement, the Asbestos Consultant shall determine the manner for proceeding. The Asbestos Contractor shall not be entitled to any additional payment.
- .2. The Asbestos Contractor is responsible for making all arrangements, and for paying for the disposal of all waste materials in accordance to all applicable government laws and regulations including local, provincial and federal.
- .3 The Asbestos Contractor is advised that extended hours of work may be required to meet the schedules as detailed in the Scope of Work and shall allow for the cost thereof including shift premiums and overtime. The Asbestos Consultant shall be advised in writing at least four days in advance of the proposed working hours.
- .4 The Asbestos Contractor shall furnish and post on site the name and current phone number of an authorized representative(s) who can be contacted on a 24-hour basis in case of an emergency.
- .5 All precautions will be taken to prevent the spread of contaminated material and to protect all parties including Asbestos Contractor's personnel, Owner's employees and the public from asbestos dust exposure during the course of the work. The documents outline the minimum levels of precaution to be taken.

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

- .6 **All work shall be done in compliance with the specifications and the Ontario Regulation 278/05 – Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations – made under the Occupational Health and Safety Act.** Should there be any discrepancy or conflict between the documents, the most stringent shall apply.
- .7 Contract conditions include, but are not limited to, complying with all Regulations, taking all precautions necessary to control the release of asbestos fibres within the work areas, preventing the release of asbestos fibres outside the work areas, and providing appropriate protection from exposure to asbestos fibres for all parties. Failure to meet any of these conditions will be considered a fundamental breach of the Contract.
- .8 The Asbestos Consultant will visit the site at his/her discretion to familiarize himself/herself with the progress and quality of the Work and to determine if the Work is proceeding in accordance with the Contract Documents.
- .9 The Asbestos Consultant shall have the authority to immediately stop the Work through a written instruction if, in his opinion, the Work does not conform to the requirements of the Contract Documents, or if continuance of the Work could subject the Owner, his employees or the public to a hazardous condition. The Work shall not recommence until such time as the deficiency or hazardous situation has been corrected and a written notice to proceed has been issued by the Asbestos Consultant.
- .10 If the Asbestos Contractor fails to comply with requirements dealing with the control of asbestos fibres and the health and safety of Asbestos Contractor employees, Asbestos Consultant and Owner personnel or the Public, the Owner, or the Owner's representative, may verbally instruct the Asbestos Contractor to cease work immediately with written confirmation to follow within two working days. If the Asbestos Consultant gives a written statement to the Owner and the Asbestos Contractor that sufficient cause exists, the Owner may notify the Asbestos Contractor in writing that he is in default of his contractual obligations.
- .11 Any employee shall be replaced, at the written request of the Asbestos Consultant, if working, or causing others to work, in violation of O.Reg. 278/05.
- .12 The Asbestos Contractor's insurance coverage limits, per occurrence, shall equal or exceed the following and shall name the Owner and Arcadis Canada Inc. as additional insureds:
- .1 General Liability \$5 million;
 - .2 Automotive Liability \$2 million;
 - .3 Pollution Liability \$5 million including asbestos operations.
- .13 The supervisor must have proven experience and proficiency in the type of Work being undertaken under this Contract.
- .14 The supervisor shall be replaced, at the written request of the Asbestos Consultant, if found to be incompetent or inattentive to the needs of the project.
- .15 Where standards of performance are specified or implied and the Work does not comply with the performance specified or implied, such deficiencies shall be corrected as directed by the Asbestos Consultant. Any subsequent testing shall be done at the Asbestos Contractor's expense.

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

1.4 DEFINITIONS

.1 *HEPA Vacuum:*

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

.2 *Polyethylene sheeting sealed with tape:*

- .1 Polyethylene sheeting of thickness specified sealed with tape along all edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide a continuous polyethylene membrane to protect underlying surfaces from water damage or damage by sealants, and to prevent escape of asbestos fibres through the sheeting into a clean area.

.3 *Inspector:*

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

.4 *Authorized Visitor:*

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

.5 *Amended Water:*

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

.6 *Airlock:*

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

.7 *Curtained Doorways:*

- .1 An arrangement of closures to allow ingress and egress from one room to another while permitting minimal air movement between rooms, typically constructed by placing two overlapping sheets of polyethylene over an existing or temporarily framed doorway, securing each along the top of the doorway, securing the vertical edge of one sheet along one vertical side of the doorway and securing the vertical edge of the other sheet along the opposite vertical side of the doorway.
- .2 All free edges of polyethylene shall be reinforced with duct tape and the bottom edge shall be weighted to ensure proper closing. Each polyethylene sheet shall overlap openings an additional 1/3 of the doorway width.

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

- .8 *Operating Area:*
 - .1 Area where no removal or repair Work is underway.
- .9 *Clean Area:*
 - .1 Either an operating area or an area in which removal Work has already been completed.
- .10 *Work Area:*
 - .1 Where the actual removal of asbestos-containing materials take place.
- .11 *Negative Pressure:*
 - .1 A system which extracts air from the work area and discharges this air directly outside the building, sufficient to maintain a minimum pressure differential of 0.5 mm (0.02 inch) of water column relative to adjacent areas outside of work areas. This air extraction system is to be equipped with a High Efficiency Particulate Aerosol filtering system before discharge.
- .12 *Confined Space:*
 - .1 A fully or partially enclosed space,
 - .1 that is not both designed and constructed for continuous human occupancy, and
 - .2 in which atmospheric hazards may occur because of its construction, location or contents or because of work that is done in it.

1.5 REGULATORY AGENCIES

- .1 Comply with Federal, Provincial, and local requirements pertaining to asbestos, provided that in any case of conflict among those requirements or with these Specifications the more stringent requirement shall apply. These include, but are not limited to, the following:
 - .1 Ontario Ministry of Labour, Occupational Health and Safety Division, *Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations*, O. Reg. 278/05, as amended 62/18, March 2, 2018 – made under the *Occupational Health and Safety Act, R.S.O. 1990, c. E. 19*, as amended.
 - .2 Ontario Ministry of the Environment *Regulation 347* under the Environmental Protection Act, 19 as amended by O. Reg. 509/21, June 30, 2021.
 - .3 Government of Canada *Regulations Respecting the Handling, Offering for Transport and Transporting of Dangerous Goods*. (Extract from the Canada Gazette Part II, dated February 6, 1985.)
 - .4 Government of Ontario *Occupational Health and Safety Act, -R.S.O. 1990, c. E. 19, as amended, and Regulations for Construction Projects* O. Reg. 213/91, as amended.

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

- .5 Office of the Fire Commissioner of Canada.
- .6 Ontario Electrical Safety Code.
- .7 Government of Ontario, Building Code O. Reg. 332/12, as amended 137/19, May 2, 2019.
- .2 *Patents:*
 - .1 It shall be the Contractor's responsibility to ensure that all applicable patent laws are complied with.

1.6 FIRE SAFETY PLAN

- .1 Prior to initiating any work on the site, the Contractor shall prepare and submit in writing to the Engineer a Fire Safety Plan. The Plan shall be in accordance to the requirements set forth in Section 2.14, Construction and Demolition Sites, of the National Fire Code and shall include:
 - .1 the designation and organization of site personnel to carry out fire safety duties, including fire water services if applicable;
 - .2 the emergency procedures to be used in the case of fire, including:
 - .1 sounding the fire alarm;
 - .2 notifying the fire department;
 - .3 instructing site personnel on procedures to be followed when the alarm sounds; and
 - .4 fire fighting procedures;
 - .3 the control of fire hazards in and around the building;
 - .4 maintenance of fire fighting facilities; and
 - .5 special requirements as may be identified by the building owner.
- .2 Implementation of the Fire Safety Plan shall be the sole responsibility of the Contractor, and the above shall, in no way, limit the Contractor's statutory and regulatory obligations. During the work, the Fire Safety Plan shall be prominently displayed at the site and its requirements included in site safety training and awareness programs.

1.7 SUBMITTALS

1.7.1 Submittals Before Commencing Work

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

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

- .1 All necessary permits for transporting and disposal of asbestos waste. Submit proof satisfactory to Inspector that suitable arrangements have been made to receive and properly dispose of asbestos waste. Copies of all Notifications required by Section 1.11.
- .2 *Material Safety Data Sheets:*
 - .1 Material Safety Data Sheets, or equivalent, for any sealant, surfactant or other material proposed for use. Include a separate attachment for each sheet indicating the specific worker protective equipment proposed for use with the material indicated.
- .3 *Supervisory Personnel:*
 - .1 Names of supervisory personnel who will be responsible for work area(s). **One of these supervisors must remain on site at all times asbestos removal or cleanup is occurring.** Submit proof that supervisory personnel have over 2000 hours experience on asbestos abatement projects, have performed supervisory functions on at least two other asbestos projects and have achieved the level of training as set out by the Regulation.
- .4 *Schedule:*
 - .1 Provide a bar chart indicating planned progress for critical activities as required under **Scope of Work** as well as additional information listed below a minimum of 48 hours prior to commencement of any preparatory work indicating:
 - .1 shifts to be worked;
 - .2 proposed workforce;
 - .3 starting date;
 - .4 estimated date of commencement of asbestos removal;
 - .5 estimated date of completion of asbestos removal;
 - .6 estimated completion date.
- .5 *Insurance:*
 - .1 Provide a Certificate signed by the insurance agency naming the Owner and Arcadis Canada Inc. as co-insureds.
 2. The Asbestos Contractor's insurance coverage limits, per occurrence, shall equal or exceed the following:
 - .1 General Liability \$5 million;
 - .2 Automotive Liability \$2 million;
 - .3 Pollution Liability \$5 million including asbestos operations.

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

- .3 The Asbestos Contractor must provide thirty (30) days notice of cancellation or amendment of coverage.
- .6 *Fire Safety Plan:*
 - .1 In accordance to Article 1.6 above.
- .7 *Confined Space:*
 - .1 If a work area, or part thereof, is a confined space, the contractor shall submit:
 - .1 a co-ordination document (see Section 1.13.1.1);
 - .2 a written program (see Section 1.13.1.2); and
 - .3 a written plan (see Section 1.13.1.4).
- .8 *Asbestos Training:*
 - .1 A letter certifying that:
 - (a) *every worker involved in a Type 3 operation has successfully completed the Asbestos Abatement Worker Training Program approved by the Ministry of Training, Colleges and Universities; and*
 - (b) *every supervisor of a worker involved in a Type 3 operation has successfully completed the Asbestos Abatement Supervisor Training Program approved by the Ministry of Training, Colleges and Universities. O.Reg. 278/05, s. 20(1).*

1.7.2 Submittals Before Commencing Asbestos Removal

- .1 Results of negative pressure unit integrity tests.
- .2 Proposed Work Area emergency exit procedures.
- .3 Proposed locations of decontamination facilities and negative pressure units and exhaust routing.
- .4 Evidence (letter or other suitable documentation) of proper construction, inspection and installation of GFI panel by licensed electrician in compliance to all regulatory requirements and codes.

1.7.3 Submittals Upon Completion of Work

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

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

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

1.8 EXISTING CONDITIONS

- .1 Textured plaster contains 0.75% to 6% chrysotile asbestos. Vinyl floor tiles contain 4% to 13.5% chrysotile asbestos. Mastic associated with vinyl floor tiles contains 5.1% to 15.4% chrysotile asbestos. Vinyl floor tile mastic contains 1% chrysotile asbestos. Thermal insulation on pipe fittings contains 65% chrysotile asbestos.
- .2 Existing conditions are documented in a report prepared by Arcadis Canada Inc. for the Halton District School Board titled "*Pre-Renovation Designated Substances and Hazardous Materials Survey, Aldershot High School, 50 Fairwood Place W., Burlington, Ontario*" dated May 31, 2022, which is included with the tender documents.
- .3 Masonry applications may contain silica. Paint applications may contain lead and mercury. Appropriate dust control procedures and respiratory protective equipment are to be used if disturbing these materials.

1.9 RESTRICTIONS

- .1 Do not allow smoking, eating or drinking in the work area.
- .2 Do not allow entry to work area by unauthorized persons.
- .3 Compressed air shall not be used in the work area.
- .4 Open flames will not be permitted in the work area (including but not limited to torches and propane-fired heaters).

1.10 WORKER PROTECTION

- .1 *Instructions:*
 - .1 Before commencing Work, instruct workers in all aspects of work procedures and protective measures.
- .2 *Respiratory Protection:*
 - .1 Provide workers with personally issued and marked respiratory equipment acceptable to the Occupational Health and Safety Division of the Ontario Ministry of Labour, suitable for the asbestos exposure in the work area.
 - .2 Ensure that suitable respiratory protective equipment is worn by every worker who enters the work area. A respirator provided by an employer and used by a worker:
 - .1 shall be in accordance to O.Reg. 278/05, Section 13, respirators.
 - .2 shall be fitted so that there is an effective seal between the respirator and the worker's face;
 - .3 shall be assigned to a worker for the worker's exclusive use;

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

- .4 shall be used and maintained in accordance with the procedures specified by the equipment manufacturer;
 - .5 shall be cleaned, disinfected and inspected after use on each shift, or more often if necessary;
 - .6 shall have damaged or deteriorated parts replaced prior to being used by a worker; and
 - .7 when not in use, shall be stored in a convenient, clean and sanitary location.
- .3 *Protective Clothing:*
- .1 Provide workers with protective clothing which shall:
 - .1 be worn by every worker who enters the work area,
 - .2 be made of a material which does not readily retain nor permit penetration of asbestos fibres,
 - .3 consist of full body covering including head covering with snug fitting cuffs at the wrists, ankles and neck,
 - .4 include suitable footwear, and
 - .5 be repaired or replaced if torn.

1.11 NOTIFICATIONS

- .1 Notify, in writing, the local Fire Department of the extent of the work, including a copy of the Fire Safety Plan detailed in Article 1.6 above.
- .2 Notify, orally and in writing, an inspector at the office of the Ministry of Labour nearest the work place of the operation. O.Reg. 278/05, Section 11.
 - .1 The written notice required by subsection (1) shall set out:
 - .1 the name and address of the person giving the notice;
 - .2 the name and address of the owner of the place where the work will be carried out;
 - .3 the municipal address or other description of the place where the work will be carried out sufficient to permit the inspector to locate the place, including the location with respect to the nearest public highway;
 - .4 a description of the work that will be carried out;
 - .5 the starting date and expected duration of the work; and
 - .6 the name and address of the supervisor in charge of the work.

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

- .3 Notify the Inspector a minimum of eight hours prior to initiation of the following phases of the project:
 - .1 commencement of asbestos removal;
 - .2 commencement of sealant application;
 - .3 dismantling of the enclosure; and
 - .4 removing asbestos waste from the work area.

1.12 PROTECTION, REPAIR AND REPLACEMENT OF EQUIPMENT AND MATERIALS

- .1 All equipment within and surrounding the work area shall be suitably protected by the Contractor during the work periods.
- .2 All equipment damaged by the Contractor shall be replaced by the Contractor at no additional cost to the Owner.

1.13 CONFINED SPACES

Not Applicable.

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

2.0 PART 2 – PRODUCTS

2.1 MATERIALS

.1 *Polyethylene:*

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

.2 *Tape:*

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

.3 *Wetting Agent:*

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

.4 *Asbestos Waste Receptors:*

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

.5 *Rip-Proof Polyethylene:*

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

.6 *Sealant:*

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

2.2 EQUIPMENT

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

.2 *Airless Sprayer:*

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

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

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

- .3 *Garden Sprayer:*
- .1 Hand pump-type pressure-can garden sprayer fabricated out of either metal or plastic equipped with a wand at the end of a hose that can deliver a stream or spray of liquid under pressure. **Only to be used on small removal and repair projects with the approval of the site inspector.**
- .4 *HEPA Vacuum:*
- .1 High Efficiency Particulate Aerosol filtered vacuum equipment. Must have a filtering system capable of collecting and retaining asbestos fibres to an efficiency of 99.97% for fibres of 0.3 um or larger. HEPA filters must have been individually tested and certified by the manufacturer.
 - .2 All HEPA vacuums brought onto the job site shall be visibly clean, shall be in a good state of repair and shall be maintained in such state through completion of the project.
- .5 *Glovebag:*
- .1 Prefabricated, purposely made, 0.20 mm minimum thickness, polyvinyl chloride bag with integral 0.25 mm thick polyvinyl chloride gloves.
 - .2 Bag equipped with reversible double-pull, double-throw zipper on top to facilitate installation on pipe and progressive movement along pipe, with straps for sealing ends of bag around pipe, and with plastic flap under zipper for strength on pipe and to provide effective seal and with "ziploc" feature. Bags shall be secured using manufacturer's prescribed securing devices. Approval must be obtained from the Inspector for use of Glovebags. Bag must be acceptable to the Inspector for use.
 - .3 Bag must have valves to allow insertion of a vacuum hose and the nozzle of a water sprayer while maintaining the seal to the pipe, duct or similar structure.
- .6 *Negative Pressure Units:*
- .1 Exhaust units fitted with High Efficiency Particulate Aerosol (HEPA) filters used to effect a negative pressure differential in the work area as compared to the immediate surrounding or clean area. The filtering system must be capable of collecting and retaining asbestos fibres to an efficiency of 99.97% for fibres of 0.3 um or larger. The HEPA filters must have been individually tested and certified by the manufacturer and bear a label certifying performance. The unit is to be fitted with instrumentation to indicate pressure differential across the HEPA filter with an audible alarm to sound at a preset low differential pressure.
 - .2 Construction of HEPA filter/fan cabinet units shall be airtight and all joints shall be caulked. The gasket seal between the filter housing and the retaining frame inside the cabinet shall provide a zero-leakage seal to avoid filter bypassing.
 - .3 **Each negative pressure unit shall be integrity tested at the work site prior to commencement of asbestos removal.** The procedure must include the testing of the integrity of the entire cabinet. Written confirmation of the test results are to be provided to the Inspector. Retesting may be requested by the Inspector and

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

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

.7 *Differential Pressure Recorder:*

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

.1 sensitivity: 0.025 mm (0.001 inches) WC increments between +0.25 mm to -2.5 mm (+0.010 to -0.100 inches) WC

.2 accuracy: +/- 1 %

.3 pressure alarms: audible high and low level alarm programmable within operating range

.4 printout: minimum 24 hr period at 15 minute intervals

.8 *Ground Fault Panel:*

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

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

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

3.0 PART 3 – EXECUTION

3.1 MAJOR ASBESTOS WORK (TYPE 3 OPERATIONS)

3.1.1 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 Inspector. 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 The Contractor is responsible for the supply of a potable water source. There is no water in the building.
- .3 The effluent from the shower may be disposed of, through a filter, to the sanitary sewer, location to be determined during the pre-tender site visit. 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 to the Ontario Plumbing Code.**

3.1.2 Electrical

- .1 The Contractor shall become completely familiar with the existing electrical installation during the site visit and pre-tender period.
- .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

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

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. Refer to Section 2.2.8, *Ground Fault Panel*.
 - .1 The power cable to the Ground Fault Panel and the panel itself is not protected by interruptor 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.

3.1.3 Fire Prevention / Site Security

- .1 Contact and co-operate with Owner's fire/security monitoring agency to identify impact of project on existing system with the intent of maintaining existing protection. The Owner will assume service costs for the monitoring agency.
- .2 Advise local fire department of the nature and extent of the work.
- .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 monitoring agency and Owner's Representative 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 the monitoring agency.

ASBESTOS ABATEMENT SPECIFICATIONS Aldershot High School

3.1.4 Decontamination Facilities

- .1 Proposed locations of Decontamination Enclosure Systems are to be determined during the prestart site review. The facility must be of adequate size and construction to suit the requirements of the project. The owner may have restrictions on the location of the facilities. The worker decontamination enclosure system shall be kept separate from the waste and equipment transfer system.
- .2 Workers' Decontamination Enclosure System:
 - .1 The Worker Decontamination Enclosure System shall comprise of a serial arrangement of three separate compartments including a Clean Change Room, a Shower Room and a Contaminated Change Room with an air lock separating each area. The purpose of this system is to provide a means of entry into the work area and allow decontamination of personnel and small tools on exit.
 - .1 *Clean Change Room:* Build a clean room between the shower room and clean areas outside of enclosures, with one airlock to the shower room. Provide lockers for workers' street clothes and personal belongings. Provide storage for clean protective clothing and respiratory equipment. Install a mirror to permit workers to fit respiratory equipment properly; provide sufficient hangers and hooks; provide a bench or chairs. Install a lockable door and lock at the entrance to the clean room and provide a key to the Inspector.
 - .2 *Shower Room:* Build a shower room between the Equipment and Access Room, with two airlocks, one to the clean room and one to the Equipment and Access Room. Provide one shower for every five workers. **Only 'walk through' shower units are acceptable.**
 - .3 Provide a constant supply of hot and cold water. The shower room shall have individual controls inside the room to regulate water flow and temperature.
 - .4 Provide piping and connect to water sources and drains. Provide soap and appropriate containers for disposal of used respirator filters. Note that workers may provide their own towels as these are not contaminated and may be removed from the site for cleaning.
 - .5 *Contaminated Change Room:* Build an Equipment and Access Room between the shower room and the work areas, with one airlock to the shower room. Install storage facilities for workers' shoes and any protective clothing to be reworn in work areas. Provide for disposal of used coveralls.

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

- .6 The Contaminated Change Room shall be large enough to accommodate specified facilities, any other equipment needed, and at least one worker allowing him sufficient space to undress comfortably.

- .3 Waste and Equipment Decontamination Enclosure System (Waste Load-Out).
 - .1 The drum and equipment decontamination enclosure system shall comprise of a serial arrangement of three separate compartments including a Clean Room, a Central Handling Area and a Washing area with an air lock between each area. The purpose of this system is to provide a means to decontaminate and remove waste from the work area. Large equipment is to remain in the work area for the duration.
 - .1 *Clean Room:* Build a clean room between the Central Handling Area and the clean area with a plastic double airlock separating the two areas. The clean room shall be of sufficient size to accommodate at least ten waste receptors and the largest item of equipment used. Install a lockable door and lock at the entrance to the clean room and provide a key to the Inspector.
 - .2 *Central Handling Area:* Build a handling room between the Clean Room and the Washing Area with a plastic double airlock separating the two areas. The handling room shall be of sufficient size to accommodate at least ten waste receptors and the largest item of equipment used.
 - .3 *Washing Area:* Build a washroom between the Central Handling Area and the work area with one airlock to the Central Handling Area. Provide water for cleaning which is to be disposed as asbestos waste.

- .4 Construction of Decontamination Enclosures:
 - .1 Build suitable framing for enclosures or use existing rooms, where convenient and permitted, and line with polyethylene sheeting sealed with tape. Use minimum of one layer of clear, rip-proof polyethylene on floors and two layers (one on each side of the framing) of dark 0.15 mm (6 mil) polyethylene on walls and ceiling.

Temporary framing shall be constructed of 50 mm x 100 mm studs at 600 mm centres.
 - .2 Construct airlocks between rooms.
 - .3 Clearly mark the exits from the work area.
 - .4 Post warning signs at all entrances to the work area and on the outside of all walls enclosing each work area. Submit proposed emergency exit procedures for review and approval by the Inspector prior to contamination of the work area.

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

- .5 Separation of Work Areas with **Temporary Partitions:**
 - .1 Separate parts of the building not included in the asbestos abatement program from parts of the building used for asbestos abatement by means of an airtight and tamper resistant barrier constructed from floor to ceiling as follows:
 - .1 Build suitable temporary lumber stud framing constructed of 50 mm x 100 mm Spruce studs at 600 mm centres.
 - .2 Caulk edges of partition both sides at floor, ceiling, walls and fixtures to form an air tight and watertight seal. Duct tape is a suitable alternative.
 - .3 Cover framing with two layers of 0.15 mm (6 mil) polyethylene, one on each side of studs. Apply new 12 mm (1/2 inch) gypsum board or 6 mm (1/4 inch) plywood from top to bottom of the barrier on the occupied (clean) side secured with screws and nails.

3.1.5 Work Area Preparation

- .1 Remove moveable objects to a designated temporary location in the building unless the Scope of Work specifies this work to be done by others.
- .2 Isolate air handling and ventilation systems to prevent contamination and fibre dispersal to other areas of the building during the work phase.
 - .1 There may be ventilation ducts above the ceiling assembly which must be accessed, visually inspected for openings and sealed prior to contaminating the work area. If, in the opinion of the Inspector, there is a significant amount of asbestos material on the ceiling assembly, access is to be restricted until all other preparations are complete.
 - .2 The mechanical ventilation system serving the work area shall be disabled and locked out and all openings, diffusers, grills or voids in the work area shall be sealed with rip proof polyethylene and tape independent of wall polyethylene.
- .3 Protect all existing electrical equipment to be left in place during the work including fixtures, panels, transformers, switch gear, motors and boxes located within the work area: Cover with a minimum of 2 independently sealed layers of polyethylene sealed with duct tape. At least one of the layers shall be rip proof polyethylene.
- .4 Protect all wall hangings, fixtures, equipment, and other items which could not be relocated from the work area with 0.15 mm (6 mil) polyethylene sealed with tape independent of wall or floor polyethylene.
- .5 Secure from the inside and seal independently, prior to applying the wall polyethylene, all openings including doors, windows, hatches, etc., leading into the work area from an

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

- occupied area or from outside. Polyethylene used to seal windows to public or occupied areas is to be opaque.
- .6 Seal all penetrations including pipe, conduit and duct openings, drains, etc., with polyethylene and duct tape independent of floor or wall polyethylene.
- .1 There may be penetrations or equipment requiring protection above the ceiling assembly which must be accessed, visually inspected and sealed prior to contaminating the work area. If, in the opinion of the Inspector, there is a significant amount of asbestos material on the ceiling assembly, access is to be restricted until all other preparations are complete.
- .7 Protect floors with rip proof polyethylene sheeting sealed with tape except areas requiring floor tile removal. Extend polyethylene at least 300 mm (12 inches) up the walls. Overlap adjoining sheets of polyethylene by at least one foot.
- .1 Protect any floor rugs which are to remain in place from damage by using a minimum second layer of rip-proof poly taped and sealed independently.
- .2 Water leakage during the removal operation may not be confirmed until the work is complete and can result in contamination of the rug with asbestos fibres carried in the water as well as permanent staining or damage of the material. Should a rug be left in place during the work it must be thoroughly vacuumed with HEPA equipment and steam cleaned at the completion of the project. The Contractor is responsible for cleaning, repair or replacement of floor covering to the satisfaction of the Inspector. The Contractor may elect to provide additional protection.
- .8 Protect walls and all other internal surfaces not specifically mentioned earlier with one layer of 0.15 mm (6 mil) clear polyethylene. The polyethylene shall extend to within six inches of ceiling height and shall be attached carefully to avoid disturbing asbestos-containing material. Overlap adjoining sheets of polyethylene by at least 300 mm.
- .9 Polyethylene sheeting shall be suitably braced and/or restrained so that subsequent application of a negative pressure differential in the work area does not cause excessive billowing or failure of the polyethylene or taped joints. Walls with masonry finish (brick or block) may require 25 mm x 50 mm (1" x 2") straps as bracing for the wall protection.
- .10 Ensure that polyethylene near a heat source is a flame-resistant type.
- .11 Spray adhesive is not to be applied directly on to floor or wall finishes.
- .12 Install the negative air pressure system, which includes a minimum of 1 backup unit for every 4 units installed. Exhaust air to the outside of the building. Submit proposed locations of negative pressure units and exhaust routing to the Inspector for review and approval.

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

- .1 The exhaust from the unit to the outside of the building is to be airtight and constructed of wire-reinforced flexible or rigid duct. Each end, at the unit and at the outlet, and the penetration through the isolation barrier or enclosure, is to be mechanically secured (duct tape is not considered adequate). The outlet is to be shielded from the weather and have a mesh to prevent introduction of foreign objects. The Contractor is to ensure that the building remains secure from intrusion by others.
- .2 Each unit is to be DOP tested at the work site prior to commencing asbestos removal. The procedure is to include the testing of the integrity of the entire cabinet. Retesting is required if the unit is damaged or modified during the work.
- .3 Switch the negative air pressure system to the "ON" mode and operate continuously until completion of the work, including final cleanup. Provide continuous monitoring of pressure difference using an automatic instrument. The monitor gauge shall be located outside the work area enclosure. A minimum air pressure of 0.5 mm (0.02 inches) water gauge is to be achieved and maintained within the work enclosure relative to the adjacent uncontaminated areas at all times.

3.1.6 Worker Protection

- .1 Instructions:
 - .1 Before commencing Work, instruct workers in all aspects of work procedures and protective measures.
- .2 Respiratory Protection: (refer to Section 1.10.2).
- .3 Protective Clothing: (refer to Section 1.10.3).
- .4 Entering the Work Area:
 - .1 Remove all street clothing in the Clean Room.
 - .2 Put on clean disposable coveralls.
 - .3 Inspect and put on respiratory protection. Note that respirator head straps are to be under the head covering as the respirator is removed last.
 - .4 Enter work area through Shower Room and Equipment and Access Room. Put on work boots and other items left in contamination.
- .5 Leaving the Work Area:
 - .1 Before exiting the work area, remove visible debris from clothing, footwear, hard hats and the outside of respirators by using a HEPA vacuum or wet wiping.

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

- .2 Proceed to the Equipment and Access Room and remove boots and other items to be left in contamination, remove disposable coverall and place in container for disposal. Respirator is not to be disturbed during this operation.
- .3 Wearing only the respirator, enter the Shower Room, wet the respirator in the shower before removing by facing the shower nozzle and remove. If applicable, remove the filters and dispose in container. If filters are to be reused, seal openings with provided plugs or duct tape to prevent release of fibre and hand out respirator to the Clean Room. Proceed to wash thoroughly with soap and shampoo prior to entering the Clean Room.
- .4 Items left in the Equipment and Access Area may be removed by cleaning at completion of the project, disposed as waste, or sealed in plastic and taken to another contaminated area.
 - .1 At no time is more than one airlock in the three room serial arrangement to be opened during the passage of workers.
 - .2 Once in the contaminated work area, leaving the area must include full procedures as listed above.

3.1.7 Pre-contamination Inspection

- .1 Asbestos Abatement Work shall not commence until:
 - .1 The Ministry of Labour, Construction Health and Safety Branch has been notified through a Notice of Project and a copy of the Notice of Project is posted on the site.
 - .2 Arrangements have been made for disposal of waste.
 - .3 All documentation is in place.
 - .4 Work areas and decontamination enclosures and parts of the building required to remain in use are effectively segregated.
 - .5 Tools, equipment, materials, and waste receptors are on hand.
 - .6 Warning signs have been posted as specified.
 - .7 Negative air pressure differential [minimum 0.5 mm (0.02 inches) water gauge] has been established in the work area with monometer in place and operational.
 - .8 All workers have been made familiar with the use of respirators, procedures for entering and leaving the contaminated area and emergency evacuation routes.

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

- .9 Written **authorization to proceed** has been obtained from the Inspector based on a visual inspection of the site.
- .10 A Pre-contamination Inspection Checklist is provided at the end of this document for the Contractor's reference.

3.1.8 Asbestos Remedial Work

- .1 Maintenance of Enclosures:
 - .1 Maintain enclosures in tidy condition.
 - .2 Ensure that barriers and polyethylene linings are effectively sealed and taped.
 - .3 Repair damaged barriers and remedy defects immediately upon discovery.
 - .4 Visually inspect enclosures at the beginning and end of each working period **and at least once each day on days when there are no shifts. This includes weekends and holidays.**
 - .5 Ensure that a **minimum** air pressure differential of **0.5 mm (0.02 inches)** water gauge is maintained within the work enclosure relative to the adjacent uncontaminated areas at all times.
 - .6 Ensure that the work area is secure during periods of no activity.
- .2 Upper Seals: (where applicable)
 - .1 There may be ventilation ducts, penetrations and equipment requiring protection above the ceiling assembly which must be accessed, visually inspected and sealed.
 - .2 Open Plenum and/or upper wall penetrations: while operating under contaminated procedures and ensuring adequate negative pressure within the work area, systematically access the ceiling along the perimeter of the project site and seal all openings with framing, polyethylene and duct tape. Adjacent areas are not to be occupied during this operation.
 - .3 Ventilation ducts, openings, etc.: while operating under contaminated procedures and ensuring adequate negative pressure within the work area, systematically access the ceiling as required to access the openings and seal with framing, polyethylene and duct tape. The ventilation systems serving the work area are to be turned off or locked-out during this procedure and remain off until completion of the work.
 - .4 Equipment requiring protection: while operating under contaminated procedures and ensuring adequate negative pressure within the work area, systematically access

ASBESTOS ABATEMENT SPECIFICATIONS Aldershot High School

the ceiling as required to access the equipment and seal with polyethylene and duct tape.

.3 Asbestos Encapsulation

- .1 *Bridging*: applied as a continuous flexible membrane or coating over friable material to seal the surface and act as a barrier against physical damage or deterioration. Material is to be water based, without solvents nor utilize hydrocarbons and have a Class A Fire Hazard Classification. Must comply with CGSB 1-GP-205M Type 11. Refer to Scope of Work for finish colour. Standard of acceptance: Ocean No. 666 Latex Fire Resistive Asbestos Encapsulant as distributed by Ocean Coatings Consultants Ltd.
- .2 *Penetrating*: applied to be absorbed into friable material and solidify thus binding fibres together and prevent release. Material is to be water based, without solvents nor utilize hydrocarbons and have a Class A Fire Hazard Classification. Standard of acceptance: Childers CHIL-CASE CP-215 Bridging Encasement/Encapsulant Coating;
- .3 *Equipment*: airless paint sprayer with adequate pressure and nozzle size to suit the material being used. Refer to the encapsulant manufacturer's recommendations for minimum sizes. Equipment must be able to maintain a consistent fan pattern with the nozzle at 300 mm from the surface when spraying.
- .4 The nature of the encapsulant may effect the requirements for respiratory protection in addition to protection provided for asbestos dust. Vapours may be released during application and must be taken into account when selecting appropriate protection. Refer to MSDS sheets.
- .5 *Application*: clean all surfaces of debris and dust, repair damaged areas with compatible materials, apply a light first coat to moisten the surface and immediately follow with a second application ensuring complete and consistent coverage by spraying a minimum of four passes in different directions. Refer to Scope of Work for minimum dry film thickness.
- .6 Encapsulated asbestos-containing materials are to be identified in a manner acceptable to the Inspector.

.4 Asbestos Removal (Wet Method)

- .1 *Thermal insulation*: (piping and equipment) Ensure that heat sources to all piping systems, tanks, etc., have been shut off before work commences. Carefully cut open the outer cover of thermal insulation while spraying a mist of amended water on the section being worked on; thoroughly soak the underlying asbestos-containing material with amended water, using airless spray equipment. Spray the asbestos

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

material repeatedly during the work process to maintain saturation and to minimize asbestos fibre dispersion.

- .2 *Sprayed-on Materials (Texture Coat and Fireproofing)*: Apply amended water to the surface of the material using an airless sprayer. Allow the water to soak through to the surface. Application of a fine mist at low volumes will avoid excessive water dripping to the floor. The thickness and the nature of the asbestos containing material will dictate the time required to soak and number of passes necessary.
- .3 *Troweled-on Materials (Plaster)*: Apply amended water to the surface of the material using an airless sprayer. Application of a fine mist at low volumes will avoid excessive water dripping to the floor. Remove plaster material by hand and place directly into waste receptor. Do not throw or allow waste to fall to the floor from the work area. Ensure that all asbestos debris is removed from the ceiling/wall assembly. Ensure that all asbestos debris is removed including that on fasteners. Spray the asbestos material repeatedly during the work process to maintain saturation and to minimize asbestos fibre dispersion.
- .4 *Vinyl Sheet Flooring (with asbestos-containing paper backing)*: Apply amended water to the surface of the material using an airless sprayer. Allow the water to soak through to the surface. Application of a fine mist at low volumes will avoid excessive water dripping to the floor. The thickness and the nature of the asbestos containing material will dictate the time required to soak and number of passes necessary.
- .5 Remove the saturated asbestos material in small sections. Do not allow saturated asbestos to dry out. As it is being removed, pack the material into a waste receptor (polyethylene bag).
 - .1 Spray the asbestos material repeatedly during the work process to maintain saturation and to minimize asbestos fibre dispersion.
 - .2 Mist the air periodically with water.
 - .3 Excess water is to be treated as asbestos waste and is to be placed into a waste receptor (polyethylene bag). Refer to Waste Handling for cleaning and removal of bagged asbestos waste.
- .6 After completion of asbestos removal, all surfaces from which asbestos has been removed shall be brushed and wet-sponged to remove all visible material and residues. During this work the surfaces shall be kept wet.

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

- .5 Asbestos Removal (Dry Method)
 - .1 Dry removal of asbestos-containing material is to be limited to applications which cannot be wetted due to electrical hazards and may only be undertaken with written instruction for the Inspector.
 - .2 Ensure that the site is fully isolated from the remaining parts of the building and that adequate negative air pressure is being maintained within the work area prior to initiating any dry removal work.
 - .3 A person knowledgeable in supplied air systems and responsible for its operation is to inspect the air source and supply network to ensure that it complies with all regulatory requirements. The person is to sign a statement as to his inspection and have the statement posted on the work site.
 - .4 Provide supplied-air, positive-pressure, full-face respirators to all persons required to enter the dry removal area. All persons required to use supplied air respirators are to be trained and be able to demonstrate their competence to use and maintain the equipment.
 - .5 Remove the asbestos by hand in small quantities and place directly into a waste receptor (poly bag). Do not allow a build-up of asbestos debris. The bagged asbestos waste is to be wetted with amended water inside the material transfer facility prior to double bagging.
 - .6 After completion of asbestos removal, all surfaces from which asbestos has been removed shall be brushed (dry) and HEPA vacuumed to remove all visible material and residues. The entire work area including decontamination facilities, equipment and work area surfaces shall then be cleaned by HEPA vacuuming.
- .6 Initial Cleaning
 - .1 Wet clean (other than dry removal areas) and HEPA vacuum the entire work area, including all Decontamination Enclosure Systems and equipment used in the process. Prefilters on HEPA fan/filter units shall be replaced and disposed of as contaminated waste.
 - .1 For floors covered by rugs, remove the top layer of polyethylene at this stage.
 - .2 HEPA vacuum cleaners shall be emptied of their contents which shall be disposed of as contaminated waste.
 - .3 All equipment shall also be thoroughly clean including but not limited to HEPA vacuum cleaners, vacuum hoses, sprayers, scaffolding and other equipment. Dismantle scaffolding and clean components.

ASBESTOS ABATEMENT SPECIFICATIONS

Aldershot High School

3.1.9 Waste Handling

- .1 Three workers with personal protection equipment for a Type 3 operation, respirators and disposable coveralls, enter the Waste Load-out facility from the clean side, one (A) stays in the Clean Area, the second (B) proceeds to the Central Handling Area, and the third (C) proceeds to the Washing Area. A fourth worker (D) may enter the work area in the usual fashion.
- .2 Worker D cleans all bulk debris from the waste receptors (polyethylene bag) containing asbestos waste by wet wiping. The bag is then passed in to worker C in the Washing Area of the Waste Load-out facility. Worker C washes the bag (water must be made available) and passes it to worker B in the Central Handling Area where it is placed into a second waste receptor (clear bag) and wet wiped. Worker B passes the bag to worker A in the Clean Area where it is stored for future disposal or passed outside the facility to another worker for placement into the disposal bin.
 - .1 At no time is more than one air lock in the three room serial arrangement to be opened for transfer of material. The workers are not to pass from one room to another during the waste handling operation.
- .3 On completion, all surfaces in the three material handling areas are to be wet washed and cleaned of all debris. The three workers are then to proceed into the contaminated work area each sealing or closing the airlock behind him.
- .4 Contaminated equipment being removed from the work area may be handled similarly to waste but instead of bagging it may be completely washed or vacuumed.

3.1.10 Final Seal and Cleaning

- .1 After completion of the asbestos removal and initial cleaning a visual inspection will be performed by the Inspector to confirm that all visible debris has been removed from the work surfaces.
- .2 Surfaces shall be accepted as clean when there is no visible residue, dirt, dust, film, stain or discolouration on all surfaces within the work area including but not limited to piping, tanks, ducts, conduits, mechanical and electrical items, wiring, cracks, crevices, joints, etc., resulting either from prior contamination, asbestos removal procedures or from cleaning procedures.
- .3 Cleaning and inspection shall be repeated at the Contractor's cost if the area does not meet the above criteria and is declared unclean.
- .4 The application of sealant is not to commence until all visible asbestos fibre has been removed from all surfaces and a written *authorization to proceed* has been obtained based on a visual inspection of the work area.

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

- .5 Architectural finishes, including ceiling components, various fixtures and other surfaces which may be damaged or stained by the sealant are to be suitably protected with polyethylene and duct tape. **Any damage resulting from the Contractor's work shall be made good to the satisfaction of the Inspector.**
- .6 Sealant shall be sprayed to all surfaces in the work area. The spray is to be directed from the top down to ensure that the higher horizontal surfaces are covered. Spraying from the floor only is not acceptable. Apply sealant using an airless high pressure paint sprayer.
- .7 The nature of the sealant may effect the requirement for respiratory protection. Vapours that may be released during sealant application must be taken into account when selecting respirators.
- .8 In dry removal areas, it may be possible to apply the sealant with a rag or sponge. If this is not practicable, the surfaces are to remain unsealed.
- .9 After the sealant has dried, allow a 12-hour period for dust settling. During this settling period, no entry or activity will be permitted in the work area.
- .10 After the work area is dry and a visual inspection by the Inspector confirms the area is satisfactorily clean, clearance air samples shall be taken in the work area by the Inspector. The work area is declared clean by the Inspector when the air monitoring results conform to the pre-established levels.
- .11 Cleaning, inspection and air sampling shall be repeated at the Contractor's expense if the area does not meet visual inspection and air monitoring criteria and is declared unclean.

3.1.11 Final Tear Down and Demobilization

- .1 The final tear down is not to commence until a written *authorization to proceed* has been obtained based on a visual inspection of the work area and the results of the air monitoring.
- .2 Dismantle the remainder of the enclosure and dispose of all polyethylene sheeting as asbestos waste.
- .3 Vacuum and/or wet wipe all surfaces previously inaccessible due to temporary construction.
- .4 Seal the outside of the negative pressure exhaust units with polyethylene and tape before removing from work area.

3.1.12 Re-establishment of Objects and Systems

- .1 Re-establish thermal insulation, fireproofing, acoustic applications, ceiling systems, etc., removed during the course of the project in accordance with the standard specification when specified in the Scope of Work.

ASBESTOS ABATEMENT SPECIFICATIONS Aldershot High School

- .2 Reinstall objects, moved to temporary locations in the course of the Work, in their proper positions.
- .3 Resecure mounted objects removed in the course of the Work in their former positions.
- .4 Re-establish mechanical and electrical systems in proper working order.
- .5 Repair or replace objects damaged in the course of the Work.

3.2 GLOVEBAG REMOVAL METHOD

- .1 Before performing work:
 - .1 Prepare site by placing new 0.15 mm (6 mil) polyethylene plastic drop sheets on all surfaces immediately below and within 3.0 m of the work area.
 - .2 Remove all obstructions from around pipes to allow access for repair work.
 - .3 Inspect all glovebags for defects before using. A defective bag shall not be used.
 - .4 Ensure that any knife to be used inside the glovebag has a retractable blade and that any saw used inside the glovebag is of the flexible wire type; and brush used inside a glovebag shall not have metal bristles.
- .2 Perform removal operations using the following procedures (in accordance to the manufacturer's instructions):
 - .1 Place any tools necessary to remove insulation in bottom of the containment bag.
 - .2 Install the bag on the pipe or fitting using shoulder straps and zipper provided. **Duct tape is not to be substituted for shoulder straps.** Support bag as necessary to avoid damage to the piping system or the bag itself.
 - .3 Insert nozzle of spray pump prefilled and primed with water and surfactant mixture (amended water) into the bag through the valve provided. Place hands in gloves and relocate the tools to the tool pouch.
 - .4 Cut or remove exterior insulation jacket, where applicable, to expose asbestos pipe covering. Wet exposed pipe covering with sufficient amended water to suppress any dust. Remove insulation and arrange in bottom of bag to obtain maximum capacity for the bag. Wash down exposed portion of pipe and top section of bag ensuring that insulation in lower portion of bag as well as any exposed end of insulation is thoroughly saturated. Use one hand and a cloth or sponge to aid in washing process.

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

- .5 Ensure that pipe and other surfaces are clean of visual residue, dirt or dust prior to removal of the containment bag and seal all surfaces with encapsulant. Seal exposed ends of remaining asbestos insulation with encapsulant.
- .6 If the glovebag is ripped, cut or opened in any way, work that may disturb friable material shall cease immediately. If the rip, cut or opening is small and easy to repair then the glovebag shall be repaired immediately with tape. Work may continue once the repairs are complete. If the rip, cut or opening is not small and cannot be easily repaired, place the glovebag immediately within a suitable asbestos waste container. Any spilled material containing asbestos shall be cleaned up and removed by using a vacuum equipped with a HEPA filter.
- .7 To remove bag after completion of stripping, wash top section and tools thoroughly. Put all tools in one hand (glove), pull hand out inverted, twist to create a separate pouch, double tape to seal ends, cut and place in the next glovebag or into a water bucket, open pouch under water and clean and then allow to dry. Tools may also be cleaned and handed out during the dismantling of the bag while taking all precautions to prevent release of asbestos.
- .8 Remove all air inside the glovebag by means of a vacuum equipped with a HEPA filter. Seal lower portion of bag and place bag into appropriate waste container.
- .9 After removal of bag, ensure pipe is clean of all residue. If necessary after removal of each section of asbestos, vacuum all surfaces of pipe, using HEPA Filtered Vacuum equipment.
- .10 Welds and folds of glovebags are to remain intact without modification to manufacturer's design.
- .11 Glovebags, disposal bags, cloth rags and any porous materials are to be handled and disposed as hazardous waste.
- .12 Frequently, and at regular intervals during the work and immediately upon completion of the work, glovebags containing asbestos-contaminated dust and waste shall be placed in a suitable waste container and shall be removed from the workplace.
- .13 Immediately after removal of asbestos, clean all surfaces and equipment within the work area using a HEPA vacuum and damp wiping.
- .14 Remove polyethylene floor covering, fold inward, and place in 6-mil polyethylene waste bags. Seal bags tightly.
- .15 Place sponges, brushes, etc., in double polyethylene bags and seal tightly.
- .16 Make arrangements for disposal of all asbestos-containing waste material.

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

3.3 TYPE 2 ENCLOSURE METHOD

.1 Preparation

- .1 Separate the work area from the rest of the building using rope barriers, signage and other appropriate means. The extent of the work area will depend on the amount of work to be done, potential for fibre release and the height of the work above floor level.
- .2 Identify the work area with clearly visible warning signs.
- .3 Construct a frame for the enclosure from 50 mm x 100 mm (2" x 4") studs or other suitable material (scaffolding, for example); if the potential exists for the disturbance of asbestos-containing material during the construction of the enclosure, wear a respirator and suitable protective clothing; ensure that the enclosure is of adequate size to permit the storage of equipment and waste.
- .4 If the room where the work is to take place is small, the room itself may serve as an enclosure, provided that all openings are sealed, the mechanical ventilation system servicing the room is disabled and the ventilation ducts to and from the work area are sealed.
- .5 Shut off the source of heat for piping systems (i.e., boiler or steam line header), where possible.
- .6 Cover the walls, floor and ceiling of the enclosure with clear 0.15 mm polyethylene sheeting sealed with duct tape. Curtains of polyethylene sheeting must be fitted on each side of the entrance to the enclosure (curtain flaps may require weights at the bottoms to ensure proper closing).
- .7 Disable the ventilation system servicing the enclosure; seal ventilation ducts to and from the work area.
- .8 Shut off and lock out electrical power within the enclosure.
- .9 Wear an appropriate respirator approved for use with asbestos and suitable protective equipment. Only persons wearing protective clothing and equipment shall be allowed to enter the work area. If the type of asbestos is other than chrysotile, a powered air purifying respirator shall be used.
- .10 Do not use compressed air.
- .11 Do not eat, drink, smoke or chew in the work area.
- .12 Vacuum surfaces of insulated material in the work area using a HEPA vacuum.

ASBESTOS ABATEMENT SPECIFICATIONS

Aldershot High School

- .2 Asbestos Removal and Cleanup
 - .1 Only non-powered hand-tools, or power tools **FITTED WITH A DUST COLLECTION DEVICES EQUIPED HEPA FILTERS** are permitted to be used.
 - .2 Thoroughly wet the asbestos-containing material with amended water using a garden sprayer.
 - .3 Remove wetted asbestos material and place directly into a waste receptor (polyethylene bag). **MAINTAIN ASBESTOS IN WET CONDITION AT ALL TIMES DURING REMOVAL AND/OR HANDLING. SEAL BAGS TIGHTLY.** Double bag when removing debris from work area.
 - .4 Clean surfaces exposed by asbestos removal with a brush and wet sponge. Ensure that all surfaces of piping and other equipment are clean of all residue.
 - .5 Immediately after removal of asbestos, clean all surfaces and equipment within the work area, including polyethylene sheeting, using a HEPA vacuum or by damp wiping.
 - .6 Seal all surfaces of pipe or other equipment, enclosure, and ends of exposed insulation with a suitable encapsulant.
 - .7 After satisfactory completion of cleaning and before leaving the work area, decontaminate protective clothing (including boots) and equipment, etc., using a HEPA vacuum or by damp wiping.
 - .8 Dismantle the enclosure and wet and dispose of all polyethylene sheeting, brushes and sponges as asbestos waste.
 - .9 Dispose of protective clothing as asbestos waste.
 - .10 Wash hands and face at the completion of the work (before leaving the work area); damp wipe the respirator and store in a proper place.
 - .11 Make arrangements for disposal of all asbestos-containing waste material.

3.4 TYPE 2 NON-ENCLOSURE METHOD

- .1 Preparation
 - .1 Control the spread of dust from the work being performed by use of drop sheets, keeping doors closed, providing signage, etc. Ensure that appropriate equipment and materials are at hand.
 - .2 Restrict access to the work area using rope barriers, barricades, and other appropriate measures.
 - .3 Disable ventilation systems servicing the work area.

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

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

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

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

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

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

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

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

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

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

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

- .9 Do not allow waste to accumulate.

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

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

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

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

- .14 Dispose of protective clothing as asbestos waste.

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

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

3.5 TYPE 1 OPERATION

Not Applicable.

3.6 WASTE DISPOSAL

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

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

ASBESTOS ABATEMENT SPECIFICATIONS Aldershot High School

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

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

- .4 Both sides of every waste container must display in large easily legible letters the words '**ASBESTOS, WHITE, PRODUCT IDENTIFICATION NUMBER 2590**' or '**ASBESTOS, BLUE, PRODUCT IDENTIFICATION NUMBER 2212**' in accordance with the type of asbestos being transported.
- .5 Every vehicle used for the transportation of asbestos waste shall display a Class 9 placard on the front, back and two sides of the vehicle.
- .6 The waste must be transported in a fully-enclosed truck, or alternatively, in a waste disposal skip. The driver must be familiar with cleanup and handling procedures and be trained to deal with spills or container breakage.
- .7 The truck must be equipped with a shovel and broom, wetting agent, protective clothing, respiratory protective equipment, polyethylene bags of at least 0.15 mm (6 mil) thickness, and bag closures and duct tape.
- .8 All waste must be transported with a **Bill of Lading** directly from the work area to the waste disposal site. The Bill of Lading is to indicate the source and type of asbestos, the Carrier, the amount, the destination (disposal site) and date all in accordance to applicable regulations. A copy of the Bill of Lading and disposal site receipt is to be provided to the Inspector.

3.7 AIR MONITORING

- .1 Air tests will be taken at the discretion of the Asbestos Consultant using the Phase Contrast Microscopy (PCM) method from the time asbestos-containing materials may be disturbed until the final visual inspection of the work areas.
- .1 *Outside Asbestos Removal Work Areas:*
- .1 The maximum allowable fibre concentration outside the Work Areas during asbestos removal or cleanup shall be 0.05 f/cc. Should readings exceed this value, the work shall stop at the discretion of the inspector and proceed only after the cause of the high fibre counts has been remedied.
- .2 All costs associated with the cleaning, monitoring, and disruption caused by excessive fibre levels outside the Work Area and related to the work, are to be borne by the Asbestos Contractor including but not limited to:
- .1 thorough cleaning with wet wiping and HEPA vacuuming by the Asbestos Contractor to the extent and satisfaction of the Inspector,

ASBESTOS ABATEMENT SPECIFICATIONS
Aldershot High School

- .2 all activities deemed necessary by the Inspector including area isolation, personnel relocation, additional visual inspections and air monitoring to confirm that the area has been adequately cleaned,
 - .3 disruption of plant production, office routine, and delays.
- .2 *Final Clearance Test:*
- .1 Air samples will be taken in each Type 3 asbestos removal work area using the PCM (NIOSH 7400) method.
 - .1 Air sampling will not be performed in crawl space work areas.
 - .2 Final clearance tests will be performed following aggressive sampling procedures:
 - .1 Before starting the sampling pumps and during sampling, the exhaust from forced air equipment (1 horsepower) leaf blower) is directed against walls, ceilings, floors, ledges, and other surfaces in the area. The Contractor shall supply the leaf blower.
 - .2 Prior to commencement of final air clearance testing, the contractor shall install 20 inch fans in the centre of the work area (minimum of one fan per 10,000 cubic foot of work area space). The fans shall be operated on slow speed and pointed toward the ceiling. The fans will run for the duration of the air sampling period and will be shut off when sampling is complete.
 - .3 Asbestos work areas shall be declared clean only if the laboratory results show concentrations of 0.01 f/cc or less for all samples.
 - .4 All costs associated with additional cleaning, monitoring, and disruption as the result of failure to pass final clearance due to visual inspection and/or air monitoring are to be borne by the Contractor including but not limited to:
 - .1 thorough cleaning with wet wiping and HEPA vacuuming by the Asbestos Contractor to the extent and satisfaction of the Inspector,
 - .2 further visual inspections and air monitoring to confirm that the area has been adequately cleaned,
 - .3 disruption of plant production, office routine, and delays.

END OF SECTION



- LEGEND:**
- 128 FUNCTIONAL SPACE
 - WORK AREA 1
 - WORK AREA 2
 - WORK AREA 3

NOTE:



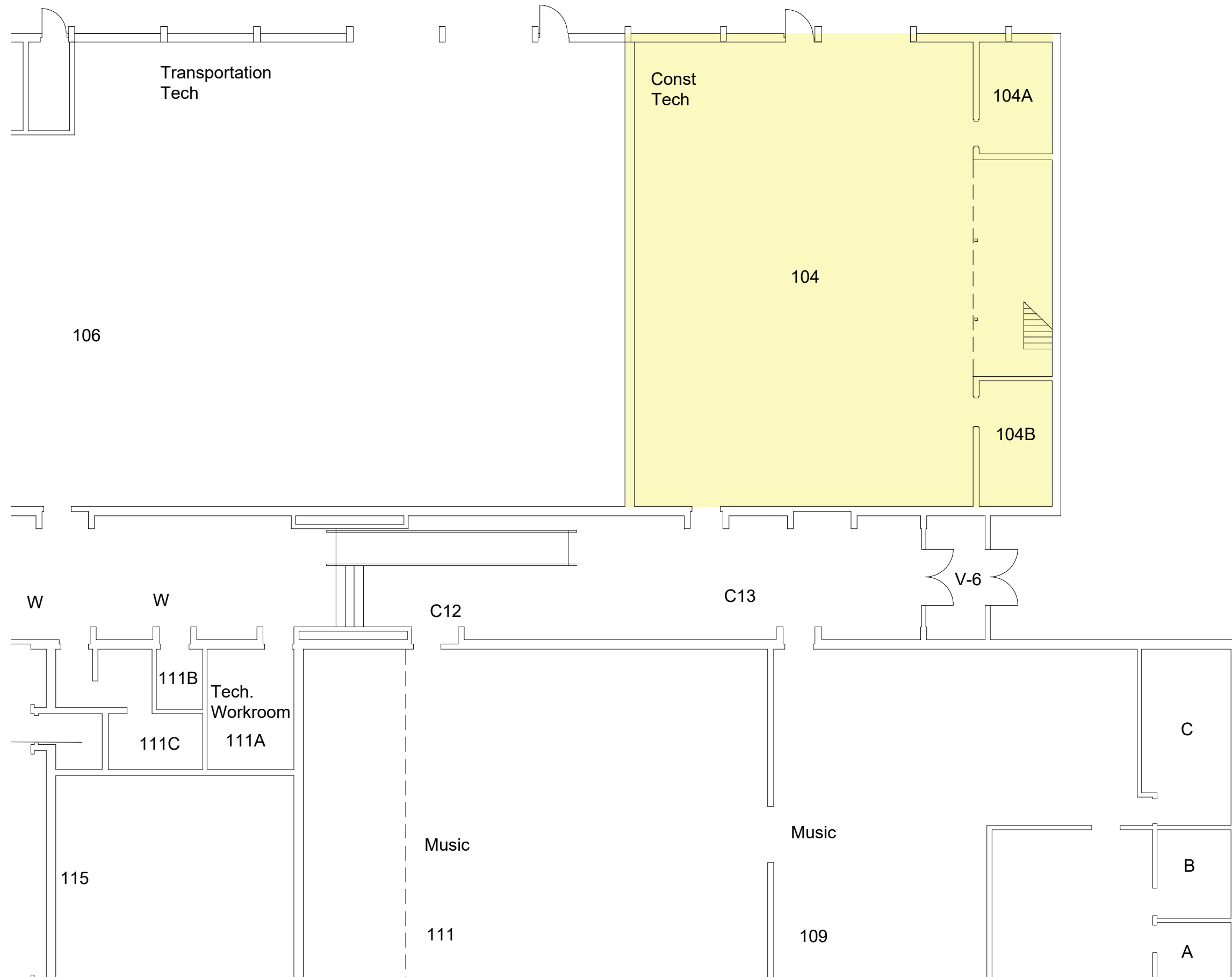
HALTON DISTRICT SCHOOL BOARD

**ASBESTOS ABATEMENT SPECIFICATIONS
 LOCATIONS OF WORK AREA**

ALDERSHOT HIGH SCHOOL
 50 FAIRWOOD PLACE W, BURLINGTON, ON

FIRST FLOOR PLAN

Drawn By: B.R	Approved By: J.D	Project No: 30134419
Date: MAY 2022	Scale: N.T.S	Drawing No: 30134419-1



LEGEND:

- 104 FUNCTIONAL SPACE
- WORK AREA 4

NOTE:



HALTON DISTRICT SCHOOL BOARD

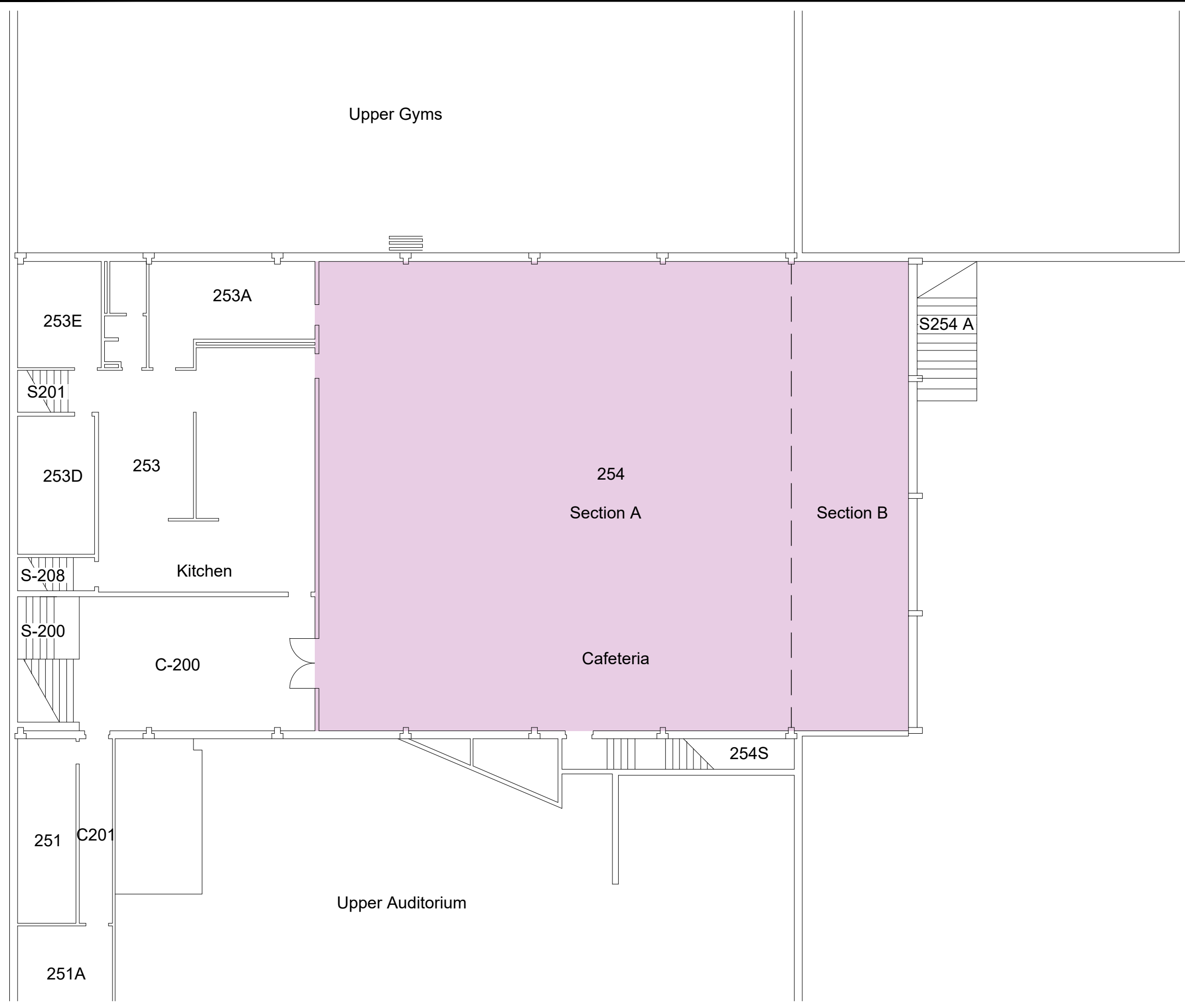
**ASBESTOS ABATEMENT SPECIFICATIONS
 LOCATIONS OF WORK AREA**


ALDRESHOT HIGH SCHOOL
 50 FAIRWOOD PLACE W, BURLINGTON, ON

FIRST FLOOR PLAN

Drawn By: B.R	Approved By: J.D	Project No: 30134419
Date: MAY 2022	Scale: N.T.S	Drawing No: 30134419-2

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LEGEND:
 254 FUNCTIONAL SPACE
 WORK AREA 5

NOTE:



HALTON DISTRICT SCHOOL BOARD
**PRE-RENOVATION DESIGNATED SUBSTANCE
 AND HAZARDOUS MATERIALS SURVEY**
 LOCATIONS OF ASBESTOS CONTAINING
 MATERIALS AND STUDY AREAS
 ALDERSHOT HIGH SCHOOL
 50 FAIRWOOD PLACE W, BURLINGTON, ON

SECOND FLOOR PLAN
 Drawn By: B.R. Approved By: V.D. Project No: 30134419
 Date: MAY 2022 Scale: N.T.S. Drawing No: 30134419-3

ARCADIS CANADA INC.

Client: _____ Project No.: _____
Project Site: _____ Foreman: _____
Contractor: _____ Work Area: _____

TYPE 3 (FULL ENCLOSURE) ASBESTOS ABATEMENT PRE-CONTAMINATION INSPECTION CHECKLIST

Type 3 Asbestos Abatement Classifications:

- Removing/disturbing of more than 1 m² of friable asbestos-containing materials
- Spray application of sealant to friable asbestos-containing materials
- Removing/cleaning air handling equipment in a building with sprayed fireproofing
- Removing/disturbing kiln, metallurgical furnace or similar structure with refractory materials
- Removing non-friable asbestos materials using power tools not equipped with HEPA filters
- Repair/alter/demolish a building which asbestos was used in the manufacture of products

Before Beginning Asbestos Abatement Work:

- All documentation and pre-work submittals in place
 - Bonding (if applicable)
 - Insurance documentation (naming ARCADIS and Owner as co-insured)
 - Names/Phone numbers of Contractor Representatives for emergencies
 - Permits for transport and disposal of asbestos waste
 - Material Safety Data Sheets
 - Names and statement of experience for supervisory personnel
 - Contractor schedule
 - Notice of Project (NOP)
 - Confirmation of electrical lock-out in work area and of any electrical inspections
 - Evidence of proper construction and inspection of GFI panel by a licensed electrician.
 - Written *Fire Safety Plan*.
 - Documentation of pre-construction site condition (if required)
 - Proof of asbestos abatement training
- Notice of Project (NOP) posted
- Warning signs posted
- Work area and decontamination enclosures segregated from rest of building
- Points of entry secure including neg-air exhaust location(s)
- Independent isolation of all electrical equipment and openings including windows, doors, temporary partitions, etc.
- Adequate protection applied to all equipment and other components within work area
- Mechanical ventilation systems locked out and isolated
- Adequate neg-air units, including back-ups installed, and Integrity-tested on site
- Negative air units exhausting outside of building
- Negative air pressure differential in place (minimum 0.02 inch water gauge)
- Manometer in place, alarm and recorder functioning
- Emergency lighting in place and plugged into electrical outlets
- Work area lighting adequate
- All electrical equipment, including shower sump pump inside work area ground fault protected
- Tools, equipment, materials and waste receptors on hand
- All workers familiar with PPE, decontamination procedures, equipment and evacuation routes
- Airless sprayer functioning, and tested with approved amended water in-line
- Shower functioning and tested for pressure, filtered drainage, separate hot/cold water, or mixed water (40°C to 50°C)
- All shower accessories (soap, shampoo, mirrors etc.) in place
- Upper seals complete (if required)
- HEPA vacuums - Integrity-tested within last 3 months

Note: All above items must be checked off or marked n/a (not applicable)

COMMENTS / AUTHORIZATION

This authorization does not in any way replace the contract requirements as detailed in the Specifications, Scope of Work, Regulations, or on-site direction given by the Arcadis Inspector.

DATE: _____ ARCADIS INSPECTOR SIGNATURE: _____

ARCADIS CANADA INC.

Client: _____ Project No.: _____
Project Site: _____ Foreman: _____
Contractor: _____ Work Area: _____

TYPE 3 (FULL ENCLOSURE) ASBESTOS ABATEMENT DAILY PROCEDURES CHECKLIST

- All warning signs posted
- Decontamination and work area enclosures kept in tidy condition
- Shower unit properly drained and clean
- Adequate hot water for shower
- Adequate shower accessories
- All polyethylene barriers and linings sealed and taped
- Minimum negative pressure maintained
- Neg-air primary filters replaced regularly
- Neg-air exhausts to each side secure
- Manometer alarm and tape read-out functioning
- ACM applications wet and promptly bagged into labelled containers
- Personal Protective Equipment being used properly
- Decontamination of personnel and equipment executed properly
- Perimeter inspections being carried out
- Adequate labour, supervisors, materials and equipment available on site
- Access to work area secure
- Adequate lighting maintained
- Emergency lighting operational

Waste Disposal

- Proper signage applied to truck/waste skip
- Waste bin secured/locked

Note: All above items must be checked off or marked n/a (not applicable)

COMMENTS / AUTHORIZATION

This authorization does not in any way replace the contract requirements as detailed in the Specifications, Scope of Work, Regulations, or on-site direction given by the Arcadis Inspector.

DATE: _____ ARCADIS INSPECTOR SIGNATURE: _____

ARCADIS CANADA INC.

Client: _____ Project No.: _____
Project Site: _____ Foreman: _____
Contractor: _____ Work Area: _____

TYPE 3 (FULL ENCLOSURE) ASBESTOS ABATEMENT FINAL VISUAL INSPECTION CHECKLIST

Final Visual Inspection Checklist

Surfaces shall be accepted as clean when there is no visible residue, dirt, dust, film, stain or discolouration on all surfaces within the work area including but not limited to piping, tanks, ducts, conduits, mechanical and electrical items, wiring, cracks, crevices, joints, etc., resulting either from asbestos removal procedures or from cleaning procedures.

Cleaning and inspection shall be repeated at the Contractor's expense if the area does not meet the above criteria and is declared unclean.

- All waste bags removed from area
- All surfaces and equipment clean including neg-air units, scaffolding, ladders, vacuum attachments, etc.
- All tools bagged or decontaminated and removed from area
- Glue and application equipment available and operational
- Remaining non-acm thermal insulation applications protected and clean (if present)

Note: All above items must be checked off or marked n/a (not applicable)

COMMENTS / AUTHORIZATION

This authorization does not in any way replace the contract requirements as detailed in the Specifications, Scope of Work, Regulations, or on-site direction given by the Arcadis Inspector.

DATE: _____ **ARCADIS INSPECTOR SIGNATURE:** _____

ARCADIS CANADA INC.

Client: _____ Project No.: _____
Project Site: _____ Foreman: _____
Contractor: _____ Work Area: _____

TYPE 3 (FULL ENCLOSURE) ASBESTOS ABATEMENT FINAL CLEARANCE TEST CHECKLIST

Post-Sealant Application Inspection Checklist

- Sealant application visually confirmed (surfaces tacky)
 - Polyethylene from walls and floors (not forming part of seal) removed and disposed
 - All surfaces and equipment clean
 - Minimum sealant settling time elapsed
-

PCM Final Clearance Test

- Two air samples taken inside the enclosure of an area of 10 m² (108 ft²) or less
- Three air samples taken inside the enclosure of an area of 10 m² (108 ft²) to 500 m² (5382 ft²)
- Five air samples taken inside the enclosure of an area of 500 m² (5382 ft²) or more
- Forced air used inside enclosure before and during air sampling
- Fan (20") in the centre of the enclosure pointed upwards towards the ceiling on low (1 fan for every 20,000 ft³ of room space required.)
- Each air sample collected for a volume of at least 2400 L
- Final air sample analysis pass pre-determined criteria
- Final air sample analysis failed pre-determined criteria
- Air sampling results posted following receipt of the results.

TEM Final Clearance Test

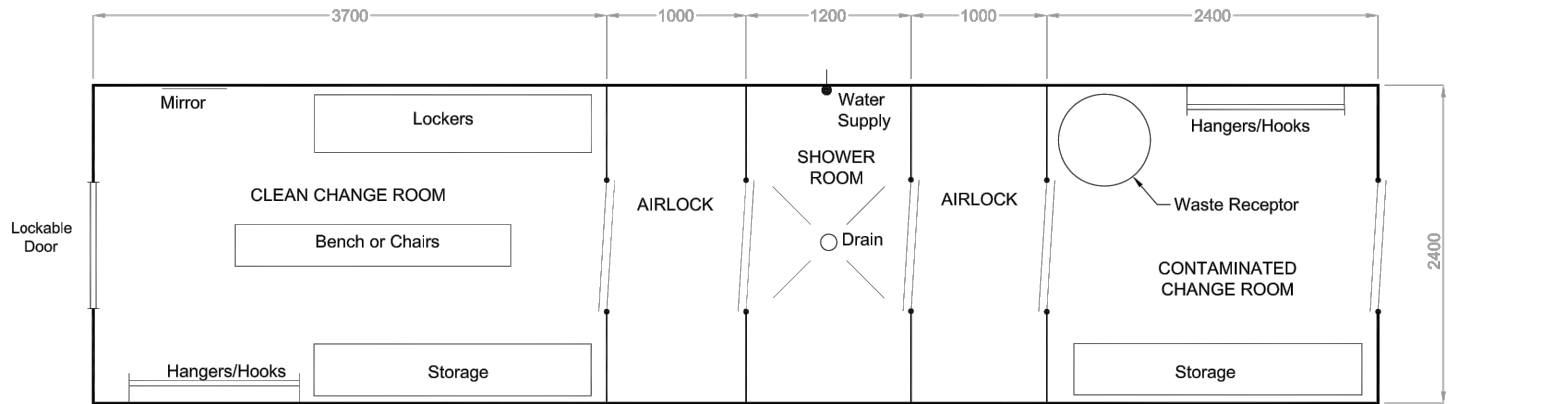
- Five air samples taken inside of the enclosure
- Five air samples taken outside of the enclosure
- Forced air used inside enclosure before and during air sampling
- Fan (20") in the centre of the enclosure pointed upwards towards the ceiling on low (1 fan for every 20,000 ft³ of room space required.)
- Each air sample collected for a volume of at least 2400 L
- Final air sample analysis pass pre-determined criteria
- Final air sample analysis failed pre-determined criteria
- Air sampling results posted following receipt of the results.

Note: All above items must be checked off or marked n/a (not applicable)

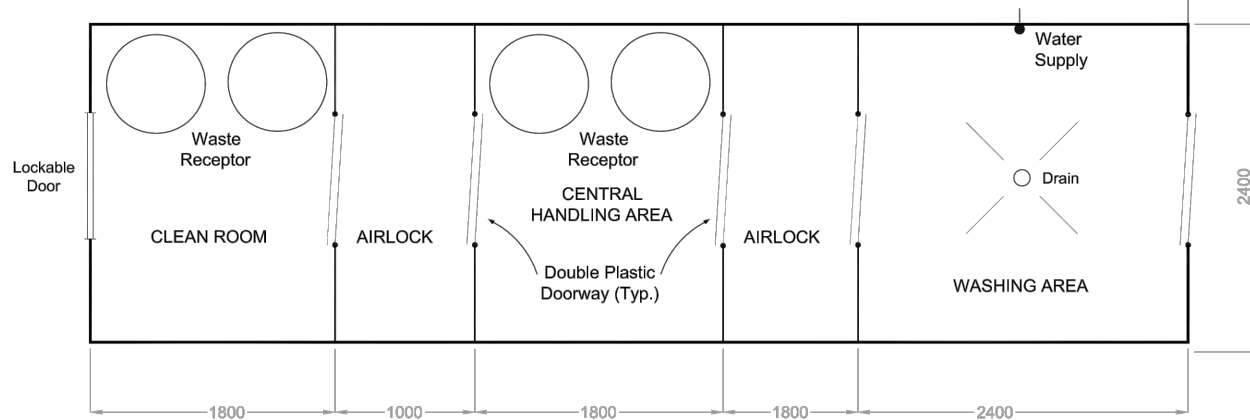
COMMENTS / AUTHORIZATION

This authorization does not in any way replace the contract requirements as detailed in the Specifications, Scope of Work, Regulations, or on-site direction given by the Arcadis Inspector.

DATE: _____ ARCADIS INSPECTOR SIGNATURE: _____



WORKERS DECONTAMINATION ENCLOSURE SYSTEM



WASTE AND EQUIPMENT DECONTAMINATION ENCLOSURE SYSTEM

CONTAMINATED AREA



TYPICAL DECONTAMINATION ENCLOSURES

DIMENSIONS PROVIDED ARE FOR TYPICAL INSTALLATIONS AND MAY VARY SUBJECT TO THE PROPERTY SIZE AND AVAILABLE SPACE WITH THE APPROVAL OF THE INSPECTOR

**ASBESTOS ABATEMENT
ELECTRICIAN'S SUBMITTAL FORM**

Abatement Contractor _____

Project Site _____

I hereby certify the following:

1. All electrical work has been performed by a licensed electrician and complies with the latest edition of the Ontario Electrical Safety Code and any other local codes and requirements.
2. Arrangements have been made for all inspections and approvals which may be required by government regulations, Electrical Safety Authority and any other authorities having jurisdiction.
3. The GFI panel has been properly constructed, inspected and installed by a licensed electrician in compliance to all regulatory requirements and codes.
4. All electrical circuits in the work area have been de-energized and locked out wherever practicable.
5. All systems that cannot be de-energized have been clearly identified.
6. Any electrical conditions which need special protection or consideration have been clearly identified.

Electrical Contractor _____

Electrician's Name (print) _____

Electrician's Signature _____

Electrician's License No. _____

Date _____