

Part 1 General

1.1 ALTERATION PROJECT PROCEDURES

- .1 Materials: As specified in Product sections; match existing Products and work for patching and extending work.
- .2 Employ skilled and experienced installer to perform alteration work.
- .3 Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity.
- .4 Remove, cut and patch Work in a manner to minimize damage and to provide means of restoring Products and finishes to original condition.
- .5 Refinish existing visible surfaces to remain in renovated rooms and spaces, to renewed condition for each material, with a neat transition to adjacent finishes.
- .6 Where new Work abuts or aligns with existing provide a smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.
- .7 When finished surfaces are cut so that a smooth transition with new Work is not possible, terminate exiting surface along a straight line at a natural line of division and submit recommendation to Departmental Representative for review.
- .8 Where a change of plane of 6 mm or more occurs, request instructions from Departmental Representative.
- .9 Patch or replace portions of existing surfaces which are damaged, lifted, discoloured, or showing other imperfections.
- .10 Finish surfaces as specified in individual Product sections.

1.2 SUBMITTALS FOR REVIEW

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Shop Drawings:
 - .1 Indicate demolition and removal sequence and location of salvageable items; location and construction of temporary work.
 - .2 Indicate temporary shoring details. Shoring drawings to be stamped by a Registered Professional Structural Engineer licensed at the Place of Work.

1.3 SUBMITTALS FOR CLOSEOUT

- .1 Section 01 78 00 - Submittal Closeout.
- .2 Project Record Documents: Accurately record actual locations of capped utilities and subsurface obstructions.

1.4 REGULATORY REQUIREMENTS

- .1 Conform to applicable code for demolition work, dust control, products requiring mechanical and electrical disconnection and re-connection.
- .2 Obtain required permits from authorities.

- .3 Do not close or obstruct egress width to any building or site exit.
- .4 Do not disable or disrupt building fire or life safety systems without 3 days prior written notice to Department Representative.
- .5 Conform to procedures applicable when hazardous or contaminated materials are discovered.
- .6 There may be locations where existing walls or slabs may have reinforcement. Allow for X-ray scan of the suspected existing construction.

1.5 SCHEDULING

- .1 Schedule work to coincide with new construction.
- .2 Cease operation immediately if structure appears to be danger and notify Departmental Representative. Do not resume operations until directed.
- .3 Hazardous Materials:
 - .1 The Department Representative has retained an independent inspection agency to review the site for hazardous materials.
 - .2 Refer to the specifications sections provided under this contract.

Part 2 Products

- .1 Not used.

Part 3 Execution

3.1 PREPARATION

- .1 Provide, erect, and maintain temporary barriers and insulated partitions as required to protect occupants and maintain environmental conditions conducive to Work being performed.
- .2 Erect and maintain weatherproof closures for exterior openings.
- .3 Erect and maintain temporary partitions to prevent spread of dust, odours, and noise to permit continued occupancy.
- .4 Protect existing materials and assemblies which are not to be demolished.
- .5 Prevent movement of structure; provide bracing and shoring and temporary structural members required to support wall, floor and roof assemblies scheduled to remain.
- .6 Temporary structural installations to be removed when new structural members have been installed and reviewed by Departmental Representative.
- .7 Notify affected utility companies before starting work and comply with their requirements.
- .8 Mark location and termination of utilities.
- .9 Provide appropriate temporary signage including signage for exit or building egress.

3.2 DEMOLITION

- .1 Disconnect remove, cap and identify designated utilities within demolition areas.
- .2 Demolish in an orderly and careful manner. Protect existing supporting structural members and non-loadbearing assemblies.
- .3 Demolition of Masonry units – Insert structural angle door lintel prior to demolition of exterior wall to accommodate new rough opening for double door.

Also refer to architectural drawings for brick masonry demolition requirements. Retain brick masonry for reuse.
- .4 Remove demolished materials from site except where specifically noted otherwise. Do not burn or bury materials on site. Retain existing brick veneer for reuse.
- .5 Remove materials as Work progresses. Upon completion of Work, leave areas in clean condition.
- .6 Remove temporary Work.

3.3 SALVAGED

- .1 Contact Departmental Representative for direction.
- .2 Store and protect salvaged items until re-installation at location designated by Departmental Representative.
- .3 Turn over salvaged items to applicable specification sections for re-installation.
- .4 Contractor must protect existing equipment in operation from dust/debris or other incidental damage resulting from construction activities, including newly commissioned units in operation and equipment/material on site but not yet installed.

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 This specification covers the removal and disposal of asbestos-containing and asbestos-contaminated materials indicated in the Pinchin report “Hazardous Building Materials Assessment, Edmonton Institution, 21611 Meridian Street, Edmonton AB,” dated June 23, 2017, and the Associated Engineering Preliminary Mechanical Drawings, Revision No. A. Work will include the removal of all settled dust, over spray and debris materials.
- .2 Furnish all labour, materials, services, insurance and equipment, in accordance with requirements of Workplace Health & Safety, Alberta Environment and other regulatory agencies to complete the work of this section.
- .3 Work will be subject to frequent inspection and air monitoring by the Department Representative.
- .4 Refer to the attached hazardous building materials assessment report for locations of asbestos materials in the renovation area.
- .5 Quantities and site conditions to be confirmed by the Contractor and any discrepancies are to be reported to the Department Representative.

1.2 SCOPE OF WORK

- .1 Removal of pipe fittings with asbestos-containing piping cements: Following Moderate Risk (glove-bag) procedures, remove and dispose of all asbestos-containing pipe insulation including but not limited to all insulating cements, finishing cements, paper product insulation, pre-formed thermal insulation, textile lagging materials and associated asbestos-contaminated materials. Control measures to include: Designated work area, glove-bags, and poly drop sheets. PPE to include half-face respirators with P100 filters and full-body Tyvek coveralls. Scope of work to include water piping elbows in the Cell Block Tunnels, Main Floor Ceiling Spaces, West Mechanical Rooms, Gym, Executive Services, and Engineering and Maintenance Area.
- .2 Removal of drywall with asbestos-containing drywall taping compound of less than one square foot of combined material: Following Low Risk procedures, remove and dispose of all asbestos-containing drywall taping compounds, and associated materials including gypsum board, metal bead, fasteners, millwork, mouldings, baseboards, electrical fixtures from wall and ceiling areas. Clean and store de-mounted objects in areas designated by the Department Representative or others and protect from re-contamination. Control measures to include: Designated work area (banner tape). PPE to include half-face respirators with P100 filters and full-body Tyvek coveralls. Scope of work to include the Engineering and Maintenance Areas, and the Medication Room.
- .3 Removal of drywall with asbestos-containing drywall taping compound in excess of one square foot of combined material: Following Moderate Risk procedures, remove and dispose of all asbestos-containing drywall taping compounds, and associated materials including gypsum board, metal bead, fasteners, millwork, mouldings, baseboards, electrical fixtures from wall and ceiling areas. Clean and store de-mounted objects in areas designated by the Department Representative or others and protect from re-contamination. Control measures to include: Partial containment enclosure, with above ceiling seals, 2-stage decontamination facility and negative air. PPE to include full-face, PAPR with P100 and full-body Tyvek coveralls. Scope of work to include the Engineering and Maintenance Areas, and the Medication Room.

- .4 Removal of concrete block wall with asbestos-containing loose-fill vermiculite insulation: Following High Risk procedures, remove and dispose of all asbestos-containing loose-fill vermiculite insulation, and associated materials including concrete block, millwork, mouldings, baseboards, electrical fixtures from wall and ceiling areas. Clean and store de-mounted objects in areas designated by the Department Representative or others and protect from re-contamination. Control measures to include: Full containment enclosure, with above ceiling seals, 3-stage decontamination facility and negative air. PPE to include full-face, PAPR with P100 and full-body Tyvek coveralls. Scope of work to include the Upper West Mechanical Room.

1.3 RELATED WORK

- .1 Section 02 83 00 Lead Paint Removal
.2 Section 02 83 01 Removal and Disposal of Lead Products
.3 Section 02 84 00 PCB Ballast Removal
.4 Section 02 87 00 Mercury Products Removal

1.4 REGULATIONS, CODES AND STANDARDS

- .1 The current issue of the following regulations and guidelines shall govern. Where conflict among these requirements or with these specifications exist, the more stringent requirements shall apply.
- .1 Occupational Health and Safety Act, Regulation and Code.
 - .2 Guidelines for the Disposal of Asbestos Waste.
 - .3 Transportation of Dangerous Goods Regulations.
 - .4 Alberta Asbestos Abatement Manual.
- .2 The current issue of the following codes and standards shall govern. Where conflict among these requirements or with these specifications exist, the more stringent requirements shall apply.
- .1 ANSI/ASME N510-1980 Testing of Nuclear Air-Cleaning Systems and/or NSF Standard Number 49.
 - .2 CGSB 1-GP-205M Standard for: Sealer for Application to Asbestos-Fibre Releasing Materials.
 - .3 CSA Standard Z94.4-M2003, Selection, Care, and Use of Respirators
 - .4 CSA Standard CAN3Z180.1-M85, Compressed Breathing Air and Systems
 - .5 CSA Standard S269.2-M1980, Scaffolding Construction

1.5 QUALITY ASSURANCE

- .1 The removal and handling of asbestos-containing or contaminated materials shall be performed by persons experienced in the methods, procedures, and industry practices of asbestos abatement.
- .2 The Contractor is responsible to ensure that work proceeds to schedule, meeting all requirements of this section. The Contractor shall complete this work so that at no time shall airborne asbestos, waste or asbestos waste-water runoff contaminate areas adjacent to work areas.

- .3 The Department Representative is empowered inspect adherence to specified work procedures and materials and inspect for final cleanliness and completion. Additional labour or materials expended by the Contractor to provide satisfactory performance to the level specified shall be at no additional cost.
- .4 The Department Representative is empowered to order a shutdown of work when a leakage of asbestos-containing or contaminated materials has occurred or is likely to occur. These conditions include, but are not limited to, failure of negative pressure systems, inadequate wetting, failure of critical barriers or decontamination enclosure systems, water leaks, excessive airborne fibre levels in areas adjacent to the work area or in clean room or holding room areas and the contamination of clean room or holding room areas by asbestos-containing or asbestos-contaminated materials. Additional labour or materials to rectify these or other unsatisfactory conditions shall be at no cost to the Department Representative.
- .5 Inspection and air monitoring services performed as a result of the Contractor's failure to conform to specified procedures or level of cleanliness, as determined by the Department Representative at the time of a milestone inspection, may be charged to the Contractor at the Department Representative's discretion.
- .6 All work of this section involving electrical, mechanical, plumbing, glazing, and other trade work, where applicable, shall be performed by skilled tradesmen regularly engaged in the work in question and under the direct supervision of a currently qualified journeyman.
- .7 Provide on-site a project supervisor, who has authority to oversee all aspects of the work of this section including the submission requirements, scheduling, manpower requirements, equipment requirements and production.
- .8 Provide on-site, for each shift, a shift supervisor who is outside of the containment, who has authority to oversee all aspects of the work of this section related to manpower requirements, equipment requirements and production.
- .9 Replacement of supervisory personnel cannot be undertaken without the written approval of the Department Representative.

1.6 SUBMITTALS

- .1 Before commencing work Contractor shall:
 - .1 Submit proof satisfactory to the Department Representative that the site location, required permits and arrangements for transport and disposal of asbestos-containing or contaminated materials have been obtained. Ensure required manifest documentation regarding disposal is submitted in accordance with these specifications.
 - .2 Submit letter(s) of electrical and mechanical system lock-out as specified.
 - .3 Submit documentation verifying Workplace Health & Safety asbestos worker training certification. Submit to the Department Representative, documentation of respirator fit tests conducted for all personnel entering the removal site.
 - .4 Submit written "Asbestos Project Notification" to Workplace, Health & Safety 72 hours prior to the start of the work of this section. Provide verbal notification 24 hours prior to the start of the work of this section. Provide the Department Representative with a copy of the Notification. Submit site specific work procedures to Department Representative.

- .5 Submit to the Department Representative, manufacturer's information, including test results, material safety data sheets and product specifications, of all materials and equipment proposed for use on this project.
- .6 Submit certification or other documentation, acceptable to the Department Representative, certifying all air movement and vacuum equipment, intended for use on this project have had a filter integrity test. Negative air units used for High Risk work must have the filter integrity test conducted on a per project basis and tested every month. Vacuums must be tested with the last 12 months.
- .7 Prepare and submit work procedures and asbestos control plan.

1.7 SITE SUPERVISION

- .1 During time of hazardous material handling (work at risk of dislodging asbestos-containing material) supervisory personnel shall co-ordinate work and take full responsibility for the health and safety of all personnel working within contaminated areas.
- .2 The Contractor shall employ at least one supervisory person within the enclosure and one outside at all times.
- .3 Submit, for all supervisory personnel, Workplace Health & Safety asbestos worker training certification and documentation substantiating supervisory function on at least two comparable projects in occupied buildings.

1.8 SCHEDULING OF WORK

- .1 The Contractor shall prepare and submit the construction schedule for review by the Department Representative three days prior to the start of work. The schedule shall include milestone inspections and all other critical events relating to the work of this section and the work of others. The construction schedule shall incorporate Substantial Performance dates, turnover dates respecting related work elsewhere and time constraints as outlined by the building Department Representative.
- .2 The work of this section shall be conducted in the most efficient manner, and may include phasing the work to meet the Department Representative's schedule.
- .3 The work of this section must comply with the General Contract and Department Representative's requirements with regard to working hours, phasing, access restrictions and operational requirements.
- .4 The Contractor shall allow sufficient time for fibre settling and final air monitoring (minimum of 8-12 hours) following removal.
- .5 The Contractor shall ensure Department Representatives approval of work area preparation and clean-up is obtained as specified.
- .6 The Contractor shall allow sufficient time for inspection of site by Department Representative following site preparations and prior to the execution of the work of this section.

1.9 DEFINITIONS

- .1 Abatement: procedures to control fibre release from asbestos-containing materials. Includes encapsulation, repair, removal.
- .2 Removal: all herein specified procedures necessary to strip all asbestos-containing materials from the designated areas and to dispose of these materials at an acceptable site.

- .3 Encapsulation: all herein specified procedures necessary to coat all asbestos-containing materials with an encapsulant to control the possible release of asbestos fibres into the ambient air.
- .4 Enclosure: all herein specified procedures necessary to complete the enclosure of all asbestos-containing materials within airtight, impermeable barriers.
- .5 Repair: all herein specified procedures necessary to complete containment of all asbestos-containing material using materials impermeable to the release of asbestos fibre.
- .6 Authorised Visitor: Department Representative and/or his appointed representative, and persons representing regulatory agencies.
- .7 Work Area: Areas where work at risk of increasing airborne fibre is to take place.
- .8 Negative Pressure: Air pressure within the work area resulting from air movement equipment established in the area to maintain a minimum pressure differential of 0.50 mm (0.02 inches) of water column relative to adjacent unsealed areas.
- .9 Airlock: System for permitting ingress and egress without permitting air movement between contaminated area and uncontaminated area, typically consisting of two curtain doorways at least 1800 mm (6 feet) apart.
- .10 Curtain Doorway: Device 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 plastic over existing or temporarily framed doorway, securing each along top of doorway, securing vertical edge of one sheet along one vertical side of doorway, and securing vertical edge of other sheet along opposite vertical side of doorway. Free edges of polyethylene shall be reinforced with duct tape and bottom edge shall be weighted to ensure automatic closing.
- .11 Filter Integrity Test: leak testing using liquid polyalphaolefin (PAO) generated into an aerosol used for challenging HEPA filter assemblies.
- .12 Critical Barrier: A barrier constructed of a 38 mm by 89 mm timber framework, covered on both sides with 6 mil plastic sheeting, taped along all free edges and interfaces to prevent the movement of airborne asbestos fibre from the contaminated work area to adjacent uncontaminated areas. Exposed surfaces in public service areas shall be sheathed with plywood. Plywood to be finished with white, eggshell latex paint.
- .13 Contaminated: defines the state of materials, surfaces or areas which by virtue of physical contact with asbestos-containing materials or with airborne asbestos fibre shall require cleaning, removal and/or disposal, as specified in this section.
- .14 Air Monitoring: the process of measuring the fibre content of a specific volume of air in a stated period of time.
- .15 Surfactant: a chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.
- .16 Amended Water: a water to which a surfactant has been added.
- .17 Decontamination Enclosure: a series of connected rooms, with curtained doorways between any two adjacent rooms, for the decontamination of workers or of materials and equipment. A decontamination enclosure system always contains at least one airlock.
- .18 Worker Decontamination Area: a decontamination area for workers, typically consisting of a clean area, bucket of clean tepid water, soap and towels.

- .19 Equipment Decontamination Area: a decontamination area for materials and equipment, typically consisting of a designated area of the work area, a wash area, a holding area, and an uncontaminated area.
- .20 Clean Area: an uncontaminated area or room which is part of the worker decontaminated area, with provisions for storage of workers' street clothes and protective equipment.
- .21 Equipment Room: a contaminated area or room which is part of the worker decontamination area, with provisions for storage of contaminated clothing and equipment.
- .22 Wash Area: an area between the work area and the holding area in the equipment decontamination area. The wash area may comprise an airlock.
- .23 Holding Area: a chamber between the wash area and an uncontaminated area in the equipment decontamination area. The holding area may comprise an airlock.
- .24 Fixed Object: a unit of equipment or furniture in the work area which cannot be removed from the work area.
- .25 Moveable Object: a unit of equipment or furniture in the work area which can be removed from the work area.
- .26 HEPA Filter: a throwaway extended-pleated-medium dry-type filter with (1) a rigid casing enclosing the full depth of the pleats, (2) a minimum removal efficiency of 99.97% for thermally generated monodisperse DOP smoke particles with a diameter of 0.3 micrometers and (3) a maximum pressure drop of 1.0 in w.g. when clean and operating at its rated airflow capacity.
- .27 Encapsulant (Sealant): a liquid material which can be applied to asbestos-containing material and which controls the possible release of asbestos fibres from the material either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant).
- .28 Wet Cleaning: the process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with water, and by afterwards disposing of these cleaning tools as asbestos-contaminated waste.
- .29 Crated: solid self-supporting structure built over equipment or materials of sufficient strength to protect same from damage or contamination for the duration of the work of this section. A 38 mm x 89 mm (2"x 4") timber frame covered with plastic sheeting and hoarded with 10 mm (3/8") plywood shall be standard of acceptance.
- .30 Milestone Inspection: inspection of the work area by the Department Representative at a defined point in the abatement procedure.
- .31 Immediate Vicinity: a four (4) foot area surrounding an asbestos application or either side of a line application or such an area as defined by the Department Representative.
- .32 Occupational Exposure Limit (OEL): the airborne fibre level in fibres per cubic centimetre of air (f/cc) to which workers may be repeatedly exposed day after day without adverse effect as specified by Workplace Health & Safety.
- .33 Maximum Use Concentration: the airborne fibre level in fibres per cubic centimetre of air (f/cc) which limits respiratory use in asbestos work environments as outlined in the "Alberta Asbestos Abatement Manual".
- .34 Investigative Criteria: the airborne fibre level in fibres per cubic centimetre of air (f/cc) which corresponds with one half of the Occupational Exposure Limit.

1.10 PERSONAL PROTECTION

- .1 For low risk work or moderate risk glove bag work, half-face piece, negative pressure, dual-cartridge, P100 filter respirators shall be used by all workers.
- .2 For high risk work, Full-Face piece, Powered Air Purifying Respirators with P100 filters shall be used by all workers.
- .3 Respirators shall be personally issued and approved by the National Institute of Occupational Health and Safety (NIOSH). A review of respiratory protection requirements may be necessary, as dictated by air monitoring results obtained by the Department Representative.
- .4 Provide workers, including other sub-trades, with full-body disposable coveralls. Once coveralls are worn in work area, they shall be treated as asbestos contaminated waste and disposed of accordingly. Provide other body protection, including CSA approved safety footwear, required under applicable safety regulations.
- .5 Provide two complete sets of protective clothing and respirators must be present at all times outside the entrance to the work area for use by Department Representative and/or his appointed representative, and persons representing regulatory agencies who have authority over the project.
- .6 Workers shall be clean-shaven to ensure an adequate respirator face piece seal. Unshaven workers shall not be allowed in the work area.
- .7 Workers shall be fully protected with respirators and protective clothing at all times when the possibility of disturbance of asbestos exists, and when handling bags of asbestos waste.

1.11 BUILDING PROTECTION

- .1 Provide lockable doors sufficient to ensure work area security in the Clean Room and in the Holding Area of Decontamination Enclosure Systems. Ensure building security at all other points of entry to the building including windows and doors demounted to accommodate the installation and exhaust of air movement equipment used through the work of this section.
- .2 Ensure building security, prior to leaving the facilities, by reactivating alarm systems and contacting appropriate security agencies.
- .3 The Contractor shall be responsible to make good all building systems damaged through the work of this section.

1.12 AIR MONITORING

- .1 Air monitoring shall be performed by the Department Representative in accordance with NIOSH 7400.
- .2 The Contractor shall assist the Department Representative in the collection of air samples including the provision of workers to wear sampling pumps for up to a full work shift period and the provision of adequate, uninterrupted power for low amperage vacuum/pressure type pumps.
- .3 Allow sufficient time for fibre settling and final air monitoring (minimum 8-12 hours) following each phase of removal.
- .4 Airborne fibre levels found, in excess of “investigative criteria”, in areas adjacent to the work area or in clean room or holding room areas, shall initiate an investigation by the

Contractor and the Department Representative into the source of excess airborne fibre levels.

- .5 Where airborne fibre levels in the work area exceed the Maximum Use Concentration for the respiratory protective equipment observed in use, the Department Representative shall take measures outlined in Quality Assurance.
- .6 Air monitoring within the work area to establish acceptable clearance and tear down conditions shall be conducted following Milestone Inspection B (Visual Clearance Inspection), approval of work area clean-up procedures and the application of a lock-down encapsulant to all surfaces within the work area. Acceptable air clearance criteria have been established by Workplace Health & Safety at less than <0.01 f/cc using aggressive sampling methods.

1.13 INSPECTION

- .1 The Department Representative will periodically inspect site conditions and work procedures inside and outside of the work area.
- .2 The Department Representative will perform the following milestone inspections:
 - .1 Milestone Inspection A - Pre-contamination inspection of work area preparation and set-up prior to disturbance and removal of asbestos-containing or asbestos-contaminated materials.
 - .2 Milestone Inspection B - Visual clearance inspection of work area following clean-up work procedures but prior to final tear-down procedures.
 - .3 Milestone Inspection C - Air clearance inspection and air monitoring of work area following Milestone Inspection B and the application of a slow drying sealer in the work area but prior to final tear-down procedures.
 - .4 Milestone Inspection D - Dismantling inspection following final tear-down procedures.

Part 2 Products and Facilities

2.1 MATERIALS

- .1 Deliver all materials and disposable equipment in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name. Material that becomes contaminated with asbestos shall be disposed of in accordance with the applicable regulations.
- .2 Plastic sheet: of 0.25 mm (10 mil) and 0.15 mm (6 mil) thick polyethylene, unless otherwise specified, sized to minimise the frequency of joints.
- .3 Reinforced polyethylene: polyethylene or polyolefin materials, coated on each side, with a unit weight equivalent to or exceeding 107 g/sq. m (4.6 oz/sq. yd) and 12 mil thick.
- .4 Duct Tape: Suitable for sealing polyethylene to surfaces encountered and to itself under both wet and dry conditions including use of amended water.
- .5 Wetting agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether or other product approved by Department Representative mixed with water in concentration to provide total penetration and wetting of asbestos fibre.

- .6 Amended water: Water with non-ionic water surfactant added for purpose of reducing surface tension to allow thorough wetting of asbestos fibre.
- .7 Asbestos waste receptors: 0.25 mm minimum thickness labelled polyethylene. Container must be acceptable to disposal site selected and provincial Ministry of Environment.
- .8 Disposable coveralls: Standard of acceptance - Full body coveralls with attached hood, manufactured by Dupont Tyvek, Kimberley Clarke or approved equal.
- .9 Warning labels and signs: delineating entry and protective equipment requirements and providing warning of the potential health effects of exposure to airborne asbestos fibre.
- .10 Encapsulant: a lock down encapsulant used to seal surfaces post removal meeting the requirements of CAN/CGSB 1.205-94. Standard of acceptance is Foster Chil-Lock CP240.
- .11 Plywood sheeting: good one side 10 mm (3/8") plywood.
- .12 Glove Bag: a clear, prefabricated, purpose-made, co-extruded poly-vinyl-chloride or polyethylene bag with integral gloves of suitable material. Continuous use bags shall be equipped with reversible double-pull, double-throw zippers with protective flaps to facilitate installation and progressive movement along pipe. Collars should be well defined to facilitate sealing the bag around the pipe. Bags with bottom seam or heat seam construction may be rejected at the discretion of the Department Representative.
- .13 Mastic Remover: Blue Bear, BEAN-e-doo mastic remover, Franmar Chemical.
- .14 Degreaser: Blue Bear Cleaner and Degreaser, or equivalent, Franmar Chemical.

2.2 TOOLS AND EQUIPMENT

- .1 Spray equipment for application of amended water or slow drying sealer: Standard of Acceptance-Grayco Hydraspray Airless spray unit.
- .2 HEPA vacuum equipment: appropriate vacuum equipment equipped with High Efficiency Particulate Absolute air filters capable of capturing and retaining 99.97% of all fibrous material 0.3 microns or larger.
- .3 Removal tools: suitable tools for asbestos removal including pliable nylon brushes for the removal of base and finish application.
- .4 Air Movement Equipment: low velocity, high volume centrifugal fan units enclosed in a sealed cabinet incorporating HEPA filter assemblies in their design and manufacture and conforming to specified testing and certification requirements. No air movement equipment shall discharge asbestos fibres outside the work area.
- .5 Temporary Lighting: Grounded halogen light fixtures.
- .6 Temporary Power: 4#8 TECK Feeder Cable and 40 A three (3) pole breaker where required.
- .7 Ground fault electrical panel: temporary service panel NBLP type 100 amp, 120/208 volt, 3 phase wire equipped exclusively with ground fault interrupter circuit.

Part 3 Execution

3.1 PREPARATION OF WORK AREA

- .1 In Low Risk and Moderate Risk Glove Bag work areas:

- .1 Isolate the work area from adjacent building areas, using barricades, hazard warning tape or other means as appropriate.
 - .2 Provide a polyethylene drop sheet immediately below the work area.
 - .3 Turn-off all HVAC (supply, return, exhaust) serving the work area and seal with poly and tape.
 - .4 Provide a worker decontamination area at the entrance to the work area consisting of a bucket of clean tepid water, soap and towels.
- .2 In Moderate Risk work areas:
- .1 Establish critical barriers at all points of entry to the work area.
 - .2 Cover all openings (windows, doors, ducts, diffusers, etc.) with polyethylene and seal with duct tape. Line finished walls and critical barriers with 0.15 mm (6 mil) plastic sheet and seal with duct tape. Overlap floor linings with wall linings and seal in place along all free edges.
 - .3 Provide a two-stage worker decontamination unit connected to the enclosure complete with a bucket of clean tepid water, soap and towels.
 - .4 Establish negative pressure in the work area with HEPA filtered negative air units. Direct exhaust flow of negative air units to the outside, where possible, and maintain building security.
- .3 In High Risk work areas:
- .1 Establish critical barriers at all points of entry to the work area.
 - .2 Provide a layer of reinforced polyethylene on the floor of the containment covered by a second layer of at least 6 mil polyethylene sheeting. Lay the floor linings in continuous sheets extending 300 mm (12 inches) up the walls and seal in place along all free edges. Bond floor linings with two-sided adhesive tape to prevent lifting.
 - .3 Line finished walls and critical barriers with 0.15 mm (6 mil) plastic sheet and seal with duct tape. Overlap floor linings with wall linings and seal in place along all free edges.
 - .4 Ensure that the plastic linings provide a continuous barrier and that a seal is maintained around penetrating objects, tears and elsewhere as required by the Department Representative.
 - .5 Remove perimeter ceiling tiles outside of the work area perimeter and install above ceiling critical barriers.
 - .6 Crate over and protect from damage all fixed objects in the removal area.
 - .7 Using HEPA filtered negative air cabinets, establish and maintain 0.02 inches negative pressure. One air change every 15 minutes shall be required. Ensure negative pressure requirements are maintained relative to pressures maintained in existing mechanical systems. Exhaust ducting from all air movement equipment installed in the work area shall extend outside of the building to areas meeting the approval of the Departmental Representative. Air movement equipment shall operate continuously from the time of initial asbestos disturbance until approval of clean-up procedures by the Department Representative or as directed by the Department Representative.

- .8 Remove windows, using qualified trades, to allow exhaust of air movement equipment. Install plywood panels to maintain building security.
- .4 General Preparation Requirements:
 - .1 Low risk personnel protection procedures shall apply during work area preparation if risk of dislodging asbestos exists.
 - .2 De-energize building electrical systems in the work area. Establish a lockout or tag-out procedure, as required by the Department Representative, for de-energization and re-energization of such systems and provide Department Representative with specified submittal requirements. Identify live electrical lines remaining in the work area. Electrical trades to follow low risk work procedures.
 - .3 Isolate building mechanical systems. Shut off all exhaust, supply and return fan units serving work area and implement required lock-out procedures. Install plastic seals reinforced with tape over all duct openings.
 - .4 Discharge, drain and cap fire suppression systems where approved by the Department Representative and authorities having jurisdiction. Where sprinkler systems cannot be drained, cage all sprinkler heads to protect from inadvertent damage. Obtain and follow Department Representative's instructions with regard to foam, carbon dioxide, halogen agent or dry chemical extinguishing systems.
 - .5 Provide and install temporary lighting to provide one (1) lamp for every 20 square metres of work area.
 - .6 Ensure that all holes or openings in existing wall, ceiling and floor structures are adequately sealed.
 - .7 Remove ceiling, floor and wall mounted objects and other moveable objects which interfere with asbestos abatement. Clean and store movable objects in areas designated by the Department Representative or others and protect from re-contamination.
 - .8 Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to fire officials.
 - .9 Where boilers or hot water tanks or other gas fired appliances must remain in operation, provide a ducted source of combustion air to each unit. Ensure that the exhaust is effectively sealed in order to prevent back drafting.
 - .10 Seal all elevator and other shafts to prevent air leakage from or into these spaces.

3.2 DECONTAMINATION ENCLOSURES

- .1 Worker Decontamination Unit (Moderate Risk)
 - .1 Worker Decontamination Enclosures shall be constructed in locations approved by the Department Representative.
 - .2 Locate switch for temporary lighting inside the clean room.
 - .3 Locate work area water supply shutoff inside the clean room.
 - .4 Build equipment and access room contiguous with the work area, with two curtain doorways, one to clean room and to work area.
 - .5 Build clean room between equipment and access room and clean areas outside of enclosures, with one curtain doorway leading to equipment and access room.

Provide lockers or hangers for workers' street clothes and personal belongings. Provide storage for clean protective clothing and respiratory equipment. Install mirror to permit workers to fit respiratory equipment properly. Provide one clean towel per worker per decontamination for all workers on site.

- .2 Worker Decontamination Unit (High Risk)
 - .1 Worker Decontamination Enclosures shall be constructed in locations approved by the Departmental Representative.
 - .2 Locate switch for temporary lighting inside the clean room.
 - .3 Locate work area water supply shutoff inside the clean room.
 - .4 Build equipment and access room between shower room and contiguous with the work area, with two curtain doorways, one to shower room and to work area.
 - .5 Build shower room between clean room and equipment and access room, with two curtain doorways, one to clean room and one to equipment and access room. Shower rooms shall be walk through type, ensure entry and exit through actual showers by opposing doors, such that access to clean room from shower room must be through actual showers. Contractor shall provide hot and cold water supply in each work area and must provide a minimum of two shower heads, self-activating pump for disposal of waste water and leak proof connections to water supply.
 - .6 Build clean room between shower room and clean areas outside of enclosures, with one curtain doorway leading to shower room and second lockable door to outside of enclosures. Provide lockers or hangers for workers' street clothes and personal belongings. Provide storage for clean protective clothing and respiratory equipment. Install mirror to permit workers to fit respiratory equipment properly. Provide one clean towel per worker per decontamination for all workers on site.
- .3 Waste Transfer Enclosure (Moderate Risk)
 - .1 Build staging area between contaminated area and holding room with two doorways, one to the contaminated area and one to holding room. Room shall be built of sufficient size to allow proper washing of equipment and drums and/or double bagging of asbestos waste. Wash water shall be treated as asbestos contaminated waste.
 - .2 Build holding room between staging area and un-contaminated area, with two curtain doorways, one to staging area and one to un-contaminated area. Holding room shall be of sufficient size to accommodate largest item of equipment used and all waste containers.
- .4 Waste Transfer Enclosure (High Risk)
 - .1 Build container cleaning room between staging area and holding room with two doorways, one to staging area and one to holding room. Room shall be built of sufficient size to allow proper washing of equipment and drums and/or double bagging of asbestos waste. Wash water shall be treated as asbestos contaminated waste.
 - .2 Build holding room between washroom and un-contaminated area, with two curtain doorways, one to washroom and one to un-contaminated area, and a lockable door to outside of enclosures. Holding room shall be of sufficient size to accommodate largest item of equipment used and all waste containers.

- .5 General Requirements for Decontamination Enclosures
 - .6 Construction shall be of quality and design to assure against leakage of asbestos fibres and/or water to areas outside scope of work.
 - .7 Build curtain doorways designed so when workers or drums and equipment move through doorway, one of two barriers comprising doorways always remains closed.
 - .8 Provide lockable doors at entrances to clean room and holding room of the decontamination enclosure systems.
 - .9 Enclosures shall be maintained in clean and tidy condition.
 - .10 Visually inspect enclosures regularly and at the beginning of each working period. Repair damaged barriers and remedy defects immediately upon discovery.

3.3 ASBESTOS DISTURBANCE AND REMOVAL

- .1 Wetting and removal of asbestos materials shall not proceed until Milestone Inspection A (pre-contamination inspection) is undertaken by the Department Representative.
- .2 Pipe Insulation (Glove Bag Method)
 - .1 Glove Bag removal is not recommended for use on active systems in hot service at surface temperatures above 160 degrees Fahrenheit or 70 degrees Celsius. Alternative work procedures and materials shall be necessary for hot service removal. Obtain Department Representative's instruction and approval where appropriate.
 - .2 HEPA vacuum pipe insulation to remove accumulated dust.
 - .3 Place removal tools in bag (tool pouch) and seal bag to pipe using tape to seal bag collars to taped areas on the pipe insulation. Cut entry sleeves and insert HEPA vacuum attachments and spray wands into the bag.
 - .4 Place hands in arm entries and spray asbestos insulation with amended water using approved spray equipment. Cut and remove exposed pipe lagging and thoroughly saturate asbestos insulation prior to and during any removal work. Remove asbestos insulation materials in small sections and place directly into bottom of glove bag. Remove 100 mm (4") of adjacent non-asbestos materials at all pipe fittings.
 - .5 Wash down exposed portion of pipe and top section of bag and thoroughly saturate waste materials in the bottom section of the bag. Use sponges, abrasive pads and other tools to aid in cleaning.
 - .6 Apply sealer encapsulant to exposed pipe. Evacuate the air from the glovebag by switching on the HEPA vacuum prior to removal of the glovebag.
 - .7 Seal glovebag and place in asbestos waste receptor and seal with duct tape. Double bag poly drop sheets and seal.
 - .8 Notify Department Representative of Visual Inspection B.
- .3 Drywall
 - .1 Mist drywall with water to reduce fibre levels.
 - .2 Remove drywall panels and place directly into disposal bags. Remove all debris materials in the work area and dispose as asbestos-contaminated waste.

- .4 Vermiculite
 - .1 Vacuum using HEPA filtered equipment or scoop loose fill insulation and package in asbestos disposal bags. Provide a continual mist of amended water, using approved spray equipment, to reduce airborne fibre levels. Remove drywall panels and place directly into disposal bags. Remove all debris materials in the work area and dispose as asbestos-contaminated waste.
 - .2 Where vermiculite is in hollow masonry walls, open the front face of the blocks to allow complete removal and cleaning of the cavities. Do not allow vermiculite to accumulate and scoop into bags on an on-going basis.
 - .3 The structural integrity of the wall shall be maintained by providing bracing or limiting the number of holes made in the blocks.
 - .4 Using low pressure compressed air blow vermiculite down through the cavities and collect at bottom with HEPA vacuum. NOTE: Should this procedure effect the structural integrity of the wall an alternate method will be required. This method must be approved by the Department Representative.

3.4 CLEAN-UP

- .1 Place asbestos waste and associated debris in sealed asbestos waste receptors. Inner bag shall be cleaned of gross contamination and placed in clean 0.25 mm suitably labelled plastic bag or drum in washroom area of the decontamination enclosure system.
- .2 Wet clean or HEPA vacuum, as appropriate, all surfaces including but not limited to ceiling suspension systems, wooded ceiling joists, mechanical ducting and vents, domestic piping, electrical conduit and wiring and all horizontal and vertical surfaces within the work area.
- .3 Prior to the Department Representatives visual inspection supervisory personnel must perform a visual inspection to ensure the work has been performed as specified.
- .4 Notify Department Representative at suitable stage of final clean-up of requirement for Milestone Inspection B (Visual Clearance Inspection) of work area. Following inspection and acceptance by the Department Representative apply a coat of slow drying sealer to all surfaces in work site including plastic sheeting.
- .5 All HEPA filtered negative air pressure systems, air filtration, and decontamination enclosure systems shall remain in service at this time.
- .6 Allow a minimum of 8-12 hours for fibre settling after moderate risk work with no disturbance of work site before air clearance monitoring. Notify Department Representative of requirement for Milestone Inspection C (Air Clearance Inspection).

3.5 TEAR-DOWN

- .1 Proceed with final tear-down operations when airborne fibre levels in the work area do not exceed acceptable air clearance levels.
- .2 Wet clean or HEPA vacuum entire work area including floor, wall and curtain doorway surfaces to a high standard of cleanliness.
- .3 Tear-down critical barriers, plastic linings, curtain doorways and air-locks and dispose of as contaminated waste. Remove and dispose all asbestos-contaminated materials.
- .4 Dispose of all cloths, mops, sponges, rags, nylon brushes, brooms and any bristled tools as asbestos waste.

- .5 Wet clean and bag all boots, tools before removal from site.
- .6 Clean and seal wood planks and ladders prior to removal from site.
- .7 Final clean-up and dismantling procedures shall be undertaken by workers suitably protected with half face respirators equipped with HEPA filters and disposable coveralls.
- .8 Notify Department Representative at suitable stage of final tear-down requirement for 'Milestone Inspection D' (Final Tear-Down Inspection) of work area.

3.6 REPLACEMENT AND RE-ESTABLISHMENT OF OBJECTS AND SYSTEMS

- .1 When clean-up is complete, ensure that all objects and systems are re-established by qualified trades, including isolated or disconnected electrical and mechanical systems, HVAC systems, fire detection, building security and sprinkler systems. Reinstall, using qualified trades, windows removed to accommodate the work of this section.

3.7 DISPOSAL

- .1 As work progresses, and to prevent exceeding available storage capacity on site, remove sealed and labelled asbestos waste and dispose of in an authorised disposal area in accordance with the requirements of the disposal authority.
- .2 Comply with Federal, Provincial and Municipal authorities regarding the transport and disposal of asbestos waste materials.
- .3 Dumpsters, lockable bins or covered vans only shall be used for the disposal of asbestos. Bins or dumpsters shall be firmly and securely covered with tarpaulins and provided with hazardous waste identification placards at all times and prior to transportation.
- .4 Ensure each shipment of containers to landfill is accompanied by Contractor's representative who shall supervise dumping of containers, supply equipment operators with appropriate personal protective equipment and ensure guidelines and regulations are followed. Each load shall require completion and signing of shipping documents.
- .5 Ensure landfill operator is fully aware of hazardous material being disposed of and equipment operators have been fully briefed in management of asbestos containers after delivery to the landfill.

END OF SECTION



FINAL Hazardous Building Materials Assessment

Edmonton Institution
21611 Meridian Street,
Edmonton AB

Prepared for:

**Associated Engineering Alberta
Ltd.**

Suite 500, 9888 Jasper Avenue
Edmonton, AB, T5J 5C6

Attention: Judd Mah, P.Eng. LEED AP
Mechanical, Buildings Engineer

June 23, 2017

Pinchin File: 179150.000



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EXECUTIVE SUMMARY

Associated Engineering Alberta Ltd. (Client) retained Pinchin Ltd. (Pinchin) to conduct a hazardous building materials assessment of the Edmonton Institution located at 21611 Meridian Street, Edmonton AB. Pinchin performed the assessment between May 30, 2017 to June 2, 2017.

The objective of the assessment was to identify specified hazardous building materials in preparation for building renovation in relation to a planned HVAC upgrade. The results of this assessment are intended for use with a properly developed scope of work and performance specification.

The assessed areas were limited to the parts of the building determined to be subject to changes in relation to the planned HVAC upgrade. The assessed areas were limited to the parts of the building affected by the planned HVAC upgrade, delineated by mechanical renovation drawings provided by the Client.

SUMMARY OF FINDINGS

Asbestos: Asbestos-containing materials (ACM) were confirmed to be present as follows:

- Parging cement insulation on water piping elbows in the Cell Block Tunnels, West Mechanical Rooms, Gym, Executive Services, and Engineering and Maintenance area;
- Drywall joint compound in the Medication Room and Engineering and Maintenance area.

Lead: Lead was confirmed present in select paints/surface.

Silica: Crystalline silica is present in concrete, mortar, brick, masonry, ceramics, granite, slate, stone, asphalt, etc.

Mercury: Mercury vapour is present in fluorescent lamps.

Polychlorinated Biphenyls (PCBs): PCBs are present in light ballasts.

SUMMARY OF RECOMMENDATIONS

The following is a summary of significant recommendations; refer to the body of the report for detailed recommendations.

1. Remove and properly dispose of asbestos-containing materials prior to demolition or if disturbed by the planned renovation work.
2. Remove and properly dispose of PCB ballasts and mercury-containing items prior to demolition or if disturbed by the planned renovation work.



3. Follow appropriate safe work procedures when handling or disturbing lead and silica.

Please refer to Section 4.0 of this report for detailed recommendations regarding administrative, renovation or demolition activities.

This Executive Summary is subject to the same standard limitations as contained in the report and must be read in conjunction with the entire report.



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1.0 INTRODUCTION AND SCOPE

Associated Engineering Alberta Ltd. (Client) retained Pinchin Ltd. (Pinchin) to conduct a hazardous building materials assessment of the Edmonton Institution, located at 21611 Meridian Street, Edmonton AB.

Ben Frederick, B.Sc., Technologist, performed the assessment between May 30, 2017 to June 2, 2017. The surveyor was accompanied by Keith Harrison, Lead Commissionaire, during the assessment. The building was occupied at the time of the assessment.

The objective of the assessment was to identify specified hazardous building materials in preparation for building renovation in relation to a planned HVAC upgrade. This assessment is intended to be used for pre-construction purposes only, and may not provide sufficient detail for long term management of hazardous materials as required by Health and Safety regulations. The results of this assessment are intended for use with a properly developed scope of work and performance specification.

1.1 Scope of Assessment

The assessment was performed to establish the location and type of specified hazardous building materials incorporated in the structures and its finishes. The assessed areas were limited to the parts of the building affected by the planned HVAC upgrade, delineated by mechanical renovation drawings provided by the Client. The assessment only included items within each area that would be potentially disturbed or removed as part of the renovation.

For the purpose of the assessment and this report, hazardous building materials are defined as follows:

- Asbestos
- Lead
- Silica
- Mercury
- Polychlorinated Biphenyls (PCBs)

2.0 BACKGROUND INFORMATION

2.1 Building Description

Item	Details
Building Use	Multi-building Maximum Security Prison Complex
Number of Floors/Levels	Two stories, plus one below grade
Year of Construction	1978, with various renovations and additions
Structure	Structural steel, concrete, masonry
Exterior Cladding	Pre-cast concrete, metal siding, brick
HVAC	Rooftop AC, Boiler and hot water heating to radiators
Roof	Built-up roofing
Flooring	Concrete, vinyl tile, vinyl sheet flooring, carpet
Interior Walls	Concrete, drywall, concrete block
Ceilings	Concrete, drywall, acoustic ceiling tiles

2.2 Existing Reports

Pinchin was provided, and instructed to rely upon, the following existing reports:

- Asbestos-Containing Building Material Survey Report – Final Edmonton Maximum Security Penitentiary 21611 Meridian Street, Edmonton, Alberta, March 2009. Prepared by PHH ARC Environmental, File No. 6037AX.

3.0 FINDINGS

3.1 Asbestos

The following section summarizes the findings of the assessment and provides a general description of the asbestos materials identified and their locations. Appendix II-A presents the asbestos bulk sample analytical results. For details on quantities, assessment and locations of asbestos materials; refer to the Hazardous Material Summary Report and All Data Report in Appendix V and VI.

3.1.1 *Suspect Materials Not Found*

The following types of building materials may historically contain asbestos but were not observed in the assessed area, or deemed to be impacted by the renovation, and are not discussed in the report findings:

- Plaster
- Asbestos cement products
- Vinyl sheet flooring
- Vinyl floor tiles and mastic

3.1.2 *Spray-Applied Fireproofing and Thermal Insulation*

Spray-applied fireproofing is present in the East Mechanical Room, West Mechanical Room, Southwest Mechanical Room, Segregation Block Mechanical Room, and the Segregation Mechanical Room. Asbestos was not detected in the fireproofing samples.



Non-asbestos fireproofing present within various mechanical rooms.

3.1.3 *Texture Finishes (Acoustic/Decorative)*

Texture finish is present on drywall ceilings in the Chapel. No asbestos was detected in the texture coat samples.



Non-asbestos texture coat present in the Chapel.

3.1.4 Thermal Systems Insulation (TSI)

3.1.4.1 Pipe Insulation

Parging cement, containing asbestos, is present on pipe elbows related to the HVAC systems.

Non-asbestos fiberglass insulation is present on straight sections of pipe in all observed areas. There was no asbestos parging cement noted on the seams of the insulation at the locations inspected.



Asbestos pipe elbow in Cell Block Tunnels



Asbestos pipe elbows in Executive Services

3.1.4.2 Duct Insulation

Ducts are either uninsulated or insulated with non-asbestos fiberglass and jacketed with either canvas or foil.



Example of non-asbestos ducting present.

3.1.4.3 *Mechanical Equipment Insulation*

Mechanical equipment is either uninsulated or insulated with non-asbestos fibreglass.



Example of mechanical equipment present.



Example of uninsulated mechanical equipment present.

3.1.4.4 *Vermiculite*

Loose fill vermiculite is not present in the assessed areas. Demolition of exterior masonry block walls was not performed as they are outside of this assessments scope, therefore vermiculite may be present within these cavities.

3.1.5 *Mortar*

Block wall mortar was samples within the Segregation Block Mechanical Room / Segregation Mechanical Room. The mortar returned as non-asbestos.

3.1.6 Acoustic Ceiling Tiles

A total of three distinct types of lay-in ceiling tile are present within the assessed area. Most ceiling tiles are presumed to be non-asbestos based on the date of manufacture determined from the date stamp applied to the top of the tiles or the age of the materials determined from the age of the building or the renovation. The tiles were manufactured after asbestos stopped being used in acoustic ceiling tiles. All other tiles in the assessed areas that did not display a date stamp were sampled and were determined not contain asbestos.



Non-asbestos lay-in ceiling tiles, Sample S0012, Contact Visiting Room.



Non-asbestos lay-in ceiling tiles, Sample S0023, Engineering And Maintenance.

3.1.7 Drywall Joint Compound

Drywall (gypsum board) and drywall joint compound is present as a wall and ceiling finish in many of the assessed areas. Based on the results of the testing, the drywall joint compound in the Medication Room and Engineering and Maintenance areas contains chrysotile asbestos.



Asbestos containing Drywall Joint Compound in Medication Room



Asbestos containing Drywall Joint Compound in room S22, Engineering and Maintenance

3.1.8 Sealants, Caulking, and Putty

Caulking at exterior windows and doors was outside of this assessments scope so were not sampled.

Four distinct colours of duct joint mastic were present in the assessed areas. All mastics were analysed for asbestos content and were not asbestos containing.



Non-asbestos "silver" mastic, Sample S0006, Southwest Mechanical Room.



Non-asbestos "red" mastic, Sample S0007, Southwest Mechanical Room.



Non-asbestos "brown" mastic, Sample S0008, Southwest Mechanical Room.



Non-asbestos "grey" mastic, Sample S0016, Segregation Block Mechanical Room.

3.1.9 Roofing Products

Built-up roofing is present on the roof over the entire assessment areas. The built up roofing materials do not contain asbestos (sample S0020A-H).



Non-asbestos roofing materials.

3.1.10 Presumed Asbestos Materials

A number of materials which might contain asbestos were not sampled during our assessment due to limitations in scope and methodology. Where present, these materials must be presumed to be an asbestos material and are best sampled during project planning and preparation of contract documents for their removal. Materials presumed to contain asbestos include:

- concrete floor levelling compound
- electrical components or wiring within control centers, breakers, motors or lights, insulation on wiring
- moulded plastic components (laboratory bench tops)
- vermiculite in concrete block wall cavities
- caulking
- fibre reinforced paints coatings
- paper products under wood flooring or metal or slate roofing
- mechanical packing, ropes and gaskets
- fire resistant doors or metal clad finishes
- exterior cladding

3.2 Lead

3.2.1 Paints and Surface Coatings

A total of nine paint samples were collected from interior painted finishes. All paints containing elevated levels of lead were found to be in good condition and not flaking, peeling or delaminating. For details on the types, location, results of paints sampled, refer to Appendix VI.



Lead-based "yellow" paint, Sample L0001.



Lead-based "beige" paint, Sample L0002.



Lead-based "brown" paint, Sample L0003.



Lead-based "white" paint, Sample L0004.



Lead-based "beige" wall paint, Sample L0005.



Lead-based "beige" paint, Sample L0006.



Lead-based "pinkish-brown over beige" paint, Sample L0007.



Lead-based "grey" paint, Sample L0008.

Grey wall and ceiling paint that did not have elevated levels of lead was flaking/peeling in the A and B Cell Blocks, central area:



Peeling non-lead based paint in Cell Block A and B office

Appendix II-B presents the lead testing results.

3.2.2 *Lead Products and Applications*

Lead products were not found within the scope of this survey.

3.2.3 *Presumed Lead Materials*

Lead may be present in a number of materials which were not assessed and/or sampled. The following materials, where found, should be considered to contain lead.

- electrical components, including wiring connectors
- grounding conductors, and solder
- glazing on ceramic tiles

3.3 Silica

Crystalline silica is a presumed component of the following materials where present in the building:

- poured or pre-cast concrete
- masonry and mortar
- stone (granite, slate)
- refractory or ceramic materials in high temperature mechanical or production equipment
- ceramic tiles, grout
- plaster

3.4 Mercury

3.4.1 Lamps

Mercury vapour is present in fluorescent light tubes.

3.4.2 Mercury-Containing Devices

Thermostats inspected did not contain liquid mercury ampules.

3.5 Polychlorinated Biphenyls

3.5.1 Caulking

Caulking was not present in the scope of this survey, so it was not sampled.

3.5.2 Lighting Ballasts

The building has not been comprehensively re-lamped with new energy efficient light ballasts and lamps, and as such, a percentage of light ballasts will be pre-1980 and contain PCBs.

3.5.3 Transformers

Transformers were not found during the assessment.

3.5.4 Presumed PCB Materials

- oil impregnated cables and potheads
- voltage regulators
- hydraulic fluids
- paints

3.6 Mould

Visible mould growth was not found on materials during the assessment.

4.0 RECOMMENDATIONS

4.1 General

1. Prepare plans and performance specifications for hazardous material removal for the planned work. The specifications should include the scope of work, safe work practices, and risk assessments
2. Provide this report and the detailed plans and specifications to the contractor prior to bidding or commencing work.
3. Retain a qualified consultant to specify, inspect and verify the successful removal of hazardous materials.
4. Update the asbestos inventory upon completion of the abatement and removal of asbestos-containing materials.

4.2 Building Demolition or Renovation Work

The following recommendations are made regarding demolition or renovation involving the hazardous materials identified.

4.2.1 Asbestos

Remove all asbestos-containing materials (ACM) prior to renovation, alteration, maintenance or demolition work or if ACM may be disturbed by the work.

If the identified ACM will not be removed prior to commencement of the work, disturbance of ACM must follow the appropriate asbestos precautions for the classification of work being performed.

Asbestos-containing materials must be disposed of at a landfill approved to accept asbestos waste.

4.2.2 Lead

Construction disturbance of lead in paint and coatings (or other materials) may result in over-exposure to lead dust or fumes. The need for work procedures, engineering controls and personal protective equipment will need to be assessed on a project-by-project basis and must comply with provincial standards or guidelines. Performing an exposure assessment during work that disturbs lead in paints and coatings may be able to alleviate the use of some of the precautions specified by these standards or guidelines.

Items painted with paints containing elevated levels of lead may be a hazardous waste. Test lead-painted materials for leachable lead and other metals prior to disposal.

4.2.3 *Silica*

Construction disturbance of silica-containing products may result in excessive exposures to airborne silica, especially if performed indoors and dry. Cutting, grinding, drilling or demolition of materials containing silica should be completed only with proper respiratory protection and other worker safety precautions that comply with provincial standards or guidelines.

4.2.4 *Mercury*

Do not break lamps or separate liquid mercury from components. Recycle and reclaim mercury from fluorescent lamps when taken out of service. Liquid mercury is classified as a hazardous waste and must be disposed of in accordance with local regulations.

4.2.5 *PCBs*

When light fixtures are removed, examine light ballasts for PCB content. If ballasts are not clearly labelled as “non-PCB”, or are suspected to contain PCBs; package and ship ballasts for destruction at a federally permitted facility.

4.2.6 *Mould*

No mould was observed. If mould is uncovered inside wall cavities during hand demolition, use appropriate precautions and protect workers using methods that comply with provincial guidelines.



5.0 TERMS AND LIMITATIONS

This work was performed subject to the Terms and Limitations presented or referenced in the proposal for this project.

Information provided by Pinchin is intended for Client use only. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law. Any use by a third party of reports or documents authored by Pinchin or any reliance by a third party on or decisions made by a third party based on the findings described in said documents, is the sole responsibility of such third parties. Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.

6.0 REFERENCES

The following legislation and documents were referenced in completing the assessment and this report:

1. Alberta Asbestos Abatement Manual, Government of Alberta Human Services, October 2012.
2. Occupational Health and Safety Act, Regulations and Code, Province of Alberta, 2009.
3. Environmental Protection and Enhancement Act, Waste Control Regulation, Alberta Regulation 192/96.
4. Alberta User Guide for Waste Managers, Alberta Environment and Sustainable Resource Development, 1989.
5. Guidelines for the Disposal of Asbestos Waste, Alberta Environment and Sustainable Resource Development, 1996.
6. Ozone-depleting Substances and Halocarbons Regulation, 181/2000, Alberta Environment.
7. PCB Regulations, SOR/2008-273, Canadian Environmental Protection Act.
8. Transportation of Dangerous Goods Regulations SOR/2008-34, Transportation of Dangerous Goods Act.
9. Workplace Health and Safety Bulletin, Lead at the Work Site, Government of Alberta, Employment and Immigration, November 2013.
10. Best Practices Mould at the Work Site, Government of Alberta, Employment and Immigration, July 2009.

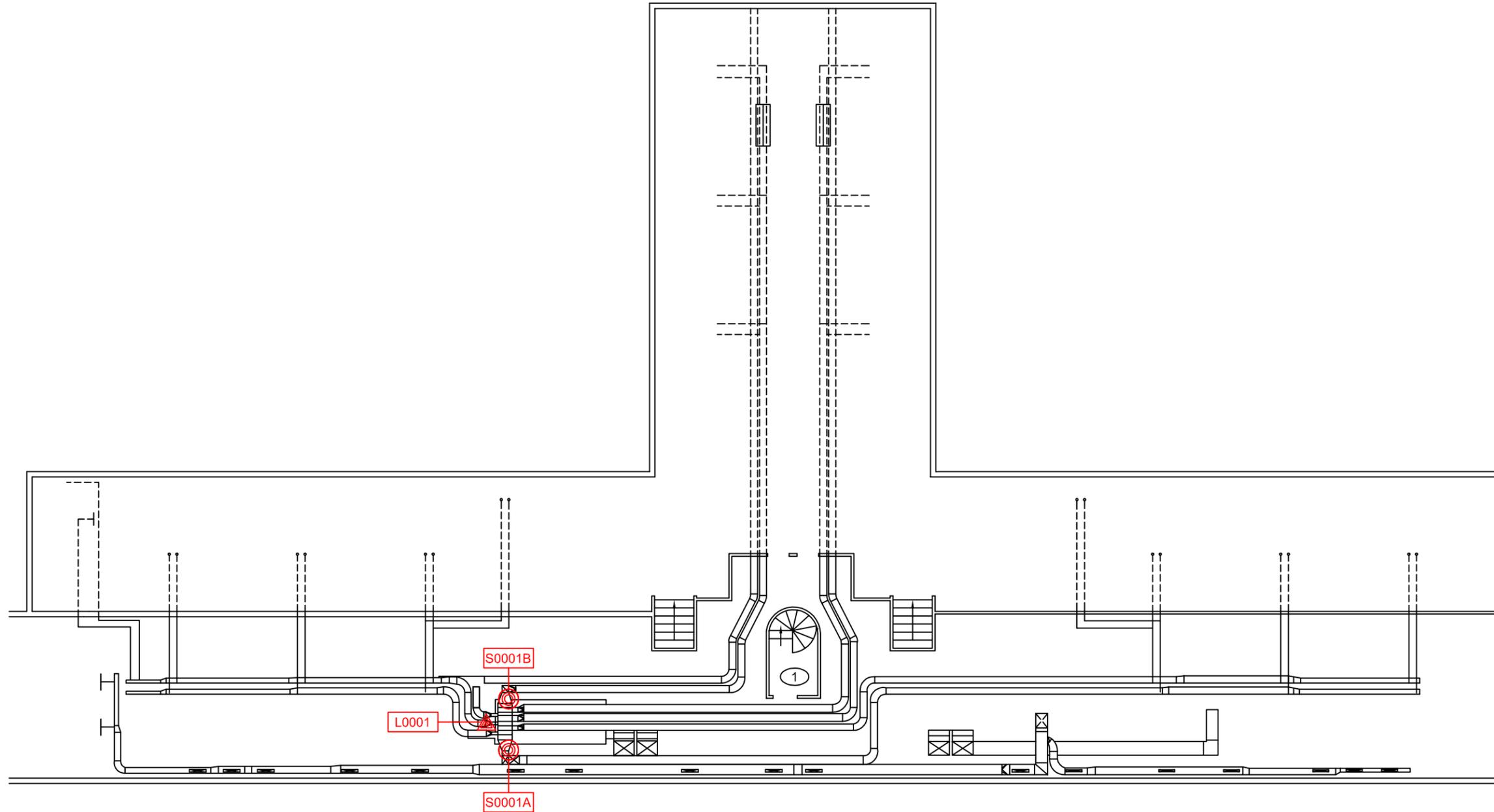
Template: Master Report for Hazardous Materials Assessment Report (Tablet Pre-Construction), HAZ, January 16, 2017

APPENDIX I
Drawings



LEGEND:

- (X) LOCATION NUMBER
- ⊙ NEGATIVE ASBESTOS SAMPLE LOCATION
- ⊗ POSITIVE ASBESTOS SAMPLE LOCATION
- ▲ NEGATIVE LEAD PAINT SAMPLE LOCATION
- ▲ POSITIVE LEAD PAINT SAMPLE LOCATION



CLIENT:

ASSOCIATED ENGINEERING
ALBERTA LTD.
SUITE 500, 9888 JASPER AVENUE
EDMONTON, ALBERTA T5J 5C6

LOCATION:

21611 MERIDIAN STREET
EDMONTON, ALBERTA T5Y 6E7

TITLE:

HVAC UPGRADE HAZARDOUS
MATERIALS ASSESSMENT
EDMONTON INSTITUTION

DATE:

2017/06/20

PROJECT # :

179150

DRAWN BY:

CS

CHECKED BY:

SM

SCALE:

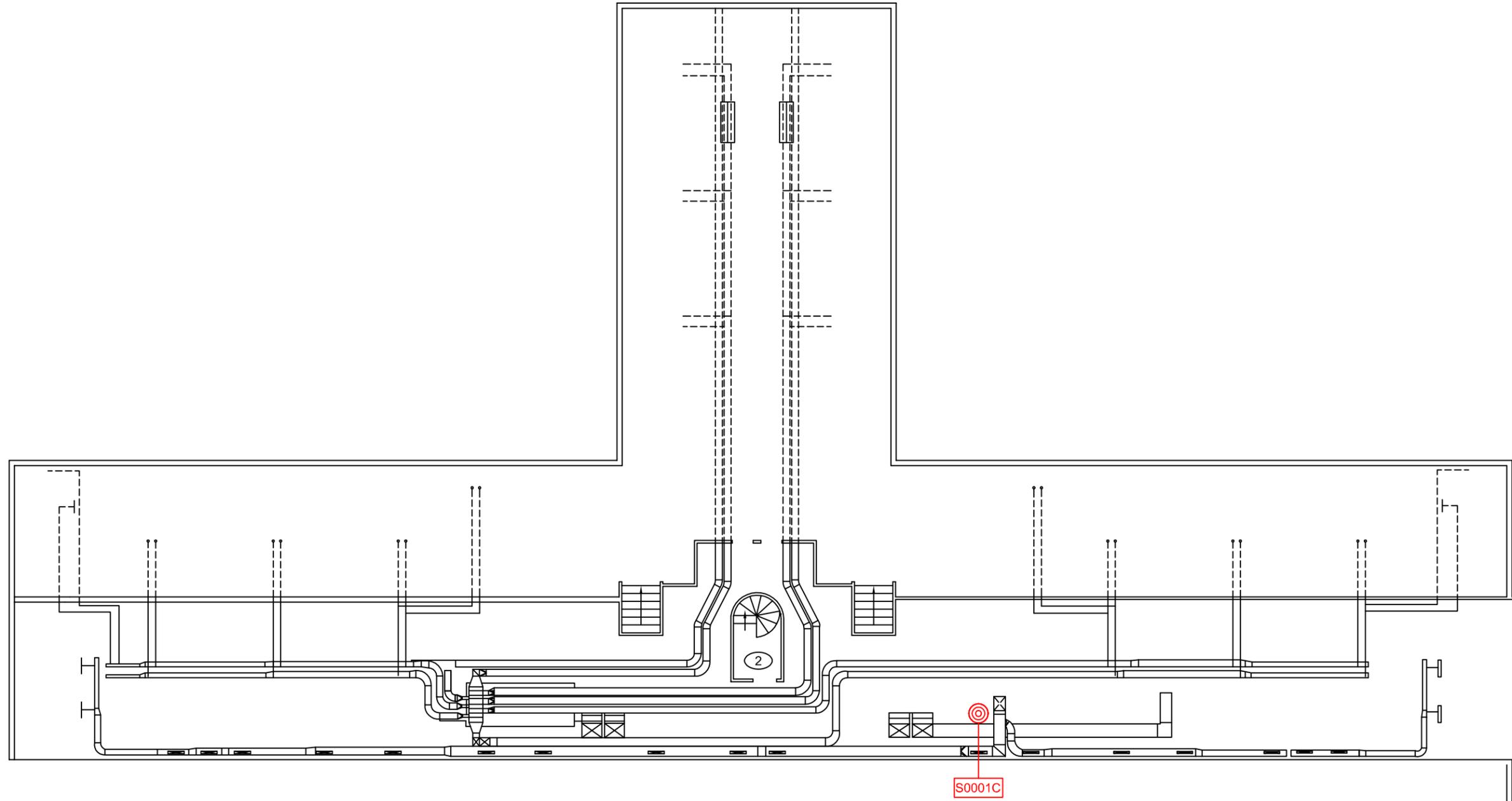
NTS

DRAWING:

1 OF 19

NOTES:

1. ALL DRAWINGS TO BE REFERENCED WITH THE HAZARDOUS MATERIALS ASSESSMENT REPORT. NOT ALL KNOWN OR SUSPECT HAZARDOUS MATERIALS ARE DEPICTED ON THIS DRAWING. REFER TO THE HAZARDOUS MATERIALS ASSESSMENT REPORT FOR A COMPLETE LIST OF IDENTIFIED HAZARDOUS MATERIALS.
2. BASEPLAN PROVIDED BY THE CLIENT.
3. LEGEND IS COLOUR DEPENDENT, PHOTOCOPIES MAY ALTER INTERPRETATION OF FIGURE.



LEGEND:

- (X) LOCATION NUMBER
- ⊙ NEGATIVE ASBESTOS SAMPLE LOCATION
- ⊙ POSITIVE ASBESTOS SAMPLE LOCATION
- ▲ NEGATIVE LEAD PAINT SAMPLE LOCATION
- ▲ POSITIVE LEAD PAINT SAMPLE LOCATION

CLIENT:

ASSOCIATED ENGINEERING
ALBERTA LTD.
SUITE 500, 9888 JASPER AVENUE
EDMONTON, ALBERTA T5J 5C6

LOCATION:

21611 MERIDIAN STREET
EDMONTON, ALBERTA T5Y 6E7

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EDMONTON INSTITUTION

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DRAWN BY:

CS

CHECKED BY:

SM

SCALE:

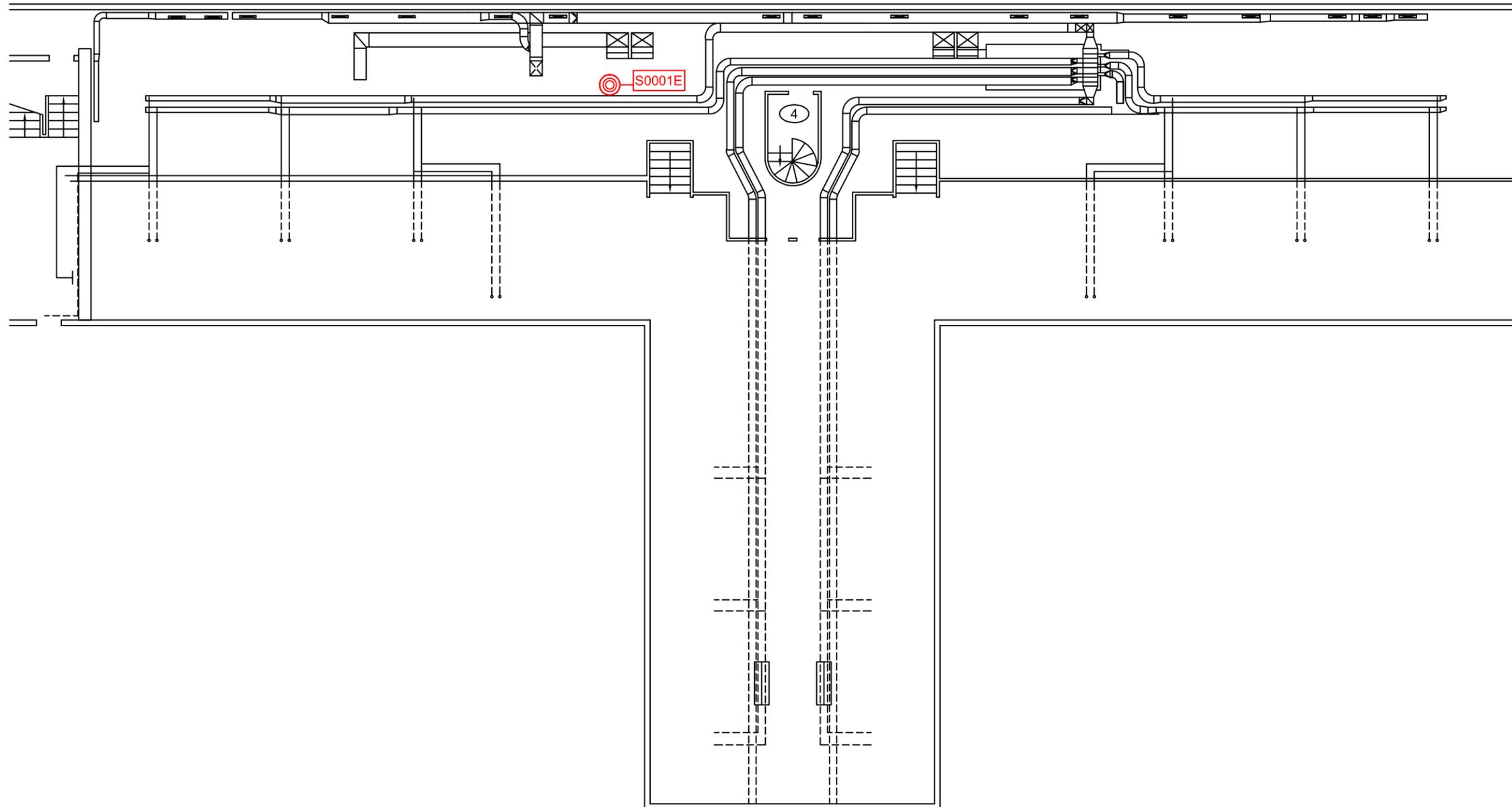
NTS

DRAWING:

2 OF 19

NOTES:

1. ALL DRAWINGS TO BE REFERENCED WITH THE HAZARDOUS MATERIALS ASSESSMENT REPORT. NOT ALL KNOWN OR SUSPECT HAZARDOUS MATERIALS ARE DEPICTED ON THIS DRAWING. REFER TO THE HAZARDOUS MATERIALS ASSESSMENT REPORT FOR A COMPLETE LIST OF IDENTIFIED HAZARDOUS MATERIALS.
2. BASEPLAN PROVIDED BY THE CLIENT.
3. LEGEND IS COLOUR DEPENDENT, PHOTOCOPIES MAY ALTER INTERPRETATION OF FIGURE.



LEGEND:

- (X) LOCATION NUMBER
- ⊙ NEGATIVE ASBESTOS SAMPLE LOCATION
- ⊕ POSITIVE ASBESTOS SAMPLE LOCATION
- ▲ NEGATIVE LEAD PAINT SAMPLE LOCATION
- ▲ POSITIVE LEAD PAINT SAMPLE LOCATION

CLIENT:

ASSOCIATED ENGINEERING
ALBERTA LTD.
SUITE 500, 9888 JASPER AVENUE
EDMONTON, ALBERTA T5J 5C6

LOCATION:

21611 MERIDIAN STREET
EDMONTON, ALBERTA T5Y 6E7

TITLE:

HVAC UPGRADE HAZARDOUS
MATERIALS ASSESSMENT
EDMONTON INSTITUTION

DATE:

2017/06/20

PROJECT # :

179150

DRAWN BY:

CS

DRAWING:

CHECKED BY:

SM

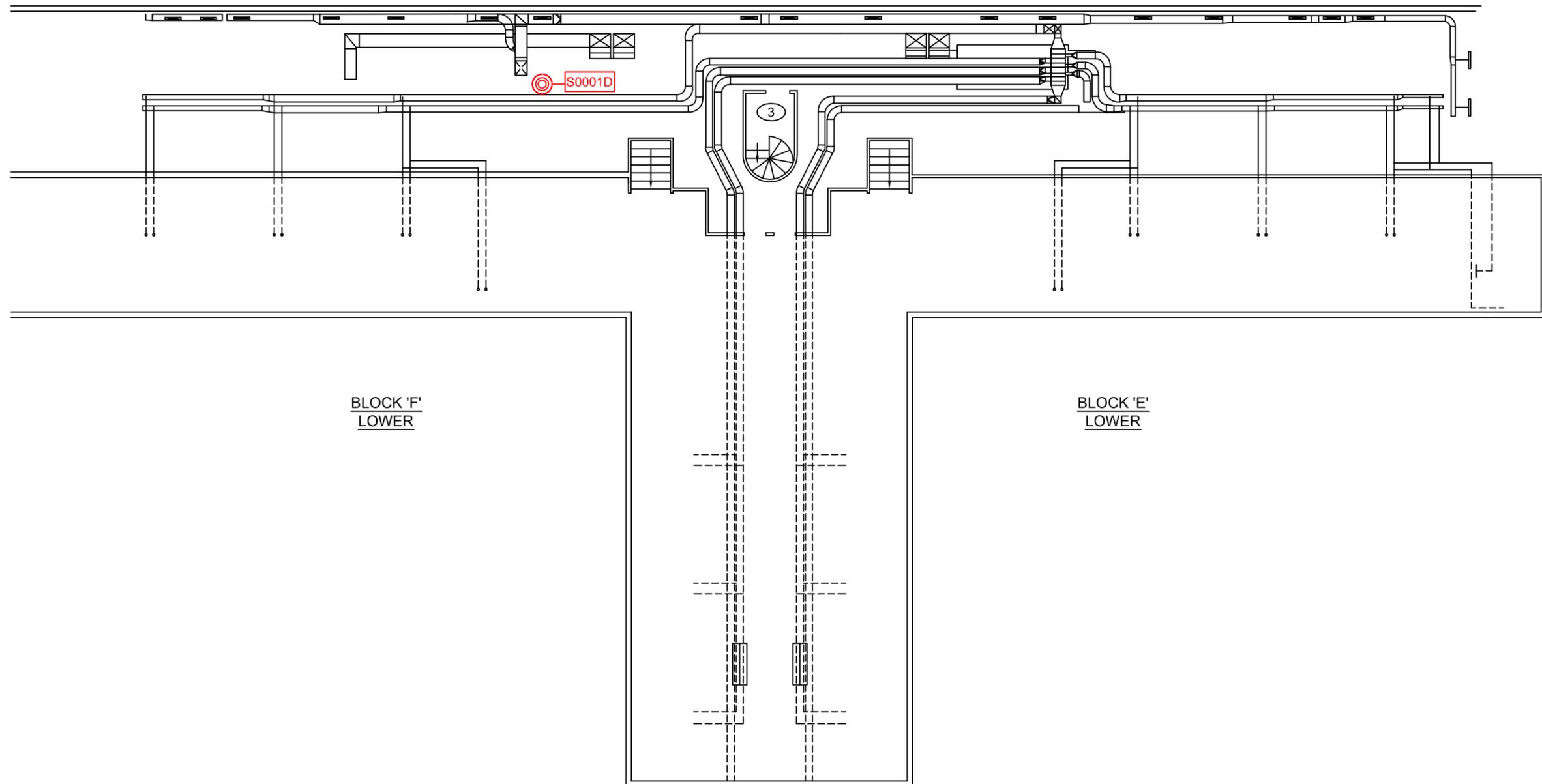
3 OF 19

SCALE:

NTS

NOTES:

1. ALL DRAWINGS TO BE REFERENCED WITH THE HAZARDOUS MATERIALS ASSESSMENT REPORT. NOT ALL KNOWN OR SUSPECT HAZARDOUS MATERIALS ARE DEPICTED ON THIS DRAWING. REFER TO THE HAZARDOUS MATERIALS ASSESSMENT REPORT FOR A COMPLETE LIST OF IDENTIFIED HAZARDOUS MATERIALS.
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- ⚠ POSITIVE LEAD PAINT SAMPLE LOCATION

CLIENT:

ASSOCIATED ENGINEERING
ALBERTA LTD.
SUITE 500, 9888 JASPER AVENUE
EDMONTON, ALBERTA T5J 5C6

LOCATION:

21611 MERIDIAN STREET
EDMONTON, ALBERTA T5Y 6E7

TITLE:

HVAC UPGRADE HAZARDOUS
MATERIALS ASSESSMENT
EDMONTON INSTITUTION

DATE:

2017/06/20

PROJECT # :

179150

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CS

CHECKED BY:

SM

SCALE:

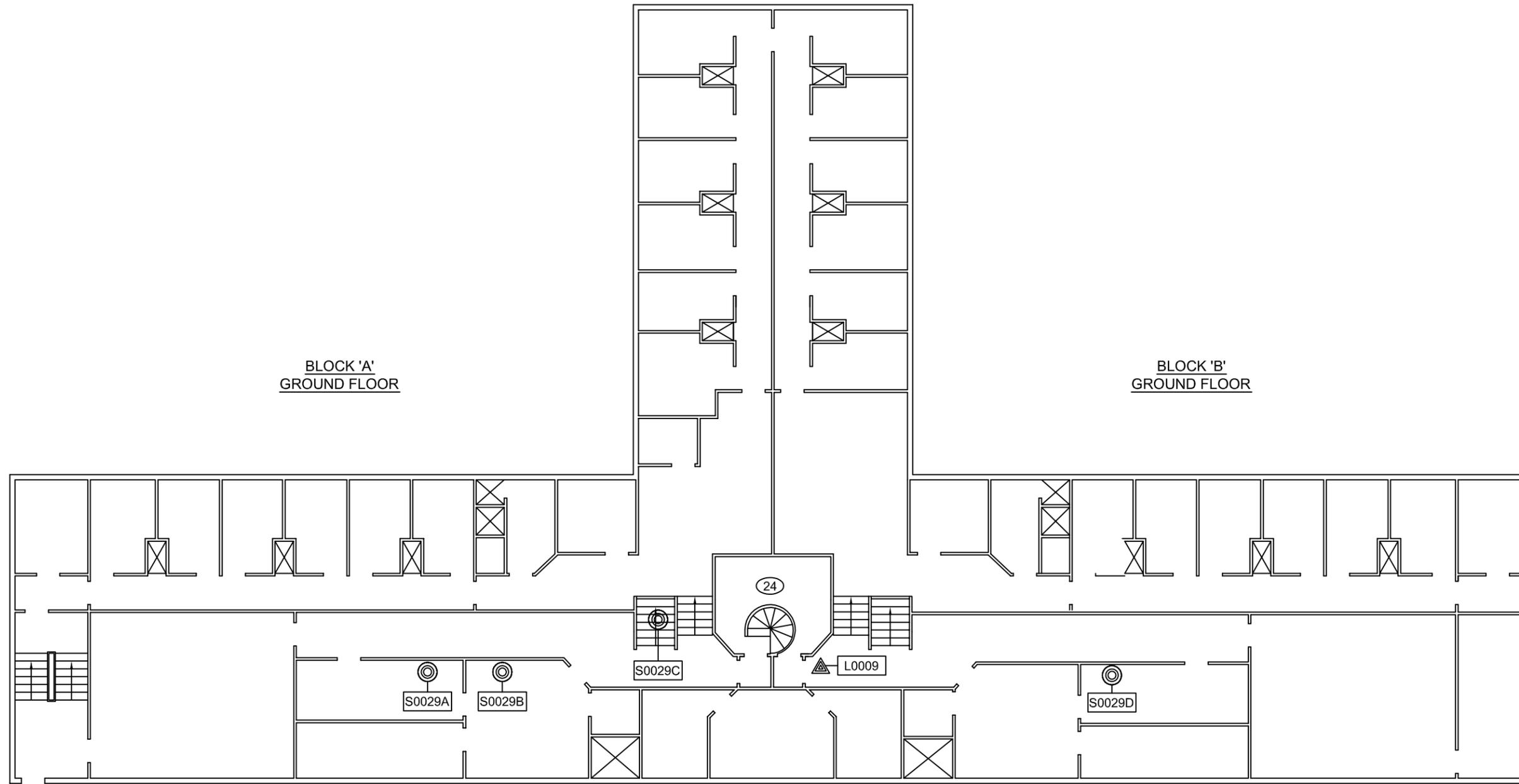
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DRAWING:

4 OF 19

NOTES:

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- ▲ POSITIVE LEAD PAINT SAMPLE LOCATION

CLIENT:

ASSOCIATED ENGINEERING
ALBERTA LTD.
SUITE 500, 9888 JASPER AVENUE
EDMONTON, ALBERTA T5J 5C6

LOCATION:

21611 MERIDIAN STREET
EDMONTON, ALBERTA T5Y 6E7

TITLE:

HVAC UPGRADE HAZARDOUS
MATERIALS ASSESSMENT
EDMONTON INSTITUTION

DATE:

2017/06/20

PROJECT # :

179150

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CS

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SCALE:

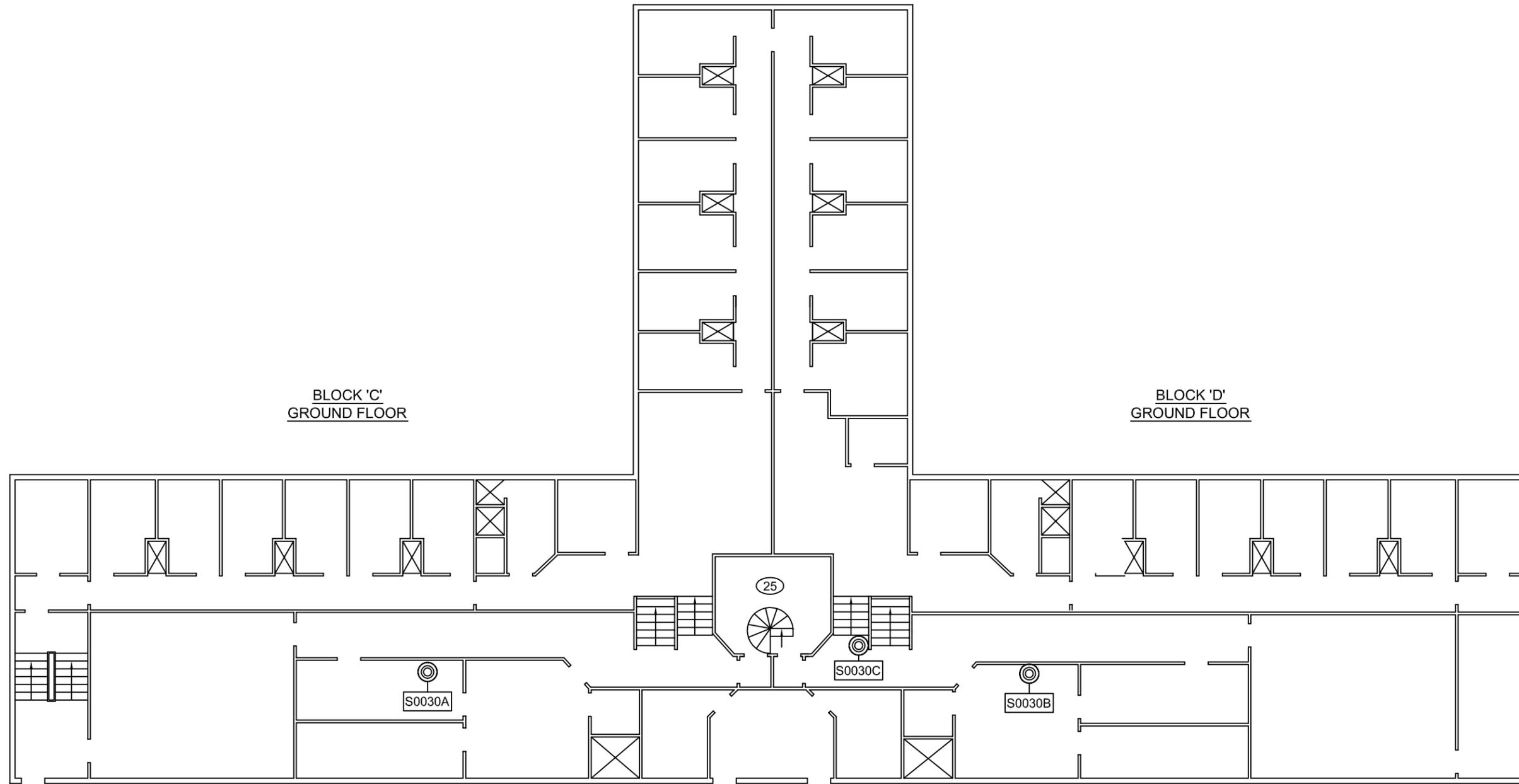
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DRAWING:

5 OF 19

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- ▲ POSITIVE LEAD PAINT SAMPLE LOCATION

CLIENT:

ASSOCIATED ENGINEERING
ALBERTA LTD.
SUITE 500, 9888 JASPER AVENUE
EDMONTON, ALBERTA T5J 5C6

LOCATION:

21611 MERIDIAN STREET
EDMONTON, ALBERTA T5Y 6E7

TITLE:

HVAC UPGRADE HAZARDOUS
MATERIALS ASSESSMENT
EDMONTON INSTITUTION
GROUND FLOOR

DATE:

2017/06/20

PROJECT # :

179150

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CS

CHECKED BY:

SM

SCALE:

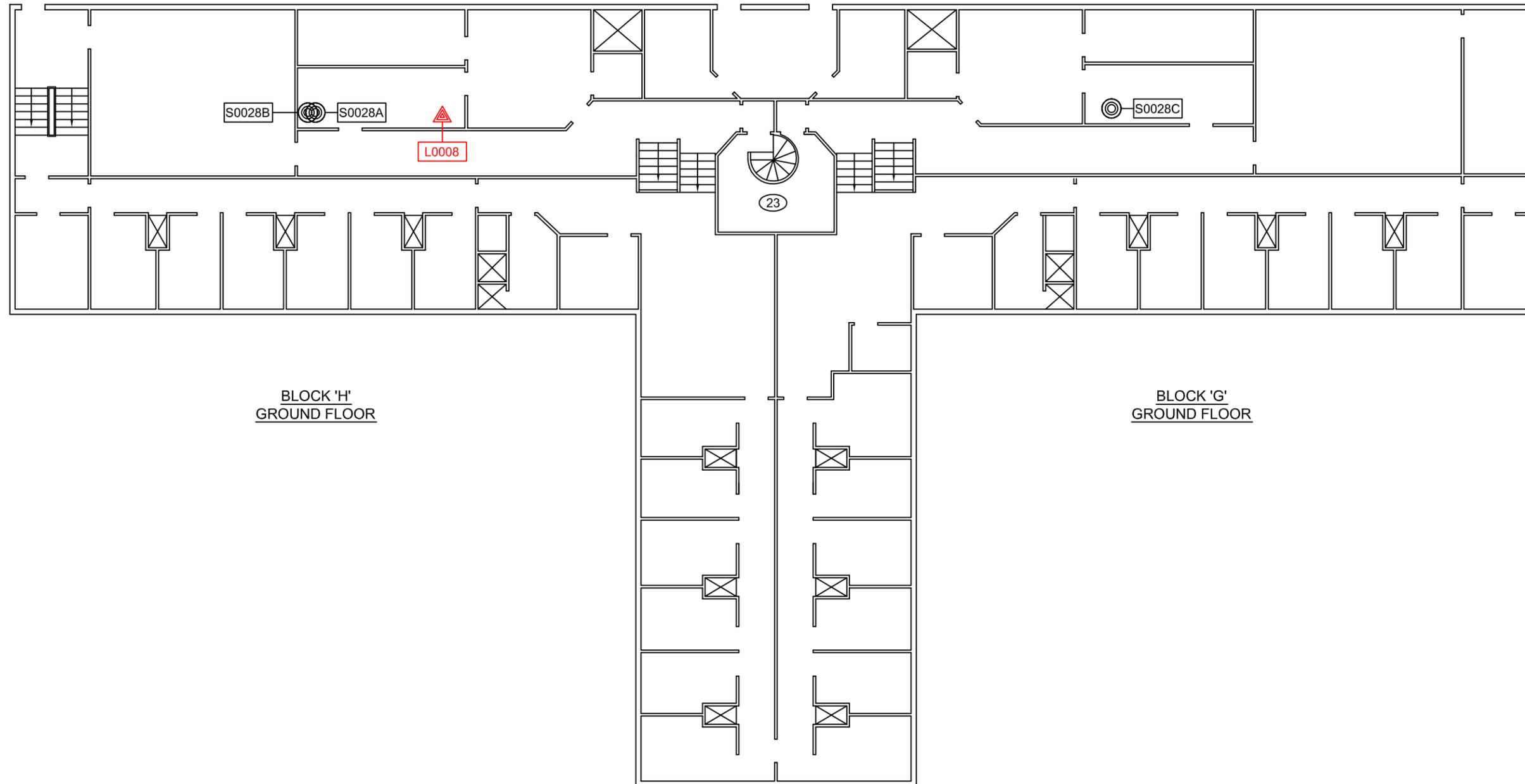
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DRAWING:

6 OF 19

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- ▲ NEGATIVE LEAD PAINT SAMPLE LOCATION
- ▲ POSITIVE LEAD PAINT SAMPLE LOCATION

BLOCK 'H'
GROUND FLOOR

BLOCK 'G'
GROUND FLOOR

CLIENT:

ASSOCIATED ENGINEERING
ALBERTA LTD.
SUITE 500, 9888 JASPER AVENUE
EDMONTON, ALBERTA T5J 5C6

LOCATION:

21611 MERIDIAN STREET
EDMONTON, ALBERTA T5Y 6E7

TITLE:

HVAC UPGRADE HAZARDOUS
MATERIALS ASSESSMENT
EDMONTON INSTITUTION

DATE:

2017/06/20

PROJECT # :

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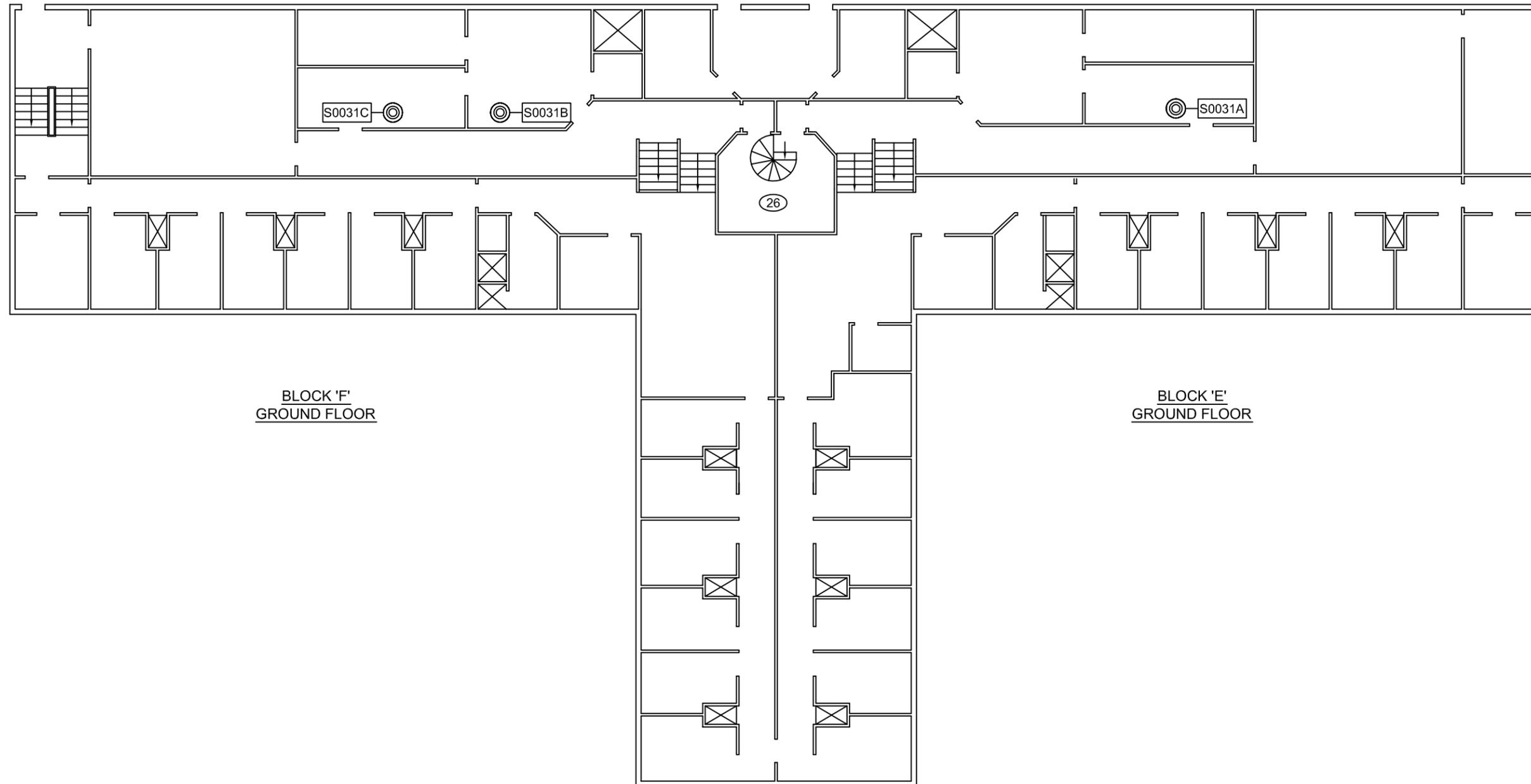
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DRAWING:

7 OF 19

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- ⊠ POSITIVE LEAD PAINT SAMPLE LOCATION

BLOCK 'F'
GROUND FLOOR

BLOCK 'E'
GROUND FLOOR

CLIENT:

ASSOCIATED ENGINEERING
ALBERTA LTD.
SUITE 500, 9888 JASPER AVENUE
EDMONTON, ALBERTA T5J 5C6

LOCATION:

21611 MERIDIAN STREET
EDMONTON, ALBERTA T5Y 6E7

TITLE:

HVAC UPGRADE HAZARDOUS
MATERIALS ASSESSMENT
EDMONTON INSTITUTION

DATE:

2017/06/20

PROJECT # :

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SM

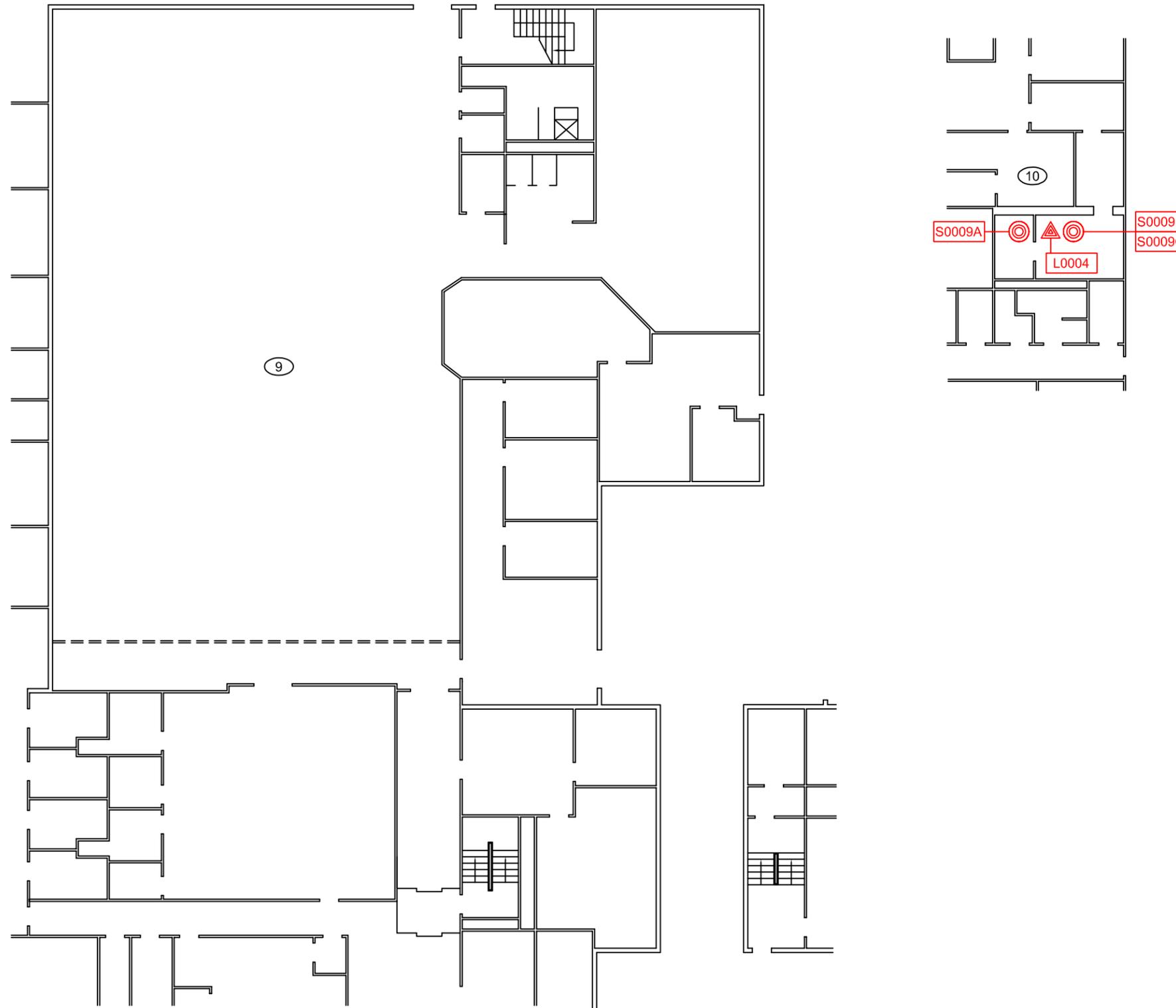
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SCALE:

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CLIENT:

ASSOCIATED ENGINEERING
ALBERTA LTD.
SUITE 500, 9888 JASPER AVENUE
EDMONTON, ALBERTA T5J 5C6

LOCATION:

21611 MERIDIAN STREET
EDMONTON, ALBERTA T5Y 6E7

TITLE:

HVAC UPGRADE HAZARDOUS
MATERIALS ASSESSMENT
EDMONTON INSTITUTION

DATE:

2017/06/20

PROJECT # :

179150

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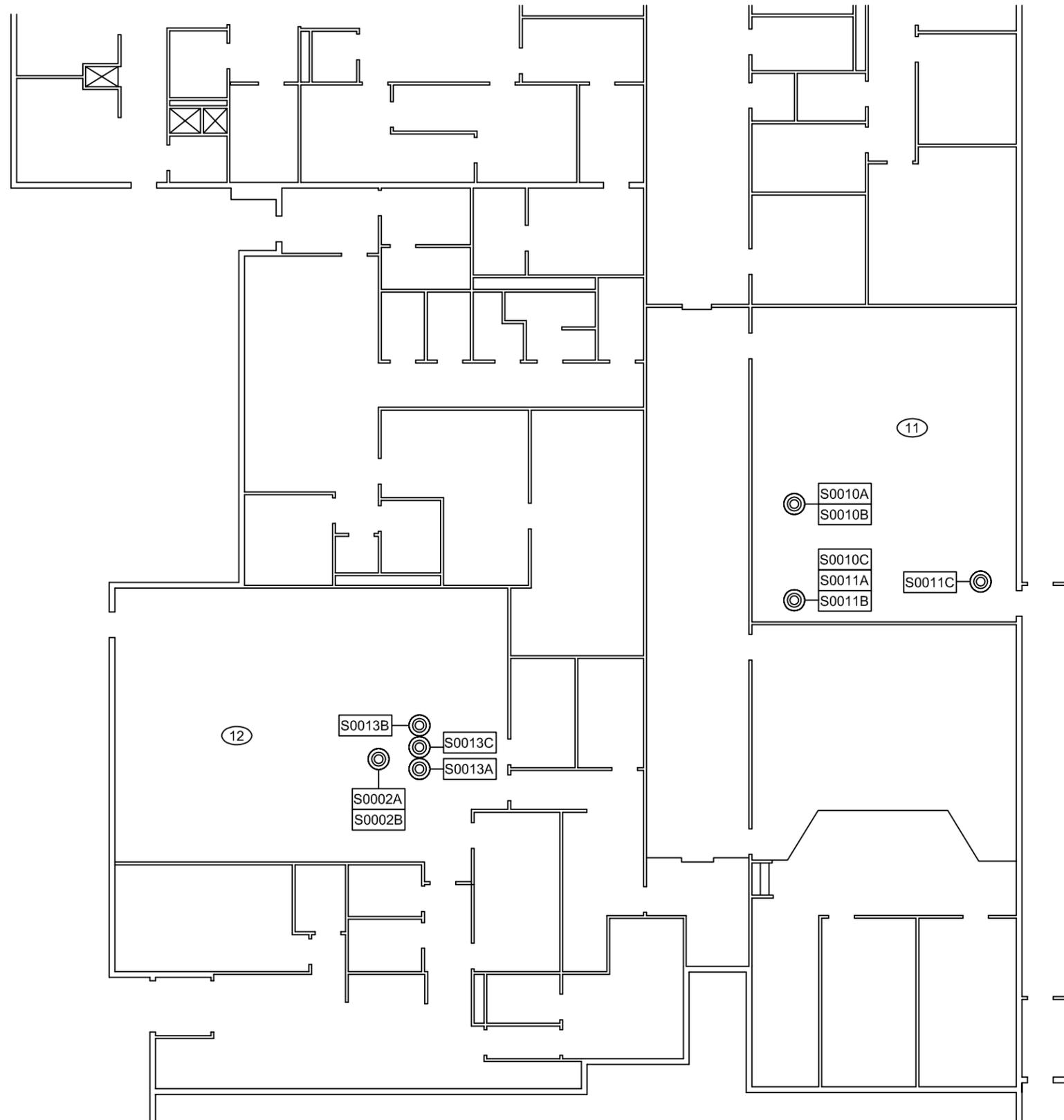
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DRAWING:

9 OF 19

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CLIENT:

ASSOCIATED ENGINEERING
ALBERTA LTD.
SUITE 500, 9888 JASPER AVENUE
EDMONTON, ALBERTA T5J 5C6

LOCATION:

21611 MERIDIAN STREET
EDMONTON, ALBERTA T5Y 6E7

TITLE:

HVAC UPGRADE HAZARDOUS
MATERIALS ASSESSMENT
EDMONTON INSTITUTION

DATE:

2017/06/20

PROJECT # :

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SM

SCALE:

NTS

DRAWING:

10 OF 19

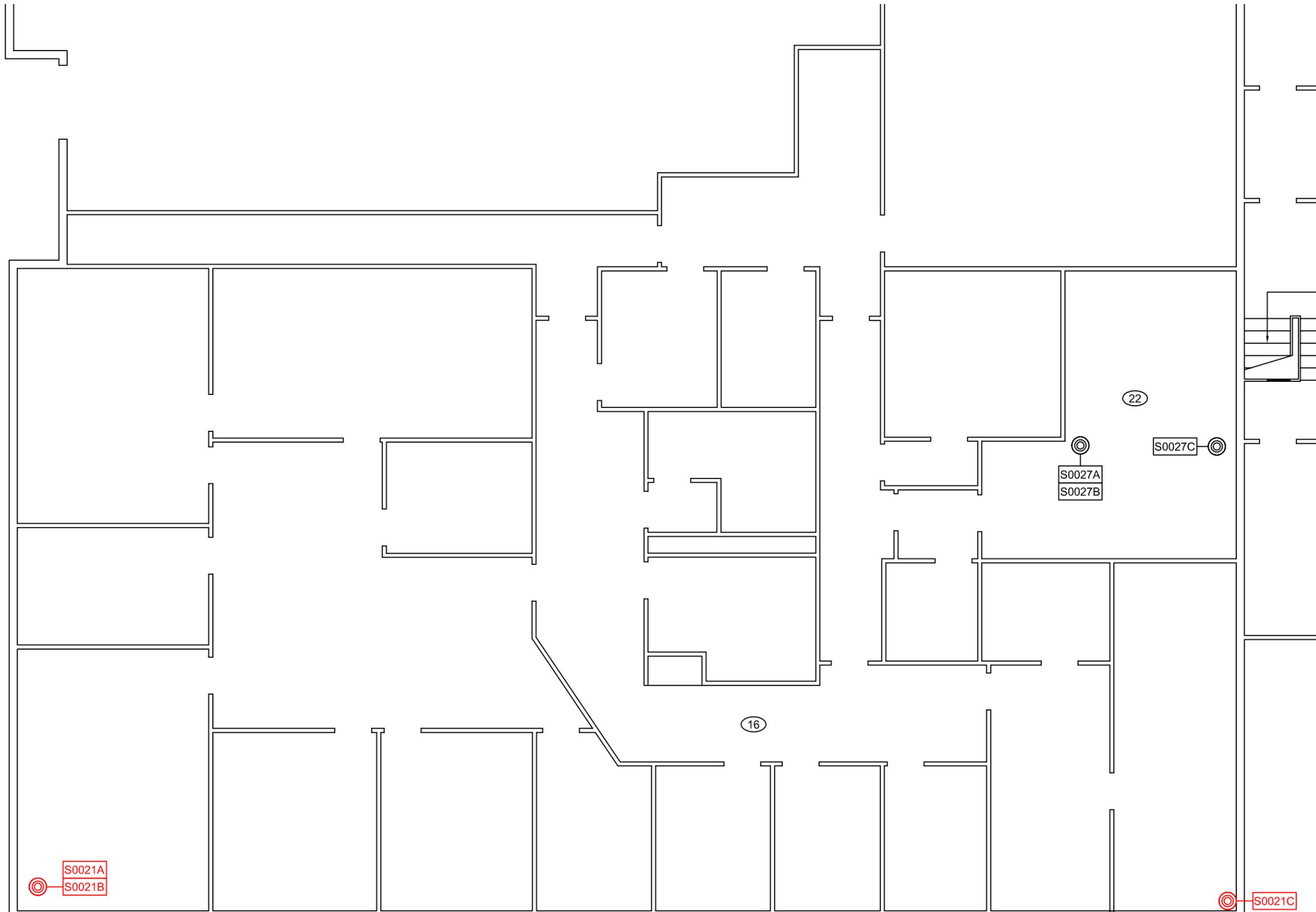
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CLIENT:

ASSOCIATED ENGINEERING
ALBERTA LTD.
SUITE 500, 9888 JASPER AVENUE
EDMONTON, ALBERTA T5J 5C6

LOCATION:

21611 MERIDIAN STREET
EDMONTON, ALBERTA T5Y 6E7

TITLE:

HVAC UPGRADE HAZARDOUS
MATERIALS ASSESSMENT
EDMONTON INSTITUTION

DATE:

2017/06/20

PROJECT # :

179150

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CS

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SCALE:

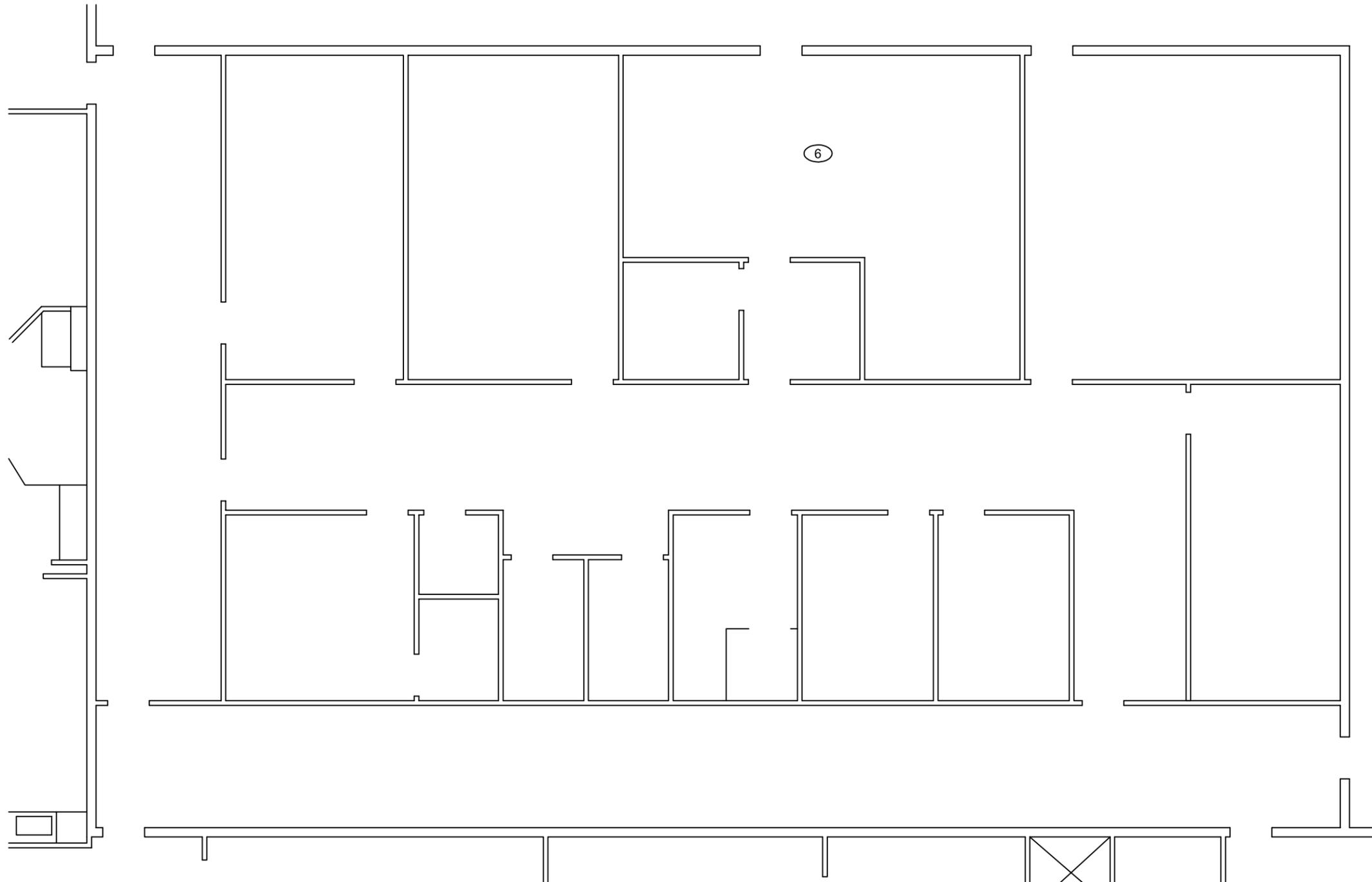
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DRAWING:

11 OF 19

NOTES:

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CLIENT:

ASSOCIATED ENGINEERING
ALBERTA LTD.
SUITE 500, 9888 JASPER AVENUE
EDMONTON, ALBERTA T5J 5C6

LOCATION:

21611 MERIDIAN STREET
EDMONTON, ALBERTA T5Y 6E7

TITLE:

HVAC UPGRADE HAZARDOUS
MATERIALS ASSESSMENT
EDMONTON INSTITUTION

DATE:

2017/06/20

PROJECT # :

179150

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CS

CHECKED BY:

SM

SCALE:

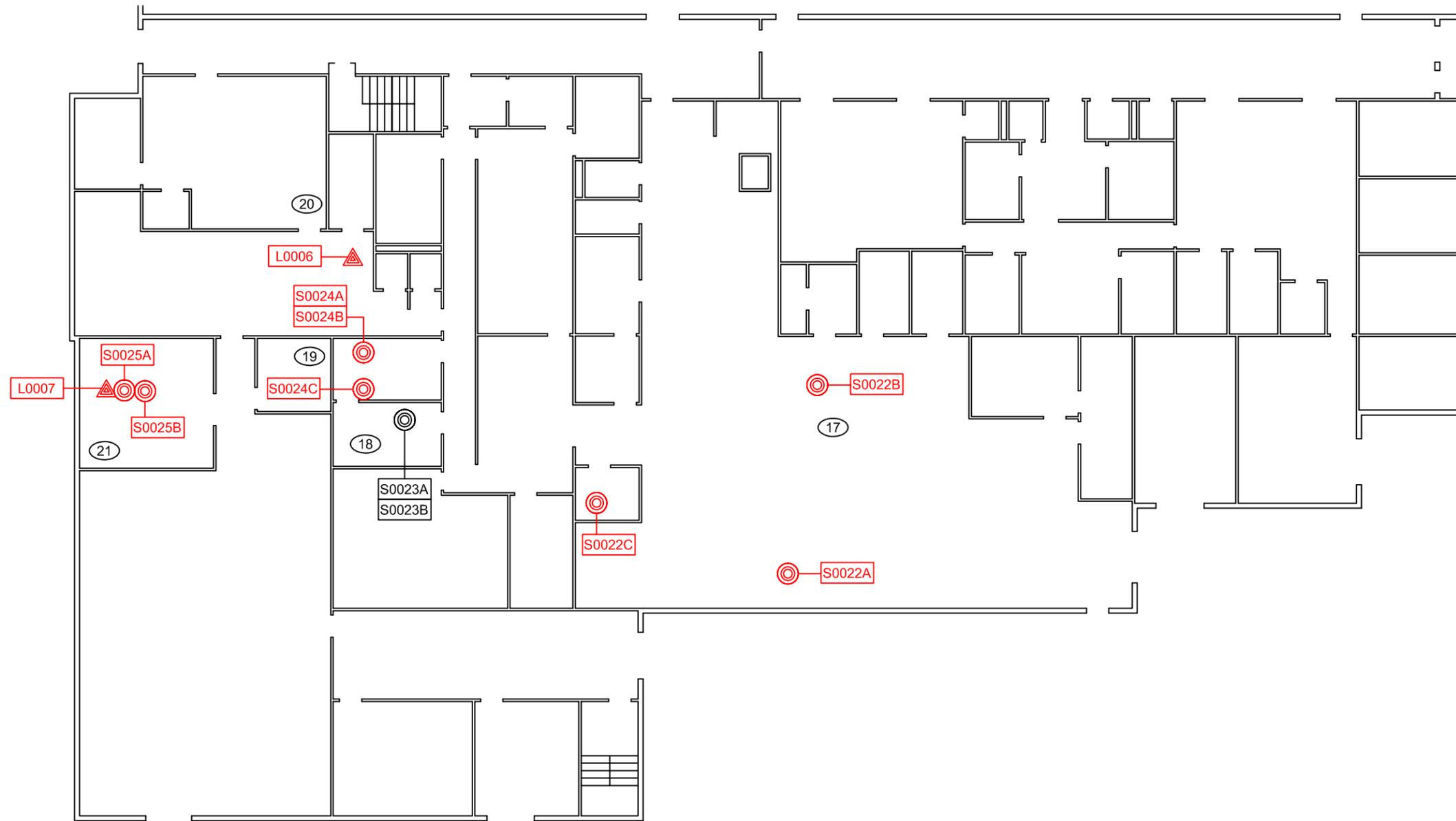
NTS

DRAWING:

12 OF 19

NOTES:

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CLIENT:

ASSOCIATED ENGINEERING
ALBERTA LTD.
SUITE 500, 9888 JASPER AVENUE
EDMONTON, ALBERTA T5J 5C6

LOCATION:

21611 MERIDIAN STREET
EDMONTON, ALBERTA T5Y 6E7

TITLE: HVAC UPGRADE HAZARDOUS
MATERIALS ASSESSMENT
EDMONTON INSTITUTION
MECHANICAL ROOM

DATE:

2017/06/20

PROJECT # :

179150

DRAWN BY:

VM

CHECKED BY:

SM

SCALE:

NTS

DRAWING:

13 OF 19

NOTES:

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CLIENT:

ASSOCIATED ENGINEERING
ALBERTA LTD.
SUITE 500, 9888 JASPER AVENUE
EDMONTON, ALBERTA T5J 5C6

LOCATION:

21611 MERIDIAN STREET
EDMONTON, ALBERTA T5Y 6E7

TITLE: HVAC UPGRADE HAZARDOUS
MATERIALS ASSESSMENT
EDMONTON INSTITUTION
MECHANICAL ROOM

DATE:

2017/06/20

PROJECT # :

179150

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VM

DRAWING:

CHECKED BY:

SM

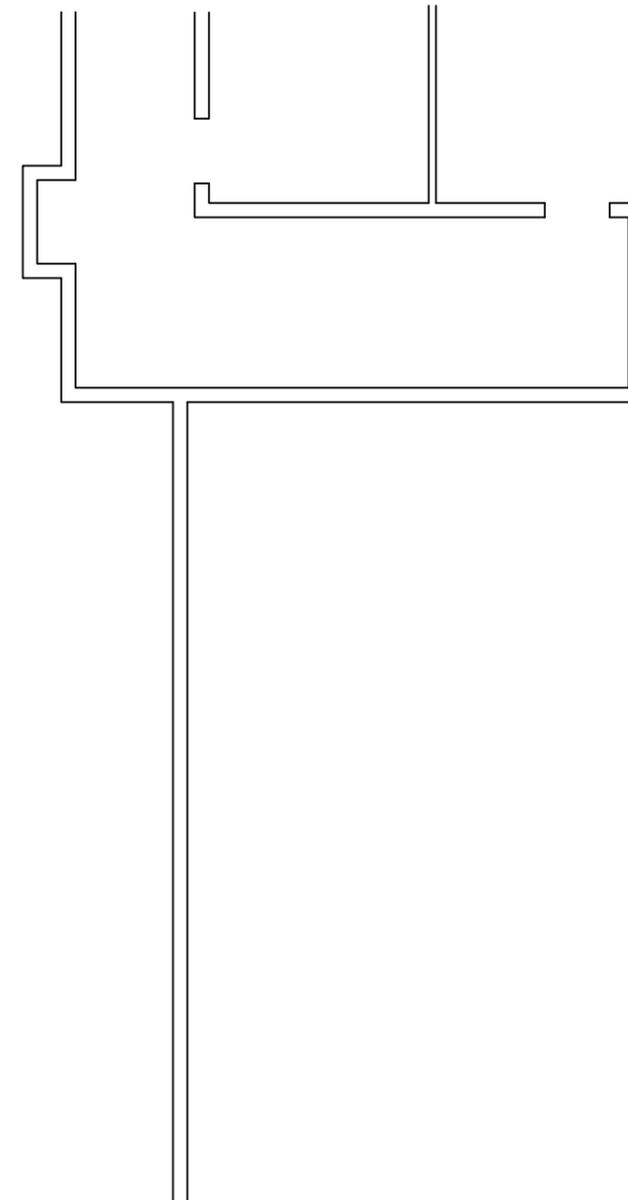
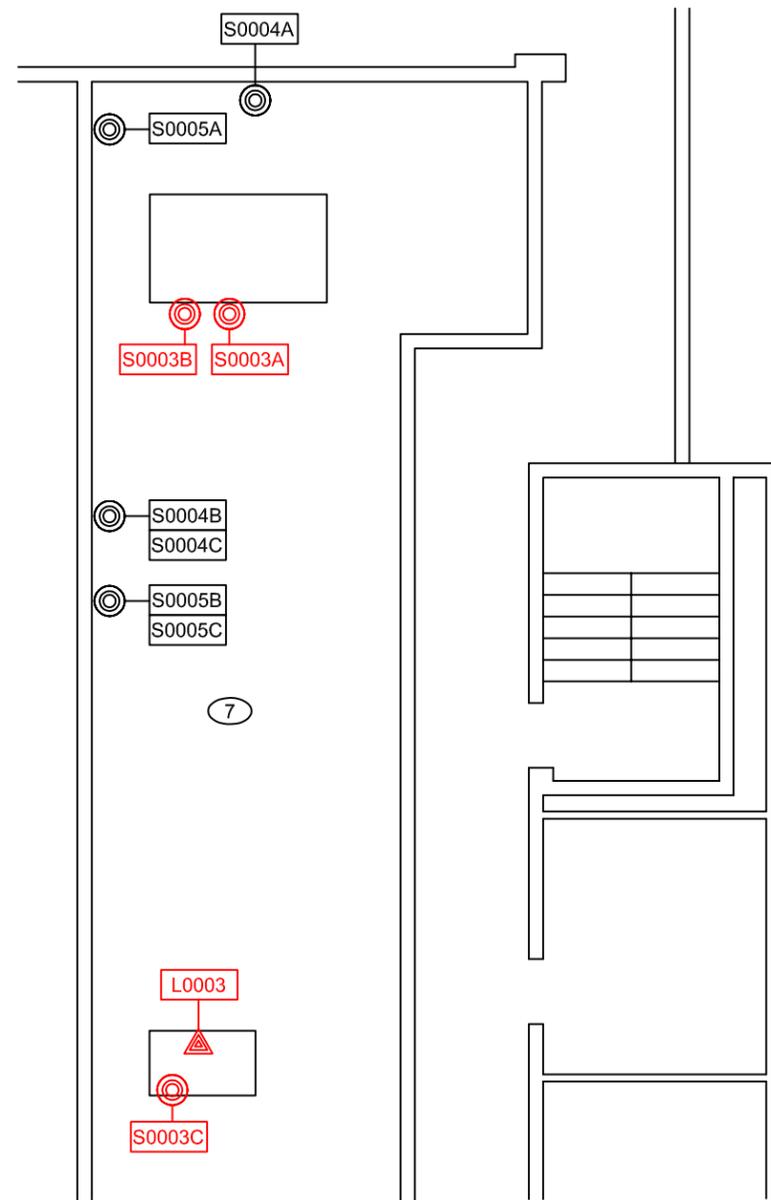
14 OF 19

SCALE:

NTS

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CLIENT:

ASSOCIATED ENGINEERING
ALBERTA LTD.
SUITE 500, 9888 JASPER AVENUE
EDMONTON, ALBERTA T5J 5C6

LOCATION:

21611 MERIDIAN STREET
EDMONTON, ALBERTA T5Y 6E7

TITLE: HVAC UPGRADE HAZARDOUS
MATERIALS ASSESSMENT
EDMONTON INSTITUTION
WEST MECHANICAL ROOM NORTH

DATE:

2017/06/20

PROJECT # :

179150

DRAWN BY:

VM

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SM

SCALE:

NTS

DRAWING:

15 OF 19

NOTES:

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CLIENT:

ASSOCIATED ENGINEERING
ALBERTA LTD.
SUITE 500, 9888 JASPER AVENUE
EDMONTON, ALBERTA T5J 5C6

LOCATION:

21611 MERIDIAN STREET
EDMONTON, ALBERTA T5Y 6E7

TITLE: HVAC UPGRADE HAZARDOUS
MATERIALS ASSESSMENT
EDMONTON INSTITUTION
EAST MECHANICAL ROOM

DATE:

2017/06/20

PROJECT # :

179150

DRAWN BY:

VM

CHECKED BY:

SM

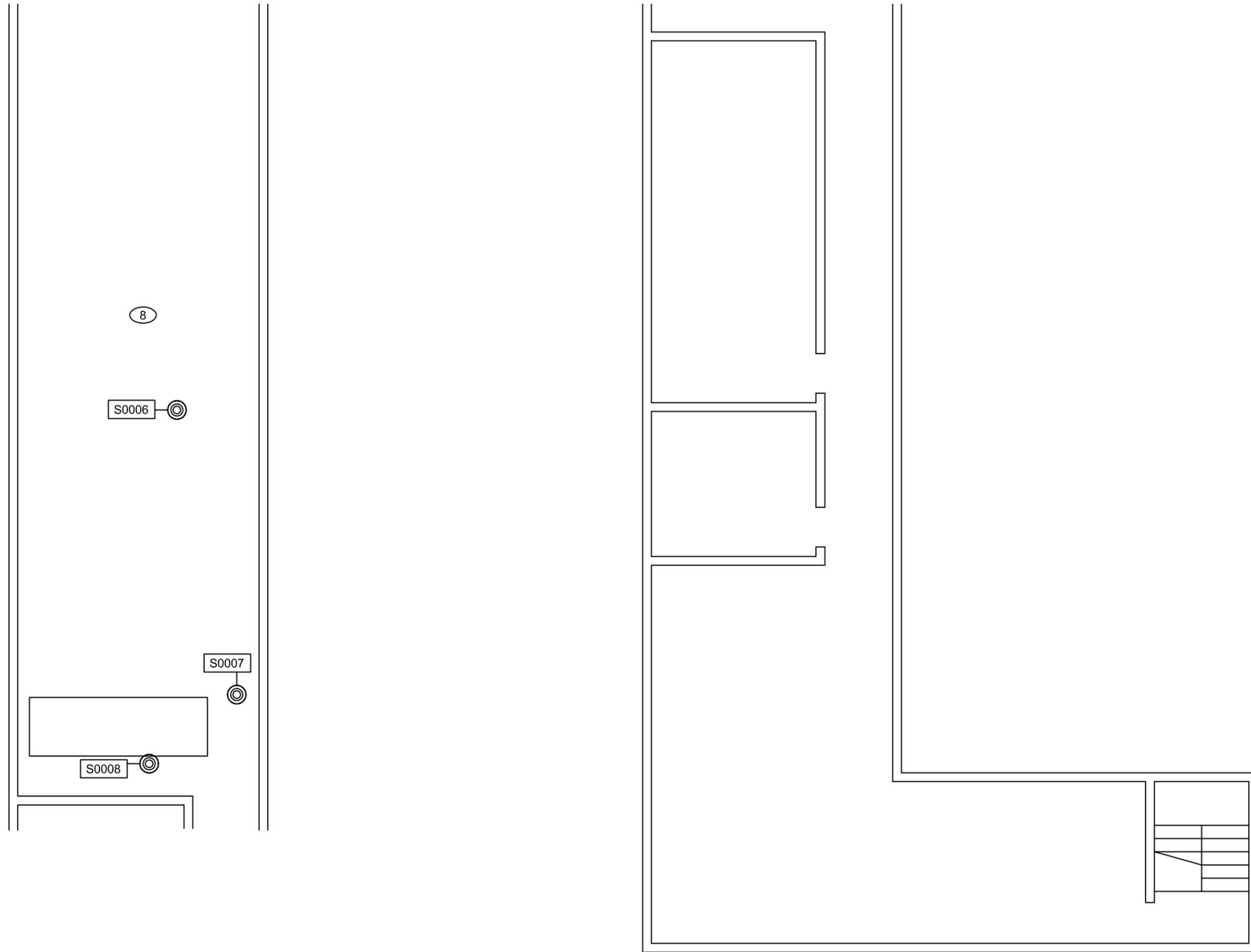
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DRAWING:

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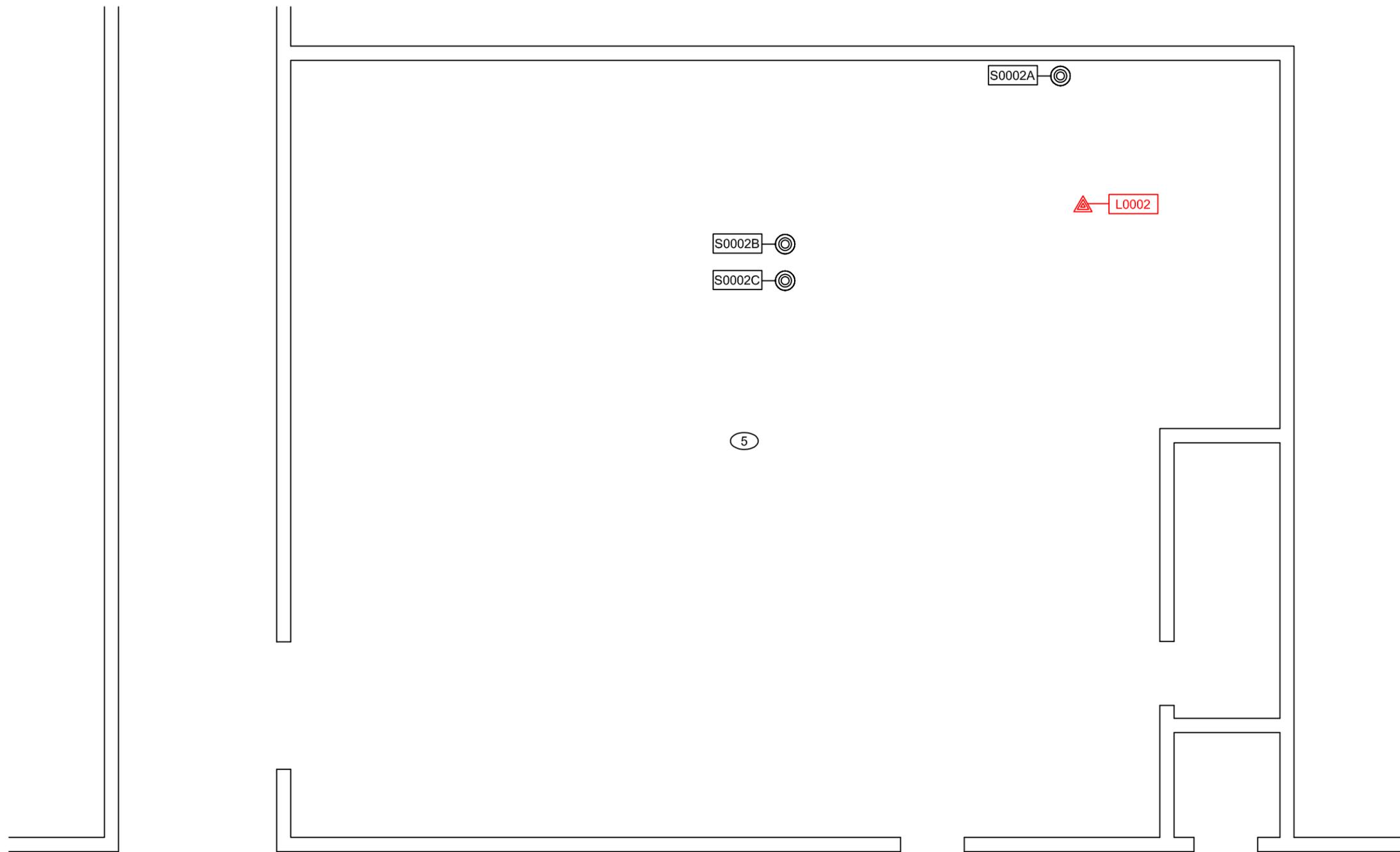


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CLIENT:

ASSOCIATED ENGINEERING
ALBERTA LTD.
SUITE 500, 9888 JASPER AVENUE
EDMONTON, ALBERTA T5J 5C6

LOCATION:

21611 MERIDIAN STREET
EDMONTON, ALBERTA T5Y 6E7

TITLE:

HVAC UPGRADE HAZARDOUS
MATERIALS ASSESSMENT
EDMONTON INSTITUTION
EAST MECHANICAL ROOM

DATE:

2017/06/20

PROJECT # :

179150

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VM

CHECKED BY:

SM

SCALE:

NTS

DRAWING:

17 OF 19

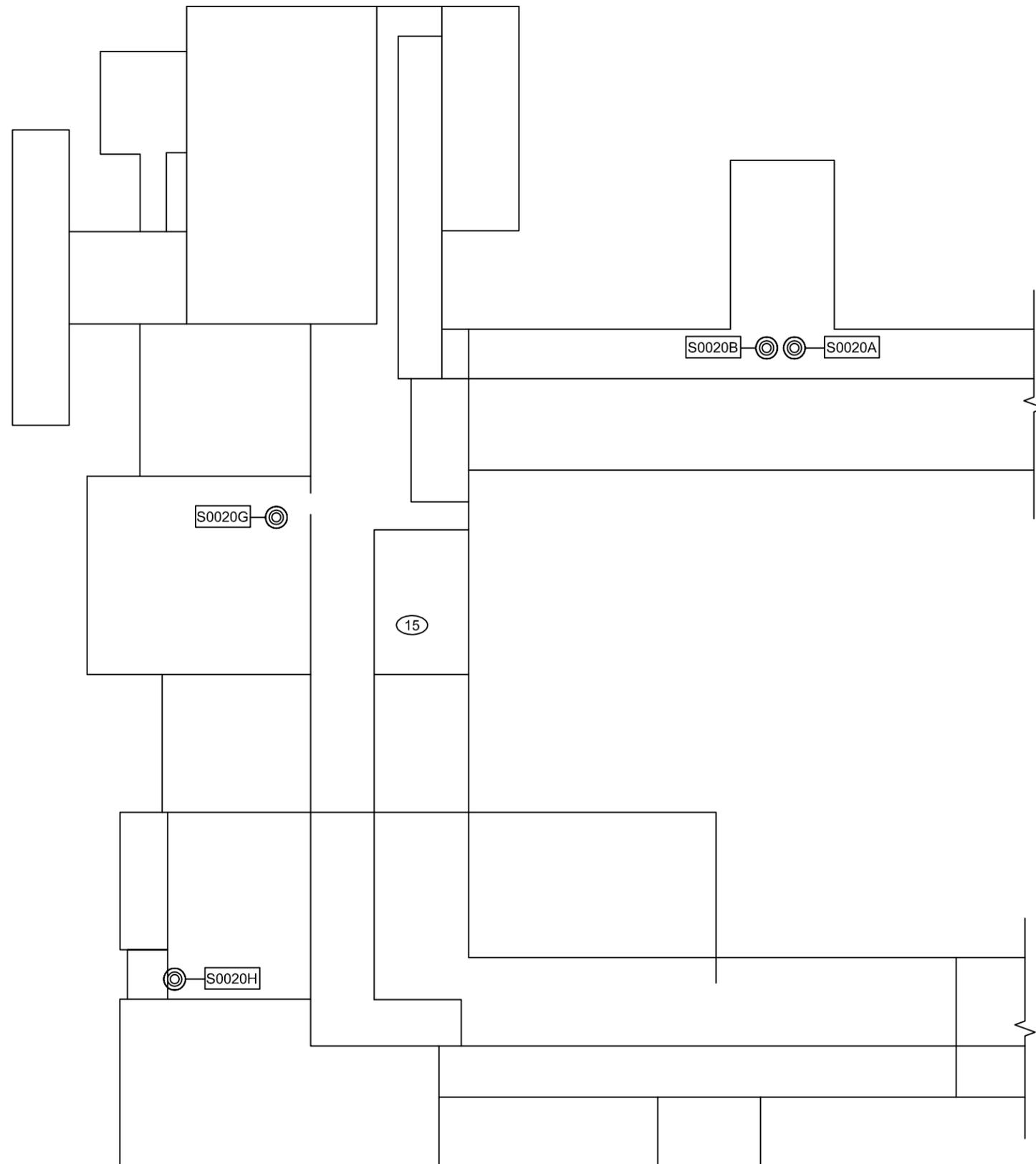
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CLIENT:
**ASSOCIATED ENGINEERING
 ALBERTA LTD.**
 SUITE 500, 9888 JASPER AVENUE
 EDMONTON, ALBERTA T5J 5C6

LOCATION:
 21611 MERIDIAN STREET
 EDMONTON, ALBERTA T5Y 6E7

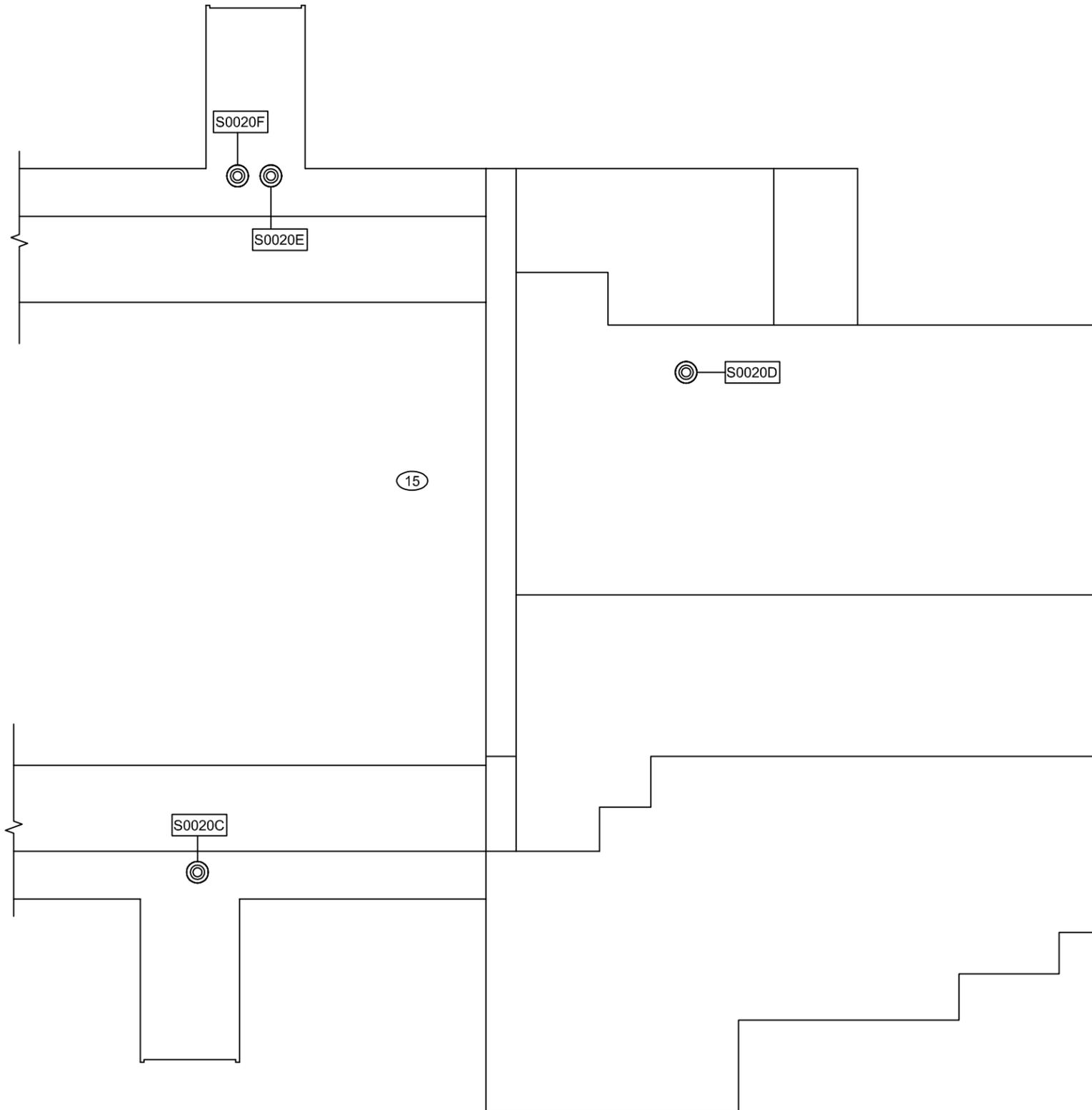
TITLE:
**HVAC UPGRADE HAZARDOUS
 MATERIALS ASSESSMENT
 EDMONTON INSTITUTION**

DATE: 2017/06/20	PROJECT # : 179150
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CHECKED BY: SM	18 OF 19
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SCALE: NTS	
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LEGEND:

- (X) LOCATION NUMBER
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CLIENT:

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ALBERTA LTD.
SUITE 500, 9888 JASPER AVENUE
EDMONTON, ALBERTA T5J 5C6

LOCATION:

21611 MERIDIAN STREET
EDMONTON, ALBERTA T5Y 6E7

TITLE:

HVAC UPGRADE HAZARDOUS
MATERIALS ASSESSMENT
EDMONTON INSTITUTION

DATE:

2017/06/20

PROJECT # :

179150

DRAWN BY:

VM

CHECKED BY:

SM

SCALE:

NTS

DRAWING:

19 OF 19

NOTES:

1. ALL DRAWINGS TO BE REFERENCED WITH THE HAZARDOUS MATERIALS ASSESSMENT REPORT. NOT ALL KNOWN OR SUSPECT HAZARDOUS MATERIALS ARE DEPICTED ON THIS DRAWING. REFER TO THE HAZARDOUS MATERIALS ASSESSMENT REPORT FOR A COMPLETE LIST OF IDENTIFIED HAZARDOUS MATERIALS.
2. BASEPLAN PROVIDED BY THE CLIENT.
3. LEGEND IS COLOUR DEPENDENT, PHOTOCOPIES MAY ALTER INTERPRETATION OF FIGURE.

APPENDIX II-A
Asbestos Analytical Certificates



Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 600/M4-82-020



Customer: Pinchin West Ltd.
#200 9707 110 Street
Edmonton, AB T5K 2L9

Attn: Ben Frederick
Stephinie Mallon
Sarah Loewen

Lab Order ID: 1712079
Analysis ID: 1712079_PLM
Date Received: 6/8/2017
Date Reported: 6/12/2017

Project: Edmonton Institution

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0001A	Parging Cement Insulation,Pipe Elbows ,Loc:1,AB Block Tunnel	40% Chrysotile		60% Other	Gray Fibrous Homogeneous
1712079PLM_1					Teased
S0001B	Parging Cement Insulation,Pipe Elbows ,Loc:1,AB Block Tunnel	40% Chrysotile		60% Other	Gray Fibrous Homogeneous
1712079PLM_2					Teased
S0001C	Parging Cement Insulation,Dark Yellow Pipes ,Loc:2,CD Block Tunnel	40% Chrysotile		60% Other	Gray Fibrous Homogeneous
1712079PLM_3					Teased
S0001D	Parging Cement Insulation,Dark Yellow Pipes ,Loc:3,EF Block	40% Chrysotile		60% Other	Gray Fibrous Homogeneous
1712079PLM_4					Teased
S0001E	Parging Cement Insulation,Pipe Fitting ,Loc:4,GH Block	30% Chrysotile	20% Cellulose	50% Other	Gray, White Fibrous Heterogeneous
1712079PLM_5	inseperable layers				Teased
S0002A	Fibrous Fireproofing,Grey Fibrous Fireproofing Spray ,Loc:5,East Mechanical Room	None Detected	95% Fiber Glass	5% Other	Gray Fibrous Homogeneous
1712079PLM_6					Teased
S0002B	Fibrous Fireproofing,Grey Fibrous Fireproofing Spray ,Loc:5,East Mechanical Room	None Detected	95% Fiber Glass	5% Other	Gray Fibrous Homogeneous
1712079PLM_7					Teased
S0002C	Fibrous Fireproofing,Grey Fibrous Fireproofing Spray ,Loc:5,East Mechanical Room	None Detected	95% Fiber Glass	5% Other	Gray Fibrous Homogeneous
1712079PLM_8					Teased

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Megan Javonovich (86)

Analyst

Approved Signatory



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Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0003A	Parging Cement Insulation,Parging On Elbows,Loc:7,West Mechanic	30% Chrysotile	30% Fiber Glass	40% Other	Gray Fibrous Homogeneous
1712079PLM_9					Teased
S0003B	Parging Cement Insulation,Parging On Elbows,Loc:7,West Mechanic	30% Chrysotile	30% Fiber Glass	40% Other	Gray Fibrous Homogeneous
1712079PLM_10					Teased
S0003C	Parging Cement Insulation,Parging On Elbows,Loc:7,West Mechanic	30% Chrysotile	30% Fiber Glass	40% Other	Gray Fibrous Homogeneous
1712079PLM_11					Teased
S0004A	Fibrous Fireproofing,Grey Spray Applied Fireproofing ,Loc:7,West Mechanical Room	None Detected	95% Fiber Glass	5% Other	Gray Fibrous Homogeneous
1712079PLM_12					Teased
S0004B	Fibrous Fireproofing,Grey Spray Applied Fireproofing ,Loc:7,West Mechanical Room	None Detected	95% Fiber Glass	5% Other	Gray Fibrous Homogeneous
1712079PLM_13					Teased
S0004C	Fibrous Fireproofing,Grey Spray Applied Fireproofing ,Loc:7,West Mechanical Room	None Detected	95% Fiber Glass	5% Other	Gray Fibrous Homogeneous
1712079PLM_14					Teased
S0005A	Masonry,Mortar Estimate 50 For Possible Disturbance ,Loc:7,West Mechanical Room	None Detected		70% Other 30% Quartz	Gray Non Fibrous Heterogeneous
1712079PLM_15					Crushed
S0005B	Masonry,Mortar Estimate 50 For Possible Disturbance ,Loc:7,West Mechanical Room	None Detected		70% Other 30% Quartz	Gray Non Fibrous Heterogeneous
1712079PLM_16					Crushed

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Lab Sample ID	Lab Notes				Treatment
S0005C	Masonry, Mortar Estimate 50 For Possible Disturbance ,Loc:7, West Mechanical Room	None Detected		70% Other 30% Quartz	Gray Non Fibrous Heterogeneous
1712079PLM_17					Crushed
S0006	Mastic, Silver Colour ,Loc:8, South, West Mechanical Room	None Detected		100% Other	Silver Non Fibrous Homogeneous
1712079PLM_18					Ashed
S0007	Mastic, Red Colour ,Loc:8, South, West Mechanical Room	None Detected	10% Wollastonite	90% Other	Red Non Fibrous Homogeneous
1712079PLM_19					Ashed
S0008	Mastic, Brown Colour ,Loc:8, South, West Mechanical Room	None Detected		100% Other	Brown Non Fibrous Homogeneous
1712079PLM_20					Ashed
S0009A	Drywall And Joint Compound, Dwjc White, Loc:10, Medication Roo	3% Chrysotile		97% Other	Gray Non Fibrous Homogeneous
1712079PLM_21					Crushed
S0009B	Drywall And Joint Compound, Dwjc White, Loc:10, Medication Roo	3% Chrysotile		97% Other	Gray Non Fibrous Homogeneous
1712079PLM_22					Crushed
S0009C	Drywall And Joint Compound, Dwjc White, Loc:10, Medication Roo	3% Chrysotile		97% Other	Gray Non Fibrous Homogeneous
1712079PLM_23					Crushed
S0010A	Texture Finish (Texture Coat) , White Stipple, Loc:11, Team Room Or Program Room And	None Detected		100% Other	White Non Fibrous Homogeneous
1712079PLM_24					Crushed

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Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0010B	Texture Finish (Texture Coat) , White Stipple, Loc: 11, Team Room Or Program Room And	None Detected		100% Other	White Non Fibrous Homogeneous
1712079PLM_25					Crushed
S0010C	Texture Finish (Texture Coat) , White Stipple, Loc: 11, Team Room Or Program Room And	None Detected		100% Other	White Non Fibrous Homogeneous
1712079PLM_26					Crushed
S0011A	Drywall And Joint Compound, Dwjc, Loc: 11, Team Room Or Program Room And	None Detected		100% Other	White Non Fibrous Homogeneous
1712079PLM_27					Crushed
S0011B	Drywall And Joint Compound, Dwjc, Loc: 11, Team Room Or Program Room And	None Detected		100% Other	White Non Fibrous Homogeneous
1712079PLM_28					Crushed
S0011C	Drywall And Joint Compound, Dwjc, Loc: 11, Team Room Or Program Room And	None Detected		100% Other	White Non Fibrous Homogeneous
1712079PLM_29					Crushed
S0012A	Lay-in Ceiling Tiles, Pin And Wormy Holes, Loc: 12, Contact Visiting Room	None Detected	40% Cellulose 30% Fiber Glass	20% Perlite 10% Other	Gray Fibrous Homogeneous
1712079PLM_30					Ashed
S0012B	Lay-in Ceiling Tiles, Pin And Wormy Holes, Loc: 12, Contact Visiting Room	None Detected	40% Cellulose 30% Fiber Glass	20% Perlite 10% Other	Gray Fibrous Homogeneous
1712079PLM_31					Ashed
S0013A	Drywall And Joint Compound, Dwjc, Loc: 12, Contact Visiting Room	None Detected		100% Other	White Non Fibrous Homogeneous
1712079PLM_32					Crushed

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Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0013B	Drywall And Joint Compound,Dwjc,Loc:12,Contact Visiting Room	None Detected		100% Other	White Non Fibrous Homogeneous
1712079PLM_33					Crushed
S0013C	Drywall And Joint Compound,Dwjc,Loc:12,Contact Visiting Room	None Detected		100% Other	White Non Fibrous Homogeneous
1712079PLM_34					Crushed
S0014A	Parging Cement Insulation,Elbow Cement Sw Corner ,Loc:13,Segregation Bl	None Detected	40% Fiber Glass	60% Other	Gray Fibrous Homogeneous
1712079PLM_35					Teased
S0014B	Parging Cement Insulation,Elbow Cement Se Corner ,Loc:13,Segregation Bl	None Detected	40% Fiber Glass	60% Other	Gray Fibrous Homogeneous
1712079PLM_36					Teased
S0015A	Parging Cement Insulation,Elbow Cement Nw Corner ,Loc:13,Segregation Bl	None Detected	40% Fiber Glass	60% Other	Gray Fibrous Homogeneous
1712079PLM_37					Teased
S0015B	Parging Cement Insulation,Elbow Cement Se Corner ,Loc:13,Segregation Bl	None Detected	40% Fiber Glass	60% Other	Gray Fibrous Homogeneous
1712079PLM_38					Teased
S0016	Mastic,Grey Mastic ,Loc:13,Segregation Block Mechanical Room	None Detected		100% Other	Gray Non Fibrous Homogeneous
1712079PLM_39					Ashed
S0017A	Masonry,Mortar ,Loc:13,Segregation Block Mechanical Room	None Detected		70% Other 30% Quartz	Gray Non Fibrous Heterogeneous
1712079PLM_40					Crushed

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Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0017B	Masonry, Mortar , Loc: 13, Segregation Block Mechanical Room	None Detected		70% Other 30% Quartz	Gray Non Fibrous Heterogeneous
1712079PLM_41					Crushed
S0017C	Masonry, Mortar , Loc: 13, Segregation Block Mechanical Room	None Detected		70% Other 30% Quartz	Gray Non Fibrous Heterogeneous
1712079PLM_42					Crushed
S0018A	Fibrous Fireproofing, Spray Fireproofing , Loc: 13, Segregation Block Me	None Detected	95% Fiber Glass	5% Other	Gray Fibrous Homogeneous
1712079PLM_43					Teased
S0018B	Fibrous Fireproofing, Spray Fireproofing , Loc: 13, Segregation Block Me	None Detected	95% Fiber Glass	5% Other	Gray Fibrous Homogeneous
1712079PLM_44					Teased
S0018C	Fibrous Fireproofing, Spray Fireproofing , Loc: 13, Segregation Block Me	None Detected	95% Fiber Glass	5% Other	Gray Fibrous Homogeneous
1712079PLM_45					Teased
S0019A	Parging Cement Insulation, Parging On Duct Elbows, Loc: 14, Segregation	None Detected	40% Fiber Glass	60% Other	Gray Fibrous Homogeneous
1712079PLM_46					Teased
S0019B	Parging Cement Insulation, Parging On Duct Elbows, Loc: 14, Segregation	None Detected	40% Fiber Glass	60% Other	Gray Fibrous Homogeneous
1712079PLM_47					Teased
S0019C	Parging Cement Insulation, Parging On Duct Elbows In Nw Corner, Loc: 14,	None Detected	40% Fiber Glass	60% Other	Gray Fibrous Homogeneous
1712079PLM_48					Teased

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Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0020A	Asphalt Shingles, Roofing Asphalt And Tar, Loc: 15, East And West Roof	None Detected	30% Fiber Glass	50% Other 20% Quartz	Black, Gray Fibrous Heterogeneous
1712079PLM_49					Dissolved
S0020B	Asphalt Shingles, Roofing Asphalt And Tar, Loc: 15, East And West Roof	None Detected	30% Fiber Glass	50% Other 20% Quartz	Gray, Black Fibrous Heterogeneous
1712079PLM_50					Dissolved
S0020C	Asphalt Shingles, Roofing Asphalt And Tar, Loc: 15, East And West Roof	None Detected	30% Fiber Glass	50% Other 20% Quartz	Black, Gray Fibrous Heterogeneous
1712079PLM_51					Dissolved
S0020D	Asphalt Shingles, Roofing Asphalt And Tar, Loc: 15, East And West Roof	None Detected	30% Fiber Glass	50% Other 20% Quartz	Black, Gray Fibrous Heterogeneous
1712079PLM_52					Dissolved
S0020E	Asphalt Shingles, Roofing Asphalt And Tar, Loc: 15, East And West Roof	None Detected	30% Fiber Glass	50% Other 20% Quartz	Black, Gray Fibrous Heterogeneous
1712079PLM_53					Teased
S0020F	Asphalt Shingles, Roofing Asphalt And Tar, Loc: 15, East And West Roof	None Detected	10% Fiber Glass	70% Other 20% Quartz	Black, Gray Non Fibrous Heterogeneous
1712079PLM_54					Dissolved
S0020G	Asphalt Shingles, Roofing Asphalt And Tar, Loc: 15, East And West Roof	None Detected	10% Fiber Glass	70% Other 20% Quartz	Black, Gray Non Fibrous Heterogeneous
1712079PLM_55					Dissolved
S0020H	Asphalt Shingles, Roofing Asphalt And Tar, Loc: 15, East And West Roof	None Detected	10% Fiber Glass	70% Other 20% Quartz	Black, Gray Non Fibrous Heterogeneous
1712079PLM_56					Dissolved

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Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0021A	Parging Cement Insulation,Grey Elbow Cement,Loc:16,Executive Ser	20% Chrysotile		60% Other 20% Vermiculite	Tan Non Fibrous Heterogeneous
1712079PLM_57					Teased
S0021B	Parging Cement Insulation,Grey Elbow Cement,Loc:16,Executive Ser	20% Chrysotile		60% Other 20% Vermiculite	Tan Non Fibrous Heterogeneous
1712079PLM_58					Teased
S0021C	Parging Cement Insulation,Grey Elbow Cement,Loc:16,Executive Ser	20% Chrysotile		60% Other 20% Vermiculite	Tan Non Fibrous Heterogeneous
1712079PLM_59					Teased
S0022A	Parging Cement Insulation,Pipe Elbows,Loc:17,Engineering A	40% Chrysotile		60% Other	Gray Fibrous Homogeneous
1712079PLM_60					Teased
S0022B	Parging Cement Insulation,Pipe Elbows,Loc:17,Engineering A	40% Chrysotile		60% Other	Gray Fibrous Homogeneous
1712079PLM_61					Teased
S0022C	Parging Cement Insulation,Pipe Elbows,Loc:17,Engineering A	40% Chrysotile		60% Other	Gray Fibrous Homogeneous
1712079PLM_62					Teased
S0023A	Lay-in Ceiling Tiles,Medium Holes With Worms,Loc:18,Engineering A	None Detected	40% Cellulose 40% Fiber Glass	10% Perlite 10% Other	Gray Fibrous Homogeneous
1712079PLM_63					Ashed
S0023B	Lay-in Ceiling Tiles,Medium Holes With Worms,Loc:18,Engineering A	None Detected	40% Cellulose 40% Fiber Glass	10% Perlite 10% Other	Gray Fibrous Homogeneous
1712079PLM_64					Ashed

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Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0024A	Drywall And Joint Compound,Dwjc,Loc:19,Engineering And Maintenance	3% Chrysotile		97% Other	Gray Non Fibrous Homogeneous
1712079PLM_65					Crushed
S0024B	Drywall And Joint Compound,Dwjc,Loc:19,Engineering And Maintenance	3% Chrysotile		97% Other	Gray Non Fibrous Homogeneous
1712079PLM_66					Crushed
S0024C	Drywall And Joint Compound,Dwjc,Loc:19,Engineering And Maintenance	3% Chrysotile		97% Other	Gray Non Fibrous Homogeneous
1712079PLM_67					Crushed
S0025A	Parging Cement Insulation,Pipe Elbows ,Loc:21,Engineering And Mai	30% Chrysotile	30% Fiber Glass	40% Other	Gray Fibrous Heterogeneous
1712079PLM_68					Teased
S0025B	Parging Cement Insulation,Pipe Elbows ,Loc:21,Engineering And Mai	30% Chrysotile	30% Fiber Glass	40% Other	Gray Fibrous Heterogeneous
1712079PLM_69					Teased
S0026	Parging Cement Over Fibreglass,Grey Parging ,Loc:21,Engineering And Mai	50% Chrysotile	20% Cellulose	30% Other	Gray Fibrous Homogeneous
1712079PLM_70					Teased
S0027A	Drywall And Joint Compound,Dwjc,Loc:22,Executive Services	None Detected		100% Other	White Non Fibrous Homogeneous
1712079PLM_71					Crushed
S0027B	Drywall And Joint Compound,Dwjc,Loc:22,Executive Services	None Detected		100% Other	White Non Fibrous Homogeneous
1712079PLM_72					Crushed

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Lab Sample ID	Lab Notes				Treatment
S0027C	Drywall And Joint Compound,Dwjc,Loc:22,Executive Services	None Detected		100% Other	Beige Non Fibrous Homogeneous
1712079PLM_73					Crushed
S0028A	Drywall And Joint Compound,Dwjc,Loc:23,Cell Block G And H	None Detected		100% Other	White Non Fibrous Homogeneous
1712079PLM_74					Crushed
S0028B	Drywall And Joint Compound,Dwjc,Loc:23,Cell Block G And H	None Detected		100% Other	White Non Fibrous Homogeneous
1712079PLM_75					Crushed
S0028C	Drywall And Joint Compound,Dwjc,Loc:23,Cell Block G And H	None Detected		100% Other	White Non Fibrous Homogeneous
1712079PLM_76					Crushed
S0029A	Drywall And Joint Compound,Dwjc,Loc:24,Cell Block A And B	None Detected		100% Other	White Non Fibrous Homogeneous
1712079PLM_77					Crushed
S0029B	Drywall And Joint Compound,Dwjc,Loc:24,Cell Block A And B	None Detected		100% Other	White Non Fibrous Homogeneous
1712079PLM_78					Crushed
S0029C	Drywall And Joint Compound,Dwjc,Loc:24,Cell Block A And B	None Detected		100% Other	Beige Non Fibrous Homogeneous
1712079PLM_79					Crushed
S0029D	Drywall And Joint Compound,Dwjc,Loc:24,Cell Block A And B	None Detected		100% Other	White Non Fibrous Homogeneous
1712079PLM_80					Crushed

Disclaimer: Due to the nature of the EPA 600 method, asbestos may not be detected in samples containing low levels of asbestos. We strongly recommend that analysis of floor tiles, vermiculite, and/or heterogeneous soil samples be conducted by TEM for confirmation of "None Detected" by PLM. This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAL. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. government. Analytical uncertainty available upon request. Scientific Analytical Institute participates in the NVLAP Proficiency Testing program. Unless otherwise noted blank sample correction was not performed. Estimated MDL is 0.1%.

Megan Javonovich (86)

Analyst

Approved Signatory



Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 600/M4-82-020



Customer: Pinchin West Ltd.
#200 9707 110 Street
Edmonton, AB T5K 2L9

Attn: Ben Frederick
Stephinie Mallon
Sarah Loewen

Lab Order ID: 1712079
Analysis ID: 1712079_PLM
Date Received: 6/8/2017
Date Reported: 6/12/2017

Project: Edmonton Institution

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0030A	Drywall And Joint Compound,Dwjc,Loc:25,Cell Block C And D	None Detected		100% Other	White Non Fibrous Homogeneous
1712079PLM_81					Crushed
S0030B	Drywall And Joint Compound,Dwjc,Loc:25,Cell Block C And D	None Detected		100% Other	White Non Fibrous Homogeneous
1712079PLM_82					Crushed
S0030C	Drywall And Joint Compound,Dwjc,Loc:25,Cell Block C And D	None Detected		100% Other	White Non Fibrous Homogeneous
1712079PLM_83					Crushed
S0031A	Drywall And Joint Compound,Dwjc,Loc:26,Cell Block E And F	None Detected		100% Other	White Non Fibrous Homogeneous
1712079PLM_84					Crushed
S0031B	Drywall And Joint Compound,Dwjc,Loc:26,Cell Block E And F	None Detected		100% Other	White Non Fibrous Homogeneous
1712079PLM_85					Crushed
S0031C	Drywall And Joint Compound,Dwjc,Loc:26,Cell Block E And F	None Detected		100% Other	White Non Fibrous Homogeneous
1712079PLM_86					Crushed

Disclaimer: Due to the nature of the EPA 600 method, asbestos may not be detected in samples containing low levels of asbestos. We strongly recommend that analysis of floor tiles, vermiculite, and/or heterogeneous soil samples be conducted by TEM for confirmation of "None Detected" by PLM. This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAL. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. government. Analytical uncertainty available upon request. Scientific Analytical Institute participates in the NVLAP Proficiency Testing program. Unless otherwise noted blank sample correction was not performed. Estimated MDL is 0.1%.

Megan Javonovich (86)

Analyst

Approved Signatory

APPENDIX II-B
Lead Analytical Certificates



Analysis for Lead Concentration in Paint Chips

by Flame Atomic Absorption Spectroscopy
EPA SW-846 3050B/6010C/7000B



Customer: Pinchin Ltd.
#200 9707 110 Street
Edmonton, AB T5K 2L9

Attn: Ben Frederick
Stephinie Mallon
Sarah Loewen

Lab Order ID: 1712072
Analysis ID: 1712072_PBP
Date Received: 6/8/2017
Date Reported: 6/13/2017

Project: Edmonton Institution

Sample ID	Description	Mass	Concentration	Concentration
Lab Sample ID	Lab Notes	(g)	(ppm)	(% by weight)
L0001	Mechanical, Metal, Yellow Paint, Loc:1, AB Block Tunnel	0.0648	1700	0.17%
1712072PBP_1				
L0002	Duct, Metal, Beige, Loc:5, East Mechanical Room	0.0614	160000	16%
1712072PBP_2				
L0003	Mechanical, Metal, Brown, Loc:7, West Mechanical Room	0.0640	12000	1.2%
1712072PBP_3				
L0004	Ceiling, Drywall And Joint Compound, White Colour, Loc:10, Medication Room	0.0661	780	0.078%
1712072PBP_4				
L0005	Wall, Masonry, Beige Wall Paint, Loc:13, Segregation Block Mechanical Room	0.0623	600	0.060%
1712072PBP_5				
L0006	Duct, Metal, Beige Paint, Loc:20, Engineering And Maintenance	0.0639	2200	0.22%
1712072PBP_6				
L0007	Mechanical, Metal, Pinkish Brown Over Beige, Loc:21, Engineering And Maintenance	0.0586	5800	0.58%
1712072PBP_7				
L0008	Ceiling, Drywall And Joint Compound, Grey Colour, Loc:23, Cell Block G And H	0.0820	100	0.010%
1712072PBP_8				
L0009	Ceiling, Drywall And Joint Compound, Grey Colour, Loc:24, Cell Block A And B	0.0585	< 68	< 0.007%
1712072PBP_9				

Unless otherwise noted blank sample correction was not performed on analytical results. Scientific Analytical Institute participates in the AIHA ELPAT program. ELPAT Laboratory ID: 173190. This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAI. Analytical uncertainty available upon request. The quality control samples run with the samples in this report have passed all EPA required specifications unless otherwise noted. RL: (Report Limit for an undiluted 50ml sample is 4µg Total Pb).

Taylor Davis (9)

Analyst

Scientific Analytical Institute, Inc. 4604 Dundas Dr. Greensboro, NC 27407 (336) 292-3888

Laboratory Director

APPENDIX III
Methodology

1.0 GENERAL

PWL conducts a room-by-room survey (rooms, corridors, service areas, exterior, etc.) to identify the hazardous building materials as defined by the scope of work. All work is conducted in accordance with our own internal Standard Operating Procedures.

Information regarding the location and condition of hazardous building materials encountered and visually estimated quantities are recorded. The locations of any samples collected are recorded on small-scale plans.

As-built drawings and previous reports are referenced where provided.

1.1 Scope Limitations

The assessment excludes the following:

- Articles belonging to the owner, tenant or occupant (e.g. stored items, furniture, appliances, etc.);
- Underground materials or equipment (e.g. vessels, drums, underground storage tanks, pipes, etc.);
- Building envelope, structural components, inaccessible or concealed materials or other items where sampling may cause consequential damage to the property.
- Energized systems (e.g. internal boiler components, elevators, mechanical or electrical components);
- Controlled products (e.g. stored chemicals, operational or process-related substances); and
- Materials not typically associated with construction (e.g. settled dust, spills, residual contamination from prior spills, etc.).

The assessment includes limited demolition of wall and ceiling finishes (drywall or plaster) to view concealed conditions at representative areas as permitted by the current building use. Limited destructive testing of flooring is conducted where possible (under carpets or multiple layers of flooring). Demolition of masonry walls (chases, shafts etc.), structural items or exterior building finishes is not conducted.

In occupied facilities, PWL only undertakes non-intrusive testing. Concealed spaces such as those above solid ceilings and within shafts and pipe chases are accessed via existing access panels only. PWL does not conduct demolition of walls, solid ceilings, structural items, interior finishes or exterior building finishes, to determine the presence of concealed materials.

1.2 Asbestos

PWL conducts an inspection for the presence of friable and non-friable asbestos-containing materials (ACM). A friable material is a material that when dry can be crumbled, pulverized or powdered by hand pressure.

A separate set of samples is collected of each type of homogenous material suspected to contain asbestos. A homogenous material is defined by the US EPA as material that is uniform in texture and appearance, was installed at one time, and is unlikely to consist of more than one type or formulation of material. The homogeneous materials are determined by visual examination and available information on the phases of construction and prior renovations.

PWL collects samples at a rate that is in compliance with the requirements of local regulations and guidelines.

The sampling strategy is also based on known ban dates and phase out dates of the use of asbestos; sampling of certain building materials is not conducted after specific construction dates. In addition, to be conservative, several years past these dates are added to account for some uncertainty in the exact start/finish date of construction and associated usage of ACM.

In some cases, manufactured products such as asbestos cement pipe are visually identified without sample confirmation.

PWL conducts limited demolition of masonry block walls (core holes) to investigate for loose fill insulation. The core holes are temporarily patched with expanding foam.

Flooring mastic/adhesive and leveling compounds are only sampled and analyzed if present on the underside of flooring samples (vinyl floor tile and vinyl sheet flooring).

If present, the following materials are presumed to be asbestos-containing and are best sampled immediately prior to commencing renovation/disturbance:

- roofing, felts and tar
- concrete floor levelling compound
- elevator and lift brakes
- electrical components or wiring within control centers, breakers, motors or lights, insulation on wiring
- refractory materials and insulations in boilers, incinerators and stacks
- insulation under metal clad boilers and vessels
- caulking

- paper products under wood flooring or metal or slate roofing
- soffit and fascia boards at elevated heights
- mechanical packing, ropes and gaskets
- fire resistant doors or metal clad finishes
- exterior cladding

PWL submits the bulk samples to a NVLAP accredited laboratory for analysis. The analysis is performed in accordance with Test Method EPA/600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials, July 1993.

In Alberta an ACM is not defined as a percentage. The generally accepted threshold is 1%, however materials that contain less than 1% asbestos need to be assessed on a case-by-case basis to determine whether there is a potential for asbestos release when the material is disturbed.

1.3 Lead

PWL collects samples of distinctive paint finishes and surface coatings present in more than a limited application, where removal of the paint is possible. PWL collects samples by scraping the painted finish to include base and covering applications. Drawings included show sample locations.

Analysis for lead in paints or surface coatings is performed at an accredited laboratory in accordance with EPA Method No. 3050B/Method No. 7420; flame atomic absorption.

For this report, all paints containing lead at a concentration of 0.009% or greater are discussed. Paint and surface coatings are evaluated for condition such as flaking, chipping or chalking.

Other lead building products (e.g. batteries, lead sheeting, flashing) are identified by visual observation only.

1.4 Silica

PWL identifies building materials suspected of containing crystalline silica (e.g. concrete, cement, tile, brick, masonry, mortar) by knowledge of current and historic applications and visual inspection only. PWL does not perform sampling of these materials for laboratory analysis of crystalline silica content.

1.5 Mercury

Building materials/products/equipment (e.g. thermostats, barometers, pressure gauges, light tubes), suspected to contain mercury are identified by visual inspection only. Dismantling of equipment suspected of containing mercury is not performed. Sampling of these materials for laboratory analysis of mercury content is not performed.

Mercury spills or damaged mercury-containing equipment are recorded where observed.

1.6 Polychlorinated Biphenyls

PWL determines the potential for light ballasts to contain PCBs based on the age of the building, a review of maintenance records and examination of labels or nameplates on equipment, where present and accessible. The information is compared to known ban dates of PCBs and Environment Canada publications. Other than light ballasts and pole mounted transformers, all other liquid uses of PCBs should have been discontinued.

PWL records spills or leakage of suspect PCB-containing fluids where observed or identified in historical documents.

PWL samples exterior caulking or sealants for PCBs based on the date of construction or installation. Caulking installed after 1985 is presumed to be free of PCBs and hence not sampled. If sampled, analysis for PCBs is performed using an ASTM test method appropriate to the sample matrix at an accredited laboratory.

1.7 Ozone Depleting Substances (ODS)

PWL determines the potential presence of ODS (chlorofluorocarbon, hydrochlorofluorocarbon, hydrofluorocarbon, halon, etc.) in air conditioning units, chillers, commercial coolers and fire suppression systems by visual inspection of manufactures' labels or plates, maintenance records, or log books, etc.

Domestic type equipment such as window mounted and small central air conditioners, refrigerators, and freezers are not evaluated for the presence of ODS.

1.8 Visible Mould

PWL identifies the presence of mould if visibly present in a significant quantity on exposed building surfaces. If any mould growth is concealed within wall cavities it is not addressed in this assessment.

APPENDIX IV
Location Summary Report



LOCATIONS LIST

Project #: 179150

Site: 21611 Meridian Street,
Edmonton, AB

Building Name: Edmonton Institution

Surveyor: Ben Frederick

Survey Date:
2017-05-30

Location No.	Name or Description	ft ²	Floor No.	Notes
1	AB Block Tunnel		B	Concrete tunnel. No finishes
2	CD Block Tunnel		B	
3	EF Block		B	
4	GH Block		B	
5	East Mechanical Room		2	
6	Program Offices, room no. RC13		1	Thought to be built mid nineties
7	West Mechanical Room		2	
8	South, West Mechanical Room		2	
9	Gym		1	
10	Medication Room		1	
11	Team Room Or Program Room And Chapel		1	
12	Contact Visiting Room		1	
13	Segregation Block Mechanical Room, room no. Y12		2	
14	Segregation Mechanical Room, room no. Y13		2	
15	East And West Roof			
16	Executive Services		1	
17	Engineering And Maintenance		1	
18	Engineering And Maintenance, room no. S20		1	
19	Engineering And Maintenance, room no. S22		1	
20	Engineering And Maintenance, room no. S24		1	
21	Engineering And Maintenance, room no. T10		1	
22	Executive Services, room no. N30		1	
23	Cell Block G And H		1	
24	Cell Block A And B		1	
25	Cell Block C And D		1	
26	Cell Block E And F		1	

APPENDIX V
Hazardous Material Summary Report



HAZARDOUS MATERIALS SUMMARY

Project #: 179150

Site: 21611 Meridian Street, Edmonton, AB

Building Name: Edmonton Institution

Surveyor: Ben Frederick

Survey Date: 2017-05-30

HAZARDOUS MATERIALS SUMMARY - ASBESTOS CONTAINING MATERIALS (ACM)								
Sample No.	System	Material/Notes	Friable	Location(s)	Substance	Amount	Unit	Positive
S0001	PIPE	PARGING CEMENT INSULATION, PIPE ELBOWS	Yes	1,2,3,4	Chrysotile	40	%	Yes
S0002	STRUCTURE	FIBROUS FIREPROOFING, GREY FIBROUS FIREPROOFING SPRAY	Yes	5	None Detected			No
S0003	PIPE	PARGING CEMENT INSULATION, PARGING ON ELBOWS	Yes	7,8	Chrysotile	30	%	Yes
S0004	STRUCTURE	FIBROUS FIREPROOFING, GREY SPRAY APPLIED FIREPROOFING	Yes	7,8	None Detected			No
S0005	WALL	MASONRY, MORTAR ESTIMATE 50 FOR POSSIBLE DISTURBANCE	No	7,8	None Detected			No
S0006	DUCT	MASTIC, SILVER COLOUR	No	8	None Detected			No
S0007	DUCT	MASTIC, RED COLOUR	No	8	None Detected			No
S0008	DUCT	MASTIC, BROWN COLOUR	No	8	None Detected			No
S0009	CEILING	DRYWALL AND JOINT COMPOUND, DWJC WHITE	No	10	Chrysotile	3	%	Yes
S0010	CEILING	TEXTURE FINISH (TEXTURE COAT), WHITE STIPPLE	Yes	11	None Detected			No
S0011	CEILING	DRYWALL AND JOINT COMPOUND, DWJC	No	11	None Detected			No
S0012	CEILING	LAY-IN CEILING TILES, PIN AND WORMY HOLES	Yes	12	None Detected			No
S0013	CEILING	DRYWALL AND JOINT COMPOUND, DWJC	No	12	None Detected			No
S0014	PIPE	PARGING CEMENT INSULATION, ELBOW CEMENT SW CORNER	Yes	13,14	None Detected			No
S0015	PIPE	PARGING CEMENT INSULATION, ELBOW CEMENT NW CORNER	Yes	13,14	None Detected			No
S0016	DUCT	MASTIC, GREY MASTIC	No	13,14	None Detected			No
S0017	WALL	MASONRY, MORTAR	No	13,14	None Detected			No
S0018	STRUCTURE	FIBROUS FIREPROOFING, SPRAY FIREPROOFING	Yes	13,14	None Detected			No
S0019	DUCT	PARGING CEMENT INSULATION, PARGING ON DUCT ELBOWS	Yes	14	None Detected			No



HAZARDOUS MATERIALS SUMMARY

S0020	OTHER	ASPHALT SHINGLES, ROOFING ASPHALT AND TAR	No	15	None Detected			No
S0021	PIPE	PARGING CEMENT INSULATION, GREY ELBOW CEMENT	Yes	16	Chrysotile	20	%	Yes
S0022	PIPE	PARGING CEMENT INSULATION, PIPE ELBOWS	Yes	17	Chrysotile	40	%	Yes
S0023	CEILING	LAY-IN CEILING TILES, MEDIUM HOLES WITH WORMS	Yes	18	None Detected			No
S0024	CEILING	DRYWALL AND JOINT COMPOUND, DWJC	No	19	Chrysotile	3	%	Yes
S0025	PIPE	PARGING CEMENT INSULATION, PIPE ELBOWS	Yes	21	Chrysotile	30	%	Yes
S0026	PIPE	PARGING CEMENT INSULATION, GREY PARGING	Yes	21	Chrysotile	50	%	Yes
S0027	CEILING	DRYWALL AND JOINT COMPOUND, DWJC	No	22	None Detected			No
S0028	CEILING	DRYWALL AND JOINT COMPOUND, DWJC	No	23	None Detected			No
S0029	CEILING	DRYWALL AND JOINT COMPOUND, DWJC	No	24	None Detected			No
S0030	CEILING	DRYWALL AND JOINT COMPOUND, DWJC	No	25	None Detected			No
S0031	CEILING	DRYWALL AND JOINT COMPOUND, DWJC	No	26	None Detected			No
V9500	PIPE	PARGING CEMENT INSULATION	Yes	9	Presumed Asbestos			Yes

Project #: 179150

Site: 21611 Meridian Street, Edmonton, AB

Building Name: Edmonton Institution

Surveyor: Ben Frederick

Survey Date: 2017-05-30

HAZARDOUS MATERIALS SUMMARY - LEAD BASED PAINT (LBP)

Sample No.	System	Description	Location(s)	Substance	Amount	Unit	Positive
L0001	MECHANICAL	YELLOW PAINT	1,2,3,4,7,8	Lead	0.17	%	Yes
L0002	DUCT	BEIGE	5	Lead	16	%	Yes
L0003	MECHANICAL	BROWN	7,8	Lead	1.2	%	Yes
L0004	CEILING	WHITE COLOUR	10	Lead	0.078	%	Yes
L0005	WALL	BEIGE WALL PAINT	13,14	Lead	0.06	%	Yes
L0006	DUCT	BEIGE PAINT	20	Lead	0.22	%	Yes
L0007	MECHANICAL	PINKISH BROWN OVER BEIGE	21	Lead	0.58	%	Yes
L0008	CEILING	GREY COLOUR	23	Lead	0.01	%	Yes
L0009	CEILING	GREY COLOUR	24,25,26	Lead	<0.007	%	No

APPENDIX VI
All Data



ALL DATA REPORT

Project #: 179150
Location #: 1

Site: 21611 Meridian Street, Edmonton, AB
Location Name: AB Block Tunnel

Building Name: Edmonton Institution
Floor: B

Surveyor: Ben Frederick
Room #:

Survey Date: 2017-05-30
Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
DUCT ¹	ALL	FIBREGLASS	No	ALL	FOIL FACE	B	Y						~		No
PIPE ²	ALL	PARGING CEMENT INSULATION, PIPE ELBOWS	Yes	PIPE ELBOW	CANVAS	B	Y	11 (7)			EA	S0001A	CHRYSOTILE	40%	Yes
PIPE ³	ALL	PARGING CEMENT INSULATION, PIPE ELBOWS	Yes	PIPE ELBOW	CANVAS	B	Y				EA	S0001B	CHRYSOTILE	40%	Yes
PIPE ⁴	ALL	PARGING CEMENT INSULATION, DARK YELLOW PIPES	Yes	PIPE ELBOW	CANVAS	B	Y	10 (7)			EA	V0001	CHRYSOTILE	40%	Yes
MECHANICAL ⁵	AIR HANDLING UNIT	FIBREGLASS	No	INSULATION	CANVAS	B	Y						~		No

Note: Concrete tunnel. No finishes

- 1 - Comment 1 fibreglass on two ducts
- 2 - Dark yellow hot water pipes
- 3 - Dark yellow hot water pipes
- 4 - Piping near air handler 14
- 5 - Foil backed insulation on air handlers 13, 14 15

Project #: 179150
Location #: 2

Site: 21611 Meridian Street, Edmonton, AB
Location Name: CD Block Tunnel

Building Name: Edmonton Institution
Floor: B

Surveyor: Ben Frederick
Room #:

Survey Date: 2017-05-30
Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
DUCT ¹	ALL	FIBREGLASS	No	ALL	FOIL FACE	B	Y						~		No
PIPE ²	ALL	PARGING CEMENT INSULATION, PIPE ELBOWS	Yes	PIPE ELBOW	CANVAS	B	Y	11 (7)			EA	V0001	CHRYSOTILE	40%	Yes
PIPE ³	ALL	PARGING CEMENT INSULATION, PIPE ELBOWS	Yes	PIPE ELBOW	CANVAS	B	Y				EA	V0001	CHRYSOTILE	40%	Yes
PIPE ⁴	ALL	PARGING CEMENT INSULATION, DARK YELLOW PIPES	Yes	PIPE ELBOW	CANVAS	B	Y	10 (7)			EA	S0001C	CHRYSOTILE	40%	Yes
MECHANICAL ⁵	AIR HANDLING UNIT	FIBREGLASS	No	INSULATION	CANVAS	B	Y						~		No

- 1 - Comment 1 fibreglass on two ducts
- 2 - Dark yellow hot water pipes
- 3 - Dark yellow hot water pipes
- 4 - Piping near air handler 11
- 5 - Foil backed insulation on air handlers 10, 11, 12

Project #: 179150
Location #: 3

Site: 21611 Meridian Street, Edmonton, AB
Location Name: EF Block

Building Name: Edmonton Institution
Floor: B

Surveyor: Ben Frederick
Room #:

Survey Date: 2017-05-30
Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
DUCT ¹	ALL	FIBREGLASS	No	ALL	FOIL FACE	B	Y						~		No



ALL DATA REPORT

PIPE ²	ALL	PARGING CEMENT INSULATION, PIPE ELBOWS	Yes	PIPE ELBOW	CANVAS	B	Y	11 (7)			EA	V0001	CHRYSOTILE	40%	Yes
PIPE ³	ALL	PARGING CEMENT INSULATION, PIPE ELBOWS	Yes	PIPE ELBOW	CANVAS	B	Y				EA	V0001	CHRYSOTILE	40%	Yes
PIPE ⁴	ALL	PARGING CEMENT INSULATION, DARK YELLOW PIPES	Yes	PIPE ELBOW	CANVAS	B	Y	10 (7)			EA	S0001D	CHRYSOTILE	40%	Yes
MECHANICAL ⁵	AIR HANDLING UNIT	FIBREGLASS	No	INSULATION	CANVAS	B	Y						~		No

- 1 - Comment 1 fibreglass on two ducts
- 2 - Dark yellow hot water pipes
- 3 - Dark yellow hot water pipes
- 4 - Piping near air handler 4
- 5 - Foil backed insulation on air handlers 4, 5, 6



ALL DATA REPORT

Project #: 179150
Location #: 4

Site: 21611 Meridian Street, Edmonton, AB
Location Name: GH Block

Building Name: Edmonton Institution
Floor: B

Surveyor: Ben Frederick
Room #:

Survey Date: 2017-05-30
Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
DUCT ¹	ALL	FIBREGLASS	No	ALL	FOIL FACE	B	Y						~		No
PIPE ²	ALL	PARGING CEMENT INSULATION, PIPE FITTING	Yes	PIPE ELBOW	CANVAS	B	Y	11 (7)			EA	S0001E	CHRYBOTILE	40%	Yes
PIPE ³	ALL	PARGING CEMENT INSULATION, PIPE ELBOWS	Yes	PIPE ELBOW	CANVAS	B	Y				EA	V0001	CHRYBOTILE	40%	Yes
PIPE ⁴	ALL	PARGING CEMENT INSULATION, DARK YELLOW PIPES	Yes	PIPE ELBOW	CANVAS	B	Y	10 (7)			EA	V0001	CHRYBOTILE	40%	Yes
MECHANICAL ⁵	AIR HANDLING UNIT	FIBREGLASS	No	INSULATION	CANVAS	B	Y						~		No

- 1 - Comment 1 fibreglass on two ducts
- 2 - Dark yellow hot water pipes
- 3 - Dark yellow hot water pipes
- 4 - Piping near air handler 4
- 5 - Foil backed insulation on air handlers 7, 8, 9

Project #: 179150
Location #: 5

Site: 21611 Meridian Street, Edmonton, AB
Location Name: East Mechanical Room

Building Name: Edmonton Institution
Floor: 2

Surveyor: Ben Frederick
Room #:

Survey Date: 2017-05-30
Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
STRUCTURE	BEAM, DECK, JOIST	FIBROUS FIREPROOFING, GREY FIBROUS FIREPROOFING SPRAY	Yes	INSULATION	N/A	B	Y	300			SF	S0002A	NON-ASBESTOS		No
STRUCTURE	BEAM, DECK, JOIST	FIBROUS FIREPROOFING, GREY FIBROUS FIREPROOFING SPRAY	Yes	INSULATION	N/A	B	Y	300			SF	S0002B	NON-ASBESTOS		No
STRUCTURE	BEAM, DECK, JOIST	FIBROUS FIREPROOFING, GREY FIBROUS FIREPROOFING SPRAY	Yes	INSULATION	N/A	B	Y	300			SF	S0002C	NON-ASBESTOS		No
DUCT	ALL	NOT INSULATED	No	ALL	PAINTED								~		No
PIPE ¹	ALL	FIBREGLASS	No	ALL	CANVAS								~		No
MECHANICAL ²	AIR HANDLING UNIT	NOT INSULATED	No	ALL	N/A								~		No

- 1 - Whole room looks to be asbestos clean
- 2 - Air handlers and associated ducting not insulated

Project #: 179150
Location #: 6

Site: 21611 Meridian Street, Edmonton, AB
Location Name: Program Offices

Building Name: Edmonton Institution
Floor: 1

Surveyor: Ben Frederick
Room #: RC13

Survey Date: 2017-05-30
Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
CEILING ¹	ACOUSTIC TILE	LAY-IN CEILING TILES	Yes	ALL		B	Y						~		No
DUCT	ALL	NOT INSULATED	No	ALL	METAL								~		No
MECHANICAL	AIR HANDLING UNIT	NOT INSULATED	No	ALL	PAINTED								~		No

Note: Thought to be built mid nineties



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1 - Stamped 1993



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Project #: 179150
Location #: 7

Site: 21611 Meridian Street, Edmonton, AB
Location Name: West Mechanical Room

Building Name: Edmonton Institution
Floor: 2

Surveyor: Ben Frederick
Room #:

Survey Date: 2017-05-30
Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
WALL ¹	ALL	MASONRY, MORTAR ESTIMATE 50 FOR POSSIBLE DISTURBANCE	No	ALL	N/A	B	Y	50			SF	S0005A	NON-ASBESTOS		No
WALL ²	ALL	MASONRY, MORTAR ESTIMATE 50 FOR POSSIBLE DISTURBANCE	No	ALL	N/A	B	Y	50			SF	S0005B	NON-ASBESTOS		No
WALL ³	ALL	MASONRY, MORTAR ESTIMATE 50 FOR POSSIBLE DISTURBANCE	No	ALL	N/A	B	Y	50			SF	S0005C	NON-ASBESTOS		No
STRUCTURE	ALL	FIBROUS FIREPROOFING, GREY SPRAY APPLIED FIREPROOFING	Yes	INSULATION		B	Y	400			SF	S0004A	NON-ASBESTOS		No
STRUCTURE	ALL	FIBROUS FIREPROOFING, GREY SPRAY APPLIED FIREPROOFING	Yes	INSULATION		B	Y	400			SF	S0004B	NON-ASBESTOS		No
STRUCTURE	ALL	FIBROUS FIREPROOFING, GREY SPRAY APPLIED FIREPROOFING	Yes	INSULATION		B	Y	400			SF	S0004C	NON-ASBESTOS		No
DUCT	ALL	NOT INSULATED	No										~		No
PIPE ⁴	ALL	PARGING CEMENT INSULATION, PARGING ON ELBOWS	Yes	PIPE ELBOW	CANVAS	B	Y				EA	S0003A	CHRYSTILE	30%	Yes
PIPE ⁵	ALL	PARGING CEMENT INSULATION, PARGING ON ELBOWS	Yes	PIPE ELBOW	CANVAS	B	Y				EA	S0003B	CHRYSTILE	30%	Yes
PIPE ⁶	ALL	PARGING CEMENT INSULATION, PARGING ON ELBOWS	Yes	PIPE ELBOW	CANVAS	B	Y	20 (7)			EA	S0003C	CHRYSTILE	30%	Yes
MECHANICAL ⁷	AIR HANDLING UNIT	NOT INSULATED	No										~		No

- 1 - Unpainted block wall
- 2 - Unpainted block wall
- 3 - Unpainted block wall
- 4 - Same dark yellow colour as in basement of the blocks
- 5 - Same dark yellow colour as in basement of the blocks
- 6 - Same dark yellow colour as in basement of the blocks
- 7 - Ahu 23 and 28 and 103



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Project #: 179150
Location #: 8

Site: 21611 Meridian Street, Edmonton, AB
Location Name: South, West Mechanical Room

Building Name: Edmonton Institution
Floor: 2

Surveyor: Ben Frederick
Room #:

Survey Date: 2017-05-30
Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
WALL ¹	ALL	MASONRY, MORTAR ESTIMATE 50 FOR POSSIBLE DISTURBANCE	No	ALL	N/A	B	Y				SF	V0005	NON-ASBESTOS		No
WALL ²	ALL	MASONRY, MORTAR ESTIMATE 50 FOR POSSIBLE DISTURBANCE	No	ALL	N/A	B	Y				SF	V0005	NON-ASBESTOS		No
WALL ³	ALL	MASONRY, MORTAR ESTIMATE 150 FOR POSSIBLE DISTURBANCE	No	ALL	N/A	B	Y	150			SF	V0005	NON-ASBESTOS		No
STRUCTURE	ALL	FIBROUS FIREPROOFING, GREY SPRAY APPLIED FIREPROOFING	Yes	INSULATION		B	Y				SF	V0004	NON-ASBESTOS		No
STRUCTURE	ALL	FIBROUS FIREPROOFING, GREY SPRAY APPLIED FIREPROOFING	Yes	INSULATION		B	Y				SF	V0004	NON-ASBESTOS		No
STRUCTURE	ALL	FIBROUS FIREPROOFING, GREY SPRAY APPLIED FIREPROOFING	Yes	INSULATION		B	Y	2000			SF	V0004	NON-ASBESTOS		No
DUCT	ALL	NOT INSULATED	No										~		No
DUCT ⁴	ALL	MASTIC, SILVER COLOUR	No			B	Y	10			LF	S0006	NON-ASBESTOS		No
DUCT ⁵	ALL	MASTIC, RED COLOUR	No			B	Y	10			LF	S0007	NON-ASBESTOS		No
DUCT ⁶	ALL	MASTIC, BROWN COLOUR	No			B	Y	20			LF	S0008	NON-ASBESTOS		No
PIPE ⁷	ALL	PARGING CEMENT INSULATION, PARGING ON ELBOWS	Yes	PIPE ELBOW	CANVAS	B	Y				EA	V0003	CHRYSOTILE	30%	Yes
PIPE ⁸	ALL	PARGING CEMENT INSULATION, PARGING ON ELBOWS	Yes	PIPE ELBOW	CANVAS	B	Y				EA	V0003	CHRYSOTILE	30%	Yes
PIPE ⁹	ALL	PARGING CEMENT INSULATION, PARGING ON ELBOWS	Yes	PIPE ELBOW	CANVAS	B	Y	120 (7)			EA	V0003	CHRYSOTILE	30%	Yes
MECHANICAL ¹⁰	AIR HANDLING UNIT	NOT INSULATED	No										~		No

- 1 - Unpainted block wall
- 2 - Unpainted block wall
- 3 - Unpainted block wall
- 4 - On ahu 101 ducting
- 5 - On 2 duct columns near ahu 19
- 6 - On ahu 18
- 7 - Same dark yellow colour as in basement of the blocks
- 8 - Same dark yellow colour as in basement of the blocks
- 9 - Same dark yellow colour as in basement of the blocks
- 10 - All Ahu

Project #: 179150
Location #: 9

Site: 21611 Meridian Street, Edmonton, AB
Location Name: Gym

Building Name: Edmonton Institution
Floor: 1

Surveyor: Ben Frederick
Room #:

Survey Date: 2017-05-30
Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
DUCT	ALL	NOT INSULATED	No										~		No



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PIPE ¹	ALL	PARGING CEMENT INSULATION	Yes	PIPE ELBOW		D	Y	15 (7)			EA	V9500	PRESUMED		Yes
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1 - To High for 6 foot ladder

Project #: 179150
Location #: 10

Site: 21611 Meridian Street, Edmonton, AB
Location Name: Medication Room

Building Name: Edmonton Institution
Floor: 1

Surveyor: Ben Frederick
Room #:

Survey Date: 2017-05-30
Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
CEILING	BULKHEAD	DRYWALL AND JOINT COMPOUND, DWJC WHITE	No		PAINTED	B	Y				SF	S0009A	CHRYSOTILE	3%	Yes
CEILING	BULKHEAD	DRYWALL AND JOINT COMPOUND, DWJC WHITE	No		PAINTED	B	Y				SF	S0009B	CHRYSOTILE	3%	Yes
CEILING	BULKHEAD	DRYWALL AND JOINT COMPOUND, DWJC WHITE	No		PAINTED	B	Y	200 (7)			SF	S0009C	CHRYSOTILE	3%	Yes



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Project #: 179150

Site: 21611 Meridian Street, Edmonton, AB

Building Name: Edmonton Institution

Surveyor: Ben Frederick

Survey Date: 2017-05-31

Location #: 11

Location Name: Team Room Or Program Room And Chapel

Floor: 1

Room #:

Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
CEILING ¹	ALL	TEXTURE FINISH (TEXTURE COAT), WHITE STIPPLE	Yes	SURFACE	N/A	B	Y	1200			SF	S0010A	NON-ASBESTOS		No
CEILING ²	ALL	TEXTURE FINISH (TEXTURE COAT), WHITE STIPPLE	Yes	SURFACE	N/A	B	Y	1200			SF	S0010B	NON-ASBESTOS		No
CEILING ³	ALL	TEXTURE FINISH (TEXTURE COAT), WHITE STIPPLE	Yes	SURFACE	N/A	B	Y	1200			SF	S0010C	NON-ASBESTOS		No
CEILING ⁴	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No	ALL		B	N	1200			SF	S0011A	NON-ASBESTOS		No
CEILING ⁵	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No	ALL		B	N	1200			SF	S0011B	NON-ASBESTOS		No
CEILING ⁶	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No	ALL		B	N	1200			SF	S0011C	NON-ASBESTOS		No

- 1 - White stipple
- 2 - White stipple
- 3 - White stipple
- 4 - Under ceiling stipple
- 5 - Under ceiling stipple
- 6 - Under ceiling stipple

Project #: 179150

Site: 21611 Meridian Street, Edmonton, AB

Building Name: Edmonton Institution

Surveyor: Ben Frederick

Survey Date: 2017-05-31

Location #: 12

Location Name: Contact Visiting Room

Floor: 1

Room #:

Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
CEILING ¹	ACOUSTIC TILE	LAY-IN CEILING TILES, PIN AND WORMY HOLES	Yes			B	Y	1200			SF	S0012A	NON-ASBESTOS		No
CEILING ²	ACOUSTIC TILE	LAY-IN CEILING TILES, PIN AND WORMY HOLES	Yes			B	Y	1200			SF	S0012B	NON-ASBESTOS		No
CEILING ³	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No			B	N	1200			SF	S0013A	NON-ASBESTOS		No
CEILING ⁴	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No			B	N	1200			SF	S0013B	NON-ASBESTOS		No
CEILING ⁵	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No			B	N	1200			SF	S0013C	NON-ASBESTOS		No

- 1 - Pin and wormy holes
- 2 - Pin and wormy holes
- 3 - Above drop ceiling
- 4 - Above drop ceiling
- 5 - Above drop ceiling



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Project #: 179150

Site: 21611 Meridian Street, Edmonton, AB
Location Name: Segregation Block Mechanical Room

Building Name: Edmonton Institution

Floor: 2

Surveyor: Ben Frederick

Room #: Y12

Survey Date: 2017-05-31

Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
WALL ¹	ALL	MASONRY, MORTAR	No		PAINTED	B	Y				SF	S0017A	NON-ASBESTOS		No
WALL ²	ALL	MASONRY, MORTAR	No		PAINTED	B	Y				SF	S0017B	NON-ASBESTOS		No
WALL ³	ALL	MASONRY, MORTAR	No		PAINTED	B	Y	800			SF	S0017C	NON-ASBESTOS		No
STRUCTURE	ALL	FIBROUS FIREPROOFING, SPRAY FIREPROOFING	Yes		N/A	B	Y				SF	S0018A	NON-ASBESTOS		No
STRUCTURE	ALL	FIBROUS FIREPROOFING, SPRAY FIREPROOFING	Yes		N/A	B	Y				SF	S0018B	NON-ASBESTOS		No
STRUCTURE	ALL	FIBROUS FIREPROOFING, SPRAY FIREPROOFING	Yes		N/A	B	Y	400			SF	S0018C	NON-ASBESTOS		No
DUCT	ALL	MASTIC, GREY MASTIC	No			B	Y	40			LF	S0016	NON-ASBESTOS		No
PIPE ⁴	ALL	PARGING CEMENT INSULATION, ELBOW CEMENT SW CORNER	Yes		CANVAS	B	Y				EA	S0014A	NON-ASBESTOS		No
PIPE ⁵	ALL	PARGING CEMENT INSULATION, ELBOW CEMENT SE CORNER	Yes		CANVAS	B	Y	25			EA	S0014B	NON-ASBESTOS		No
PIPE ⁶	ALL	PARGING CEMENT INSULATION, ELBOW CEMENT NW CORNER	Yes		CANVAS	B	Y				EA	S0015A	NON-ASBESTOS		No
PIPE ⁷	ALL	PARGING CEMENT INSULATION, ELBOW CEMENT SE CORNER	Yes		CANVAS	B	Y	35			EA	S0015B	NON-ASBESTOS		No
MECHANICAL	HEATING WATER TANK	NOT INSULATED	No										~		No

- 1 - All 4 walls
- 2 - All 4 walls
- 3 - All 4 walls
- 4 - Green piping
- 5 - Green piping
- 6 - Yellow piping
- 7 - Yellow piping



ALL DATA REPORT

Project #: 179150
Location #: 14

Site: 21611 Meridian Street, Edmonton, AB
Location Name: Segregation Mechanical Room

Building Name: Edmonton Institution
Floor: 2

Surveyor: Ben Frederick
Room #: Y13

Survey Date: 2017-05-31
Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
WALL ¹	ALL	MASONRY, MORTAR	No		PAINTED	B	Y				SF	V0017	NON-ASBESTOS		No
WALL ²	ALL	MASONRY, MORTAR	No		PAINTED	B	Y				SF	V0017	NON-ASBESTOS		No
WALL ³	ALL	MASONRY, MORTAR	No		PAINTED	B	Y	1000			SF	V0017	NON-ASBESTOS		No
STRUCTURE	ALL	FIBROUS FIREPROOFING, SPRAY FIREPROOFING	Yes		N/A	B	Y				SF	V0018	NON-ASBESTOS		No
STRUCTURE	ALL	FIBROUS FIREPROOFING, SPRAY FIREPROOFING	Yes		N/A	B	Y				SF	V0018	NON-ASBESTOS		No
STRUCTURE	ALL	FIBROUS FIREPROOFING, SPRAY FIREPROOFING	Yes		N/A	B	Y	800			SF	V0018	NON-ASBESTOS		No
DUCT	ALL	MASTIC, GREY MASTIC	No			B	Y	20			LF	V0016	NON-ASBESTOS		No
DUCT	ALL	PARGING CEMENT INSULATION, PARGING ON DUCT ELBOWS	Yes		CANVAS	B	Y	10			EA	S0019A	NON-ASBESTOS		No
DUCT	ALL	PARGING CEMENT INSULATION, PARGING ON DUCT ELBOWS	Yes		CANVAS	B	Y				EA	S0019B	NON-ASBESTOS		No
DUCT	ALL	PARGING CEMENT INSULATION, PARGING ON DUCT ELBOWS IN NW CORNER	Yes		CANVAS	B	Y				EA	S0019C	NON-ASBESTOS		No
PIPE ⁴	ALL	PARGING CEMENT INSULATION, ELBOW CEMENT SW CORNER	Yes		CANVAS	B	Y				EA	V0014	NON-ASBESTOS		No
PIPE ⁵	ALL	PARGING CEMENT INSULATION, ELBOW CEMENT SE CORNER	Yes		CANVAS	B	Y	20			EA	V0014	NON-ASBESTOS		No
PIPE ⁶	ALL	PARGING CEMENT INSULATION, ELBOW CEMENT NW CORNER	Yes		CANVAS	B	Y				EA	V0015	NON-ASBESTOS		No
PIPE ⁷	ALL	PARGING CEMENT INSULATION, ELBOW CEMENT SE CORNER	Yes		CANVAS	B	Y	35			EA	V0015	NON-ASBESTOS		No
MECHANICAL	HEATING WATER TANK	NOT INSULATED	No										~		No

- 1 - All 4 walls
- 2 - All 4 walls
- 3 - All 4 walls
- 4 - Green piping
- 5 - Green piping
- 6 - Yellow piping
- 7 - Yellow piping



ALL DATA REPORT

Project #: 179150
Location #: 15

Site: 21611 Meridian Street, Edmonton, AB
Location Name: East And West Roof

Building Name: Edmonton Institution
Floor:

Surveyor: Ben Frederick
Room #:

Survey Date: 2017-06-01
Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
OTHER ¹	ROOF	ASPHALT SHINGLES, ROOFING ASPHALT AND TAR	No	ALL		B	Y	>5000			SF	S0020A	NON-ASBESTOS		No
OTHER ²	ROOF	ASPHALT SHINGLES, ROOFING ASPHALT AND TAR	No	ALL		B	Y				SF	S0020B	NON-ASBESTOS		No
OTHER ³	ROOF	ASPHALT SHINGLES, ROOFING ASPHALT AND TAR	No	ALL		B	Y				SF	S0020C	NON-ASBESTOS		No
OTHER ⁴	ROOF	ASPHALT SHINGLES, ROOFING ASPHALT AND TAR	No	ALL		B	Y				SF	S0020D	NON-ASBESTOS		No
OTHER ⁵	ROOF	ASPHALT SHINGLES, ROOFING ASPHALT AND TAR	No	ALL		B	Y				SF	S0020E	NON-ASBESTOS		No
OTHER ⁶	ROOF	ASPHALT SHINGLES, ROOFING ASPHALT AND TAR	No	ALL		B	Y				SF	S0020F	NON-ASBESTOS		No
OTHER ⁷	ROOF	ASPHALT SHINGLES, ROOFING ASPHALT AND TAR	No	ALL		B	Y				SF	S0020G	NON-ASBESTOS		No
OTHER ⁸	ROOF	ASPHALT SHINGLES, ROOFING ASPHALT AND TAR	No	ALL		B	Y				SF	S0020H	NON-ASBESTOS		No

- 1 - Asphalt roofing strips
- 2 - Asphalt roofing strips
- 3 - Asphalt roofing strips
- 4 - Asphalt roofing strips
- 5 - Asphalt roofing strips
- 6 - Asphalt roofing strips
- 7 - Asphalt roofing strips
- 8 - Asphalt roofing strips

Project #: 179150
Location #: 16

Site: 21611 Meridian Street, Edmonton, AB
Location Name: Executive Services

Building Name: Edmonton Institution
Floor: 1

Surveyor: Ben Frederick
Room #:

Survey Date: 2017-06-01
Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
PIPE ¹	ALL	PARGING CEMENT INSULATION, GREY ELBOW CEMENT	Yes	PIPE ELBOW	CANVAS	B	N				EA	S0021A	CHRYSTILE	20%	Yes
PIPE ²	ALL	PARGING CEMENT INSULATION, GREY ELBOW CEMENT	Yes	PIPE ELBOW	CANVAS	B	N				EA	S0021B	CHRYSTILE	20%	Yes
PIPE ³	ALL	PARGING CEMENT INSULATION, GREY ELBOW CEMENT	Yes	PIPE ELBOW	CANVAS	B	N				EA	S0021C	CHRYSTILE	20%	Yes

- 1 - Appears newish
- 2 - Appears newish
- 3 - Appears newish

Project #: 179150
Location #: 17

Site: 21611 Meridian Street, Edmonton, AB
Location Name: Engineering And Maintenance

Building Name: Edmonton Institution
Floor: 1

Surveyor: Ben Frederick
Room #:

Survey Date: 2017-06-01
Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
PIPE ¹	ALL	PARGING CEMENT INSULATION, PIPE ELBOWS	Yes	PIPE ELBOW	CANVAS	B	Y	30 (7)			EA	S0022A	CHRYSTILE	40%	Yes



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PIPE ²	ALL	PARGING CEMENT INSULATION, PIPE ELBOWS	Yes	PIPE ELBOW	CANVAS	B	Y				EA	S0022B	CHRYSTILE	40%	Yes
PIPE ³	ALL	PARGING CEMENT INSULATION, PIPE ELBOWS	Yes	PIPE ELBOW	CANVAS	B	Y				EA	S0022C	CHRYSTILE	40%	Yes

- 1 - Yellow piping
- 2 - Yellow piping
- 3 - Yellow piping

Project #: 179150
Location #: 18

Site: 21611 Meridian Street, Edmonton, AB
Location Name: Engineering And Maintenance

Building Name: Edmonton Institution
Floor: 1

Surveyor: Ben Frederick
Room #: S20

Survey Date: 2017-06-01
Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
CEILING ¹	ACOUSTIC TILE	LAY-IN CEILING TILES, MEDIUM HOLES WITH WORMS	Yes	ALL		B	Y	160			SF	S0023A	NON-ASBESTOS		No
CEILING ²	ACOUSTIC TILE	LAY-IN CEILING TILES, MEDIUM HOLES WITH WORMS	Yes	ALL		B	Y				SF	S0023B	NON-ASBESTOS		No

- 1 - Fire rated tiles
- 2 - Fire rated tiles



ALL DATA REPORT

Project #: 179150 Site: 21611 Meridian Street, Edmonton, AB Building Name: Edmonton Institution Surveyor: Ben Frederick Survey Date: 2017-06-01
Location #: 19 Location Name: Engineering And Maintenance Floor: 1 Room #: S22 Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
CEILING ¹	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No		PAINTED	B	Y	150 (7)			SF	S0024A	CHRYSTILE	3%	Yes
CEILING ²	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No		PAINTED	B	Y				SF	S0024B	CHRYSTILE	3%	Yes
CEILING ³	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No		PAINTED	B	Y				SF	S0024C	CHRYSTILE	3%	Yes

- 1 - Border of ceiling no dwjc
- 2 - Border of ceiling no dwjc
- 3 - Border of ceiling no dwjc

Project #: 179150 Site: 21611 Meridian Street, Edmonton, AB Building Name: Edmonton Institution Surveyor: Ben Frederick Survey Date: 2017-06-01
Location #: 20 Location Name: Engineering And Maintenance Floor: 1 Room #: S24 Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
DUCT	ALL	NOT INSULATED	No		PAINTED								~		No

Project #: 179150 Site: 21611 Meridian Street, Edmonton, AB Building Name: Edmonton Institution Surveyor: Ben Frederick Survey Date: 2017-06-02
Location #: 21 Location Name: Engineering And Maintenance Floor: 1 Room #: T10 Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
DUCT	ALL	NOT INSULATED	No										~		No
PIPE ¹	ALL	PARGING CEMENT INSULATION, PIPE ELBOWS	Yes	PIPE ELBOW	CANVAS	B	Y	20 (7)			EA	S0025A	CHRYSTILE	30%	Yes
PIPE ²	ALL	PARGING CEMENT INSULATION, PIPE ELBOWS	Yes	PIPE ELBOW	CANVAS	B	Y				EA	S0025B	CHRYSTILE	30%	Yes
PIPE ³	HOT WATER HEATING	PARGING CEMENT INSULATION, GREY PARGING	Yes	PIPE ELBOW	CANVAS	B	Y	1 (7)			EA	S0026	CHRYSTILE	50%	Yes
MECHANICAL	AIR HANDLING UNIT	NOT INSULATED	No										~		No

- 1 - Yellow piping
- 2 - Yellow piping
- 3 - On fibreglass insulation next to abated elbow

Project #: 179150 Site: 21611 Meridian Street, Edmonton, AB Building Name: Edmonton Institution Surveyor: Ben Frederick Survey Date: 2017-06-02
Location #: 22 Location Name: Executive Services Floor: 1 Room #: N30 Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
CEILING	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No			B	Y	600			SF	S0027A	NON-ASBESTOS		No
CEILING	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No			B	Y				SF	S0027B	NON-ASBESTOS		No
CEILING	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No			B	Y				SF	S0027C	NON-ASBESTOS		No



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Project #: 179150
Location #: 23

Site: 21611 Meridian Street, Edmonton, AB
Location Name: Cell Block G And H

Building Name: Edmonton Institution
Floor: 1

Surveyor: Ben Frederick
Room #:

Survey Date: 2017-06-02
Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
CEILING ¹	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No		PAINTED	B	Y	2000			SF	S0028A	NON-ASBESTOS		No
CEILING ²	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No		PAINTED	B	Y				SF	S0028B	NON-ASBESTOS		No
CEILING	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No		PAINTED	B	Y				SF	S0028C	NON-ASBESTOS		No

1 - Room H12
2 - Room H12



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Project #: 179150
Location #: 24

Site: 21611 Meridian Street, Edmonton, AB
Location Name: Cell Block A And B

Building Name: Edmonton Institution
Floor: 1

Surveyor: Ben Frederick
Room #:

Survey Date: 2017-06-02
Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
CEILING ¹	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No		PAINTED	B	Y	2000			SF	S0029A	NON-ASBESTOS		No
CEILING	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No		PAINTED	B	Y				SF	S0029B	NON-ASBESTOS		No
CEILING	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No		PAINTED	B	Y				SF	S0029C	NON-ASBESTOS		No
CEILING ²	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No		PAINTED	B	Y					S0029D	NON-ASBESTOS		No

1 - Room A11
2 - Room B11

Project #: 179150
Location #: 25

Site: 21611 Meridian Street, Edmonton, AB
Location Name: Cell Block C And D

Building Name: Edmonton Institution
Floor: 1

Surveyor: Ben Frederick
Room #:

Survey Date: 2017-06-02
Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
CEILING ¹	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No		PAINTED	B	Y	2000			SF	S0030A	NON-ASBESTOS		No
CEILING	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No		PAINTED	B	Y				SF	S0030B	NON-ASBESTOS		No
CEILING	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No		PAINTED	B	Y				SF	S0030C	NON-ASBESTOS		No

1 - Room C11

Project #: 179150
Location #: 26

Site: 21611 Meridian Street, Edmonton, AB
Location Name: Cell Block E And F

Building Name: Edmonton Institution
Floor: 1

Surveyor: Ben Frederick
Room #:

Survey Date: 2017-06-02
Square ft:

ASBESTOS															
System	Component	Material	Friable	Item	Covering	Access	Visible	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Asbestos
CEILING ¹	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No		PAINTED	B	Y	2000			SF	S0031A	NON-ASBESTOS		No
CEILING	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No		PAINTED	B	Y				SF	S0031B	NON-ASBESTOS		No
CEILING ²	ALL	DRYWALL AND JOINT COMPOUND, DWJC	No		PAINTED	B	Y				SF	S0031C	NON-ASBESTOS		No

1 - Room E12
2 - Room F12



ALL DATA REPORT

Project #: 179150 Site: 21611 Meridian Street, Edmonton, AB Building Name: Edmonton Institution Surveyor: Ben Frederick Survey Date: 2017-05-30
 Location #: 1 Location Name: AB Block Tunnel Floor: B Room #: Square ft:

LEAD PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Result Description	Amount	Lead
MECHANICAL ¹	METAL	150		SF	L0001	Yellow paint		0.17%	Yes

Note: Concrete tunnel. No finishes
 1 - Yellow paint on air handlers

Project #: 179150 Site: 21611 Meridian Street, Edmonton, AB Building Name: Edmonton Institution Surveyor: Ben Frederick Survey Date: 2017-05-30
 Location #: 2 Location Name: CD Block Tunnel Floor: B Room #: Square ft:

LEAD PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Result Description	Amount	Lead
MECHANICAL ¹	METAL	150		SF	V0001	Yellow paint		0.17%	Yes

1 - Yellow paint on air handlers

Project #: 179150 Site: 21611 Meridian Street, Edmonton, AB Building Name: Edmonton Institution Surveyor: Ben Frederick Survey Date: 2017-05-30
 Location #: 3 Location Name: EF Block Floor: B Room #: Square ft:

LEAD PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Result Description	Amount	Lead
MECHANICAL ¹	METAL	300		SF	V0001	Yellow paint		0.17%	Yes

1 - Yellow paint on air handlers

Project #: 179150 Site: 21611 Meridian Street, Edmonton, AB Building Name: Edmonton Institution Surveyor: Ben Frederick Survey Date: 2017-05-30
 Location #: 4 Location Name: GH Block Floor: B Room #: Square ft:

LEAD PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Result Description	Amount	Lead
MECHANICAL ¹	METAL	300		SF	V0001	Yellow paint		0.17%	Yes

1 - Yellow paint on air handlers

Project #: 179150 Site: 21611 Meridian Street, Edmonton, AB Building Name: Edmonton Institution Surveyor: Ben Frederick Survey Date: 2017-05-30
 Location #: 5 Location Name: East Mechanical Room Floor: 2 Room #: Square ft:

LEAD PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Result Description	Amount	Lead
DUCT ¹	METAL	400		SF	L0002	Beige		16%	Yes

1 - Beige colour



ALL DATA REPORT

Project #: 179150
Location #: 7

Site: 21611 Meridian Street, Edmonton, AB
Location Name: West Mechanical Room

Building Name: Edmonton Institution
Floor: 2

Surveyor: Ben Frederick
Room #:

Survey Date: 2017-05-30
Square ft:

LEAD PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Result Description	Amount	Lead
DUCT	METAL	400		SF	V0001	Beige		0.17%	Yes
MECHANICAL ¹	METAL	150		SF	L0003	Brown		1.2%	Yes

1 - On ahu 28 and 23

Project #: 179150
Location #: 8

Site: 21611 Meridian Street, Edmonton, AB
Location Name: South, West Mechanical Room

Building Name: Edmonton Institution
Floor: 2

Surveyor: Ben Frederick
Room #:

Survey Date: 2017-05-30
Square ft:

LEAD PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Result Description	Amount	Lead
DUCT	METAL	2000		SF	V0001	Beige		0.17%	Yes
MECHANICAL ¹	METAL	500		SF	V0003	Brown		1.2%	Yes

1 - On ahu 26, 27, 19, 16, 17, 47

Project #: 179150
Location #: 10

Site: 21611 Meridian Street, Edmonton, AB
Location Name: Medication Room

Building Name: Edmonton Institution
Floor: 1

Surveyor: Ben Frederick
Room #:

Survey Date: 2017-05-30
Square ft:

LEAD PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Result Description	Amount	Lead
CEILING ¹	DRYWALL AND JOINT COMPOUND	200		SF	L0004	White colour		0.078%	Yes

1 - Flaking



ALL DATA REPORT

Project #: 179150 Site: 21611 Meridian Street, Edmonton, AB Building Name: Edmonton Institution Surveyor: Ben Frederick Survey Date: 2017-05-31
 Location #: 13 Location Name: Segregation Block Mechanical Room Floor: 2 Room #: Y12 Square ft:

LEAD PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Result Description	Amount	Lead
WALL ¹	MASONRY	800		SF	L0005	Beige wall paint		0.06%	Yes

1 - Beige over white

Project #: 179150 Site: 21611 Meridian Street, Edmonton, AB Building Name: Edmonton Institution Surveyor: Ben Frederick Survey Date: 2017-05-31
 Location #: 14 Location Name: Segregation Mechanical Room Floor: 2 Room #: Y13 Square ft:

LEAD PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Result Description	Amount	Lead
WALL ¹	MASONRY	1000		SF	V0005	Beige wall paint		0.06%	Yes

1 - Beige over white

Project #: 179150 Site: 21611 Meridian Street, Edmonton, AB Building Name: Edmonton Institution Surveyor: Ben Frederick Survey Date: 2017-06-01
 Location #: 20 Location Name: Engineering And Maintenance Floor: 1 Room #: S24 Square ft:

LEAD PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Result Description	Amount	Lead
DUCT	METAL	80		LF	L0006	Beige paint		0.22%	Yes

Project #: 179150 Site: 21611 Meridian Street, Edmonton, AB Building Name: Edmonton Institution Surveyor: Ben Frederick Survey Date: 2017-06-02
 Location #: 21 Location Name: Engineering And Maintenance Floor: 1 Room #: T10 Square ft:

LEAD PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Result Description	Amount	Lead
MECHANICAL ¹	METAL	600		SF	L0007	Pinkish brown over beige		0.58%	Yes

1 - Pinkish brown paint over beige

Project #: 179150 Site: 21611 Meridian Street, Edmonton, AB Building Name: Edmonton Institution Surveyor: Ben Frederick Survey Date: 2017-06-02
 Location #: 23 Location Name: Cell Block G And H Floor: 1 Room #: Square ft:

LEAD PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Result Description	Amount	Lead
CEILING	DRYWALL AND JOINT COMPOUND	2000		SF	L0008	Grey colour		0.01%	Yes

Project #: 179150 Site: 21611 Meridian Street, Edmonton, AB Building Name: Edmonton Institution Surveyor: Ben Frederick Survey Date: 2017-06-02
 Location #: 24 Location Name: Cell Block A And B Floor: 1 Room #: Square ft:

LEAD PAINT									
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ALL DATA REPORT

System	Item	Good	Poor	Unit	Sample	Sample Description	Result Description	Amount	Lead
CEILING	DRYWALL AND JOINT COMPOUND	2000		SF	L0009	Grey colour		<0.007%	No

Project #: 179150 Site: 21611 Meridian Street, Edmonton, AB Building Name: Edmonton Institution Surveyor: Ben Frederick Survey Date: 2017-06-02
Location #: 25 Location Name: Cell Block C And D Floor: 1 Room #: Square ft:

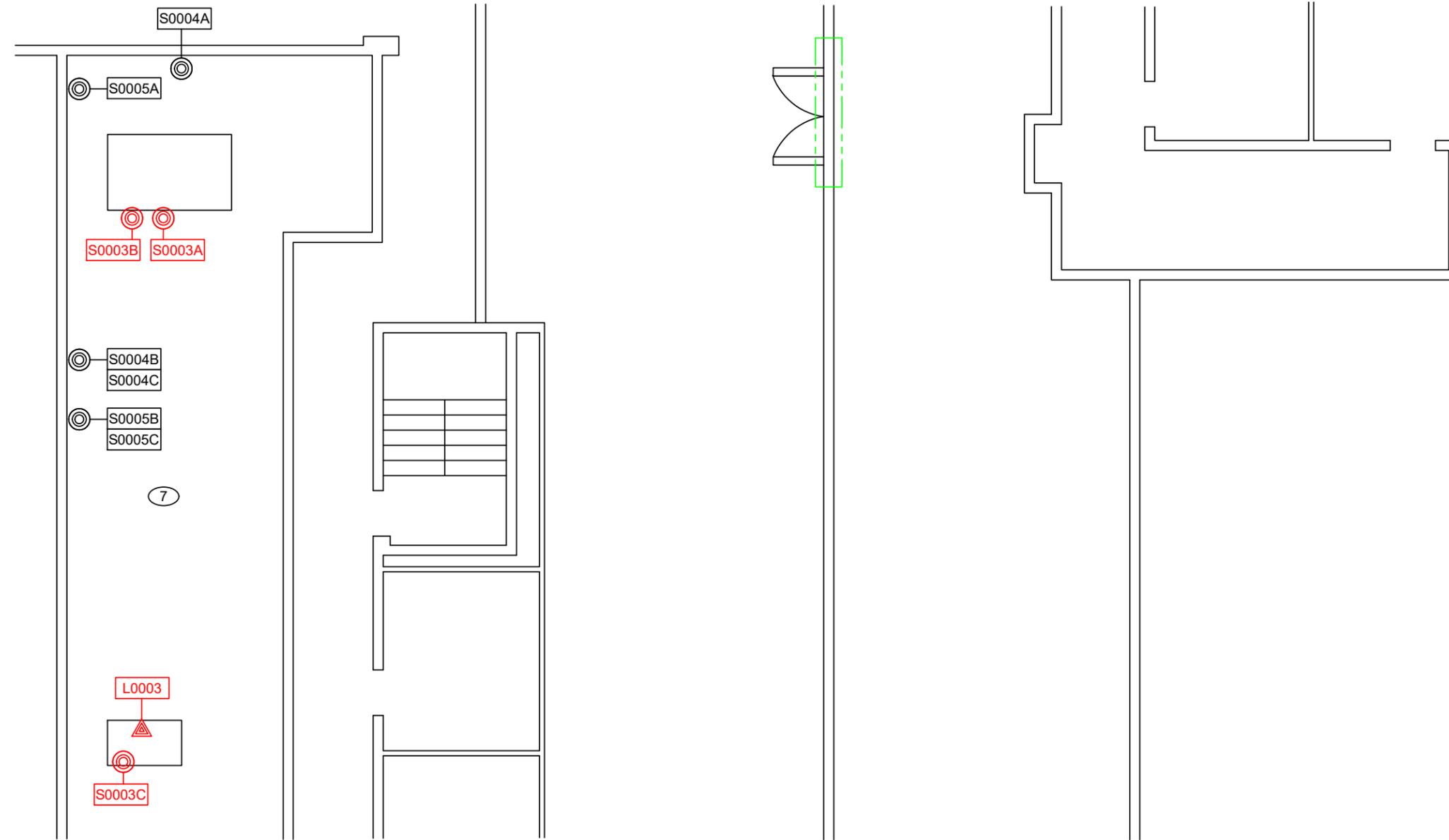
LEAD PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Result Description	Amount	Lead
CEILING	DRYWALL AND JOINT COMPOUND	2000		SF	V0009	Grey colour		<0.007%	No

Project #: 179150 Site: 21611 Meridian Street, Edmonton, AB Building Name: Edmonton Institution Surveyor: Ben Frederick Survey Date: 2017-06-02
Location #: 26 Location Name: Cell Block E And F Floor: 1 Room #: Square ft:

LEAD PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Result Description	Amount	Lead
CEILING	DRYWALL AND JOINT COMPOUND	2000		SF	V0009	Grey colour		<0.007%	No

Legend:

Sample number		Units		Other	
S####	Sample collected.	SF	Square feet	SVM	Suspect Visible Mould
V####	Material is visually identified to be identical to S####	LF	Linear feet		
V0000	Known non asbestos material.	EA	Each		
V9000	Material is visually identified to contain asbestos.	%	Percentage		
V9500	Material is presumed to contain asbestos.				
Access		Condition			
A	Accessible to all building occupants	Good	No visible damage or deterioration		
B	Accessible to maintenance and operations staff without a ladder	Fair	Minor, repairable damage, cracking or deterioration.		
C	Accessible to maintenance and operations staff with a ladder. Also rarely entered, locked areas.	Poor	Irreparable damage or deterioration with exposed and missing material.		
D	Not normally accessible or without demolition				
Action					
(1)	Clean up of ACM Debris	(2)	Precautions for Access Which may Disturb ACM Debris	(3)	ACM removal
(4)	Precautions for Work Which may Disturb ACM in Poor Condition	(5)	Proactive ACM removal (Minimum repair required for fair condition)	(6)	ACM repair
(7)	Management program and surveillance				



- LEGEND:
- (X) LOCATION NUMBER
 - ⊙ NEGATIVE ASBESTOS SAMPLE LOCATION
 - ⊗ POSITIVE ASBESTOS SAMPLE LOCATION
 - ▲ NEGATIVE LEAD PAINT SAMPLE LOCATION
 - ▲ POSITIVE LEAD PAINT SAMPLE LOCATION
 - BLOCK WALL REMOVAL REQUIRED FOR INSTALLATION OF NEW DOOR

CLIENT:
 ASSOCIATED ENGINEERING
 ALBERTA LTD.
 SUITE 500, 9888 JASPER AVENUE
 EDMONTON, ALBERTA T5J 5C6

LOCATION:
 21611 MERIDIAN STREET
 EDMONTON, ALBERTA T5Y 6E7

TITLE: HVAC UPGRADE HAZARDOUS
 MATERIALS ASSESSMENT
 EDMONTON INSTITUTION
 WEST MECHANICAL ROOM NORTH

DATE: 2017/06/20	PROJECT # : 179150
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DRAWN BY: VM	DRAWING: 15 OF 19
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CHECKED BY: SM

SCALE: NTS

- NOTES:
1. ALL DRAWINGS TO BE REFERENCED WITH THE HAZARDOUS MATERIALS ASSESSMENT REPORT. NOT ALL KNOWN OR SUSPECT HAZARDOUS MATERIALS ARE DEPICTED ON THIS DRAWING. REFER TO THE HAZARDOUS MATERIALS ASSESSMENT REPORT FOR A COMPLETE LIST OF IDENTIFIED HAZARDOUS MATERIALS.
 2. BASEPLAN PROVIDED BY THE CLIENT.
 3. LEGEND IS COLOUR DEPENDENT, PHOTOCOPIES MAY ALTER INTERPRETATION OF FIGURE.

Part 1 General

1.1 SUMMARY

- .1 Comply with requirements of this Section when performing lead-based paints from mechanical equipment, piping, ductwork, masonry, drywall or surfaces as indicated in the Pinchin report "Hazardous Building Materials Assessment, Edmonton Institution, 21611 Meridian Street, Edmonton AB," dated June 23, 2017, and the Associated Engineering Preliminary Mechanical Drawings, Revision No. A.:
 - .1 Removal of lead-containing coatings with a chemical gel or paste.
 - .2 Removal of lead-containing coatings or materials using a power tool with an effective dust collection system equipped with a HEPA filter.
 - .3 Removal of lead-containing coatings or materials with non-powered hand tool, other than manual scraping and sanding.
 - .4 Manual demolition of lead-painted concrete block walls, drywall ceilings or building components by striking the surface with sledgehammer or similar tool.

1.2 RELATED WORK

- .1 Section 02 83 01 Removal and Disposal of Lead Products
- .2 Section 02 82 00 Asbestos Removal
- .3 Section 02 84 00 PCB Ballast Removal
- .4 Section 02 87 00 Mercury Products Removal

1.3 REFERENCES

- .1 Department of Justice Canada
 - .1 Canadian Environmental Protection Act, 1999 (CEPA).
 - .2 Surface Coating Materials Regulations, SOR/2005-109, Hazardous Products Act.
- .2 Alberta Government
 - .1 Occupational Health and Safety Act, Regulation and Code, Province of Alberta, 2009.
 - .2 Workplace Health and Safety Bulletin, Lead at the Work Site (CH061), Government of Alberta, Employment and Immigration, July 2009.
- .3 Health Canada
 - .1 Workplace Hazardous Materials Information System (WHMIS), Material Safety Data Sheets (MSDS).
- .4 Canadian Standards Association (CSA)
 - .1 CSA Standard Z94.4-M2003, Selection, Care, and Use of Respirators.
- .5 Human Resources and Social Development Canada (HRSDC)

- .1 Canada Labour Code Part II, - SOR 86-304 - Occupational Health and Safety Regulations.
- .6 Transport Canada (TC)
 - .1 Transportation of Dangerous Goods Act, 1992 (TDGA).
- .7 U.S. Environmental Protection Agency (EPA)
 - .1 EPA 747-R-95-007-(1995), Sampling House Dust for Lead.
- .8 U.S. Department of Health and Human Services/Centers for Disease Control and Prevention/National Institute for Occupational Safety and Health (NIOSH)
 - .1 NIOSH 94-113 - NIOSH Manual of Analytical Methods (NMAM), 4th Edition (1994).
- .9 U.S. Department of Labour - Occupational Safety and Health Administration (OSHA) - Toxic and Hazardous Substances
 - .1 Lead in Construction Regulation - 29 CFR 1926.62-(1993).
- .10 Underwriters' Laboratories of Canada (ULC)

1.4 DEFINITIONS

- .1 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with a filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.
- .2 Authorized Visitors: Departmental Representative.
- .3 Polyethylene: polyethylene sheeting or rip-proof polyethylene sheeting with tape along edges, around penetrating objects over cuts and tears, and elsewhere as required to provide protection and isolation. For protection of underlying surfaces from damage and to prevent lead dust entering in clean area.
- .4 Occupied Area: areas of building or work site that is outside Work Area.
- .5 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must be appropriate capacity for scope of work.
- .6 Action level: employee exposure, without regard to use of respirators, to airborne concentration of lead of 50 micrograms per cubic meter of air (50 µg/m³) calculated as 8-hour time-weighted average (TWA). Minimum precautions for lead abatement are based on airborne lead concentrations less than 0.05 milligrams per cubic meter of air for removal of lead based paint by methods noted in paragraph 1.1.
- .7 Competent person: individuals capable of identifying existing lead hazards in workplace taking corrective measures to eliminate them.
- .8 Lead dust: wipe sampling on vertical surfaces and/or horizontal surfaces, dust and debris is considered to be lead contaminated if it contains more than 40 micrograms of lead in dust per square foot.
- .9 Airlock: ingress or egress system, without permitting air movement between contaminated area and uncontaminated area. Consisting of two curtained doorways at least 2 m apart.

- .10 Curtained doorway: arrangement of closures to allow ingress and egress from one room to another. Typically constructed as follows:
 - .1 Place two overlapping polyethylene sheets over existing or temporarily framed doorway, securing each along top of doorway, securing vertical edge of one sheet along one vertical side of doorway, and secure other sheet along opposite vertical side of doorway.
 - .2 Reinforce free edges of polyethylene with duct tape and add weight to bottom edge to ensure proper closing.
 - .3 Overlap each polyethylene sheet at openings 1.5 m on each side.
- .11 Action level: employee exposure, without regard to usage of respirators, to an airborne concentration of lead of 50 micrograms per cubic meter of air calculated as 8-hour time-weighted average (TWA). Intermediate precautions for lead abatement are based on airborne lead concentrations greater than 0.05 milligrams per cubic meter of air within Work Area.
- .12 Competent person: individuals or Department Representative capable of identifying existing lead hazards in workplace and taking corrective measures to eliminate them.

1.5 SUBMITTALS

- .1 Before commencing work, Contractor shall:
 - .1 Submit proof satisfactory to the Department Representative that the site location, required permits and suitable arrangements for transport and disposal of lead-based paint waste or contaminated materials have been obtained. Ensure required manifest documentation regarding disposal is submitted in accordance with these specifications.
 - .2 Provide proof satisfactory to the Department Representative that employees have had instruction on hazards of lead exposure, respirator use, dress, and aspects of work procedures and protective measures.

1.6 QUALITY ASSURANCE

- .1 Regulatory Requirements: comply with Federal, Provincial/Territorial and local requirements pertaining to lead paint, provided that in case of conflict among those requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at time work is performed.
- .2 Health and Safety:
 - .1 Do construction occupational health and safety in accordance the Occupational Health and Safety Act (2002).
 - .2 Safety Requirements: worker and visitor protection.
 - .1 Protective equipment and clothing to be worn by workers and visitors in work Area include:
 - .1 Half mask respirator: half-mask particulate respirator with P-series filter, and 100% efficiency, suitable for type of lead and level of lead dust exposure. Provide sufficient amount of filters.

- .2 Protective clothing: Disposable full body coveralls complete with hoods and disposable gloves manufactured of a material which does not permit penetration of lead.
- .2 Eating, drinking, chewing, and smoking are not permitted in work area.
- .3 Ensure workers wash hands and face when leaving work area.
- .4 Visitor Protection:
 - .1 Provide approved respirators and protective clothing to Authorized Visitors to work areas.
 - .2 Instruct Authorized Visitors procedures to be followed in entering and exiting work area.
- .5 Provide and post in Clean Change Room and in Equipment and Access Room the procedures described in this Section, in both official languages.

1.7 PRODUCT DATA

- .1 Product data:
 - .1 Provide documentation including test results, fire and flammability data, and Material Safety Data Sheets (MSDS) for chemicals or materials including:
 - .1 Encapsulants.
 - .2 Amended water.
 - .3 Slow-drying sealer.

1.8 WASTE MANAGEMENT AND DISPOSAL

- .1 Dispose of all lead-painted materials as hazardous waste unless a Toxicity Characterization Leaching Procedure (TCLP) test proves otherwise.
- .2 Separate waste materials for reuse and recycling in accordance with the Department Representative's requirements while following applicable transport and waste disposal regulations.
- .3 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Regional and Municipal regulations.
- .4 Disposal of lead waste generated by removal activities must comply with Federal, Provincial, Territorial and Municipal regulations. Dispose of lead waste in sealed double thickness 6 ml bags or leak proof drums. Label containers with appropriate warning labels.
- .5 Provide manifests describing and listing waste created. Transport containers by approved means to licensed landfill for burial.

1.9 EXISTING CONDITIONS

- .1 Reports and information pertaining to lead based paint to be handled, removed, or otherwise disturbed and disposed of during this Project are attached to this specification.

- .2 Notify the Department Representative of lead based paint discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by the Department Representative.

1.10 SCHEDULING

- .1 Not later than two days before beginning Work on this Project notify following in writing:
 - .1 Appropriate Regional or Zone Director of Medical Services Branch, Health Canada.
 - .2 Provincial Ministry of Labour.
 - .3 Disposal Authority.
- .2 Inform sub trades of presence of lead-containing materials identified in Existing Conditions.
- .3 Provide the Department Representative a copy of notifications prior to start of Work.

1.11 DEPARTMENT REPRESENTATIVE'S INSTRUCTIONS

- .1 Provide the Department Representative satisfactory proof that every worker has had instruction and training in hazards of lead exposure, in personal hygiene, in aspects of work procedures, and in use, cleaning, and disposal of respirators and protective clothing.
- .2 Instruction and training related to respirators includes, at minimum:
 - .1 Proper fitting of equipment.
 - .2 Inspection and maintenance of equipment.
 - .3 Disinfecting of equipment.
 - .4 Limitations of equipment.
- .3 Instruction and training must be provided by competent, qualified person.
- .4 Supervisory personnel to complete required training.

Part 2 Products

2.1 MATERIALS

- .1 Polyethylene 6 mm thick unless otherwise specified; in sheet size to minimize joints.
- .2 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under dry conditions and wet conditions using amended water.
- .3 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual lead paint residue.
- .4 Polyethylene disposal bags, 6 mm thick.
- .5 Lead waste containers: type acceptable to dump operator with tightly fitting covers and 6 mm thickness sealable polyethylene liners.

- .1 Label containers with pre-printed bilingual cautionary Warning Lead clearly visible when ready for removal to disposal site.

Part 3 Execution

3.1 SUPERVISION

- .1 One Supervisor for every ten workers is required.
- .2 Supervisor must remain within work area during disturbance, removal, or handling of lead based paints.

3.2 PREPARATION

- .1 Remove and store items to be salvaged or reused.
 - .1 Protect and wrap items and transport and store in area specified by the Departmental Representative.
 - .2 Provide warning signs at the entrances to the lead control area which state:
 - .1 Lead hazard area.
 - .2 Access to the area is prohibited, except to authorized personnel.
 - .3 Personal protective equipment is required.
 - .4 Drinking, eating and smoking are prohibited in the area.
 - .3 Work Area, General:
 - .1 Shut off and isolate HVAC system to prevent dust dispersal into other building areas.
 - .2 Pre-clean fixed casework and equipment within work area, using HEPA vacuum and cover and seal with polyethylene sheeting and tape.
 - .3 Clean work area using HEPA vacuum. If not practicable, use wet cleaning method. Do not raise dust.
 - .4 Seal off openings with polyethylene sheeting and seal with tape.
 - .5 Protect floor surfaces covered from wall to wall with polyethylene sheets.
 - .6 Maintain emergency fire exits or establish alternatives satisfactory to Authority having jurisdiction.
 - .7 Where water application is required for wetting lead containing materials, provide temporary water supply appropriately sized for application of water as required.
 - .8 Provide electrical power and shut off for operation of powered tools and equipment. Provide 24-volt safety lighting and ground fault interrupter circuits on power source for electrical tools, in accordance with applicable CSA Standard. Ensure safe installation of electrical cables and equipment.
- .4 Do not start work until:
 - .1 Arrangements have been made for disposal of waste.

- .2 Tools, equipment, and materials waste containers are on site.
- .3 Arrangements have been made for building security.
- .4 Notifications have been completed and preparatory steps have been taken.

3.3 LEAD ABATEMENT USING CHEMICAL GEL, PASTE, HEPA-EQUIPPED POWER TOOLS OR NON-POWERED HAND TOOLS

- .1 Remove lead-containing coatings with a chemical gel or paste; or remove with power tools equipped with HEPA filters; or remove with non-powered hand tool, other than manual scraping and sanding.
- .2 Remove lead based paint in small sections and pack as it is being removed in sealable 6 mm plastic bags and place in labelled containers for transport.
- .3 Seal filled containers. Clean external surfaces thoroughly by wet sponging. Remove from immediate working area to staging area. Clean external surfaces thoroughly again by wet sponging. Wash containers thoroughly pending removal to outside. Ensure containers are removed by workers who have entered from uncontaminated areas dressed in clean coveralls.
- .4 After completion of stripping work, wire brush and wet sponge surface from which lead based paint has been removed to remove visible material. During this work keep surfaces wet.
- .5 After wire brushing and wet sponging to remove visible lead based paint, and after encapsulating lead containing material impossible to remove, wet clean entire work area, and equipment used in process. After inspection by the Department Representative, the work area can be turned over to unprotected workers.

3.4 LEAD ABATEMENT USING GENERAL DEMOLITION

- .1 Build airlocks at entrances and exits from work areas to ensure work areas are always closed off by one curtained doorway when workers enter or exit.
- .2 Where water application is required for wetting lead containing materials, provide temporary water supply by use of appropriately sized hoses for application of water as required.
- .3 Provide electrical power and shut off for operation of powered tools and equipment. Provide 24-volt safety lighting and ground fault interrupter circuits on power source for electrical tools, in accordance with applicable CSA Standard. Ensure safe installation of electrical lines and equipment.
- .4 Construct a Worker Decontamination Enclosure System that includes Equipment and Access Room and Clean Room, as follows:
 - .1 Equipment and Access Room: construct between exit and work areas, with two curtained doorways, one to the rest of suite, and one to work area. Install waste receptor and storage facilities for workers' shoes and protective clothing to be re-worn in work areas. Build large enough to accommodate specified facilities, equipment needed, and at least one worker allowing sufficient space to change comfortably.

- .2 Clean Room: construct with curtained doorway to outside of enclosures. Provide lockers or hangers and hooks for workers' street clothes and personal belongings. Provide storage for clean protective clothing and respiratory equipment. Install mirror to permit workers to fit respiratory equipment properly.
- .5 Construct Decontamination Enclosures:
 - .1 Construct framing for enclosures or use existing rooms. Line enclosure with polyethylene sheeting and seal with tape, apply two layers of FR polyethylene on floor.
 - .2 Construct curtain doorways between enclosures so when people move through or waste containers and equipment are moved through doorway, one of two closures comprising doorway always remains closed.
- .6 Separation of Work Areas from Occupied Areas
 - .1 Construct barriers between work area and occupied areas. Barriers to be covered in poly and sealed with tape to prevent dust transfer.
- .7 Maintenance of Enclosures:
 - .1 Maintain enclosures in clean condition.
 - .2 Ensure barriers and polyethylene linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately.
 - .3 Visually inspect enclosures at beginning of each work day.
- .8 Manual demolition of lead-painted walls or building components by striking a wall with sledgehammer or similar tool.
- .9 Remove lead based paint and debris in small sections and pack as it is being removed in sealable 6 mil plastic bags and place in labelled containers for transport.
- .10 Seal filled containers. Clean external surfaces thoroughly by wet sponging. Remove from immediate working area to Staging Area. Clean external surfaces thoroughly again by wet sponging before moving containers to decontamination Washroom. Wash containers thoroughly in decontamination Washroom, and store in Holding Room pending removal to Unloading Room and outside. Ensure containers are removed from Holding Room by workers who have entered from uncontaminated areas dressed in clean coveralls.
- .11 After removal is completed, wet clean work area including equipment and access room, and equipment used in process. After inspection by the Department Representative, apply continuous coat of sealer to surfaces. Do not disturb work for drying period with no entry, activity, ventilation or disturbance during this period.

3.5 INSPECTION

- .1 Perform inspection to confirm compliance with specification and governing authority requirements. Deviations from these requirements not approved in writing by the Department Representative will result in work stoppage, at no additional cost to the project.
- .2 The Department Representative will inspect work for:
 - .1 Adherence to specific procedures and materials.

- .2 Final cleanliness and completion.
- .3 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

3.6 FINAL CLEANUP

- .1 When the Department Representative has passed the inspection for final cleanliness in the work area, proceed with final cleanup.
- .2 Remove polyethylene sheet by rolling it away from walls to centre of work area. Vacuum visible lead containing particles observed during cleanup, immediately, using HEPA vacuum.
- .3 Place polyethylene sheets, tape, cleaning material, clothing, and contaminated waste in plastic bags and sealed labelled waste containers for transport.
- .4 Conduct final check to ensure no dust or debris remains on surfaces as result of dismantling operations.

3.7 TRANSPORTATION AND PERMANENT DISPOSAL

- .1 Transport waste lead waste in accordance with the Provincial and Federal legislation and regulations.
- .2 Ensure that all materials are properly packaged and labeled prior to transportation.
- .3 Transport hazardous waste materials in properly placarded vehicles.
- .4 Each load shall be accompanied by a properly completed Transportation of Dangerous Goods Regulation (TDGR) Waste Manifest.

3.8 RE-ESTABLISHMENT OF OBJECTS AND SYSTEMS

- .1 Repair or replace objects damaged in course of work to their original state or better, as directed by the Departmental Representative.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

- .1 This Section includes requirements for identification, removal, preparation for disposal, transportation, and permanent disposal or recycling of lead products.

1.2 RELATED WORK

- .1 Section 02 82 00 Asbestos Removal
- .2 Section 02 83 00 Lead Abatement
- .3 Section 02 84 00 PCB Ballast Removal
- .4 Section 02 87 00 Mercury Products Removal

1.3 DISPOSAL CONTRACTOR QUALIFICATIONS

- .1 Handling and transportation of lead products and sheeting shall be performed by a hazardous waste company registered as a carrier with Alberta Environment. A listing of qualified companies may be obtained from the Industrial Program Development Branch, or sent to a metal recycling company.
- .2 Carrier of hazardous wastes shall have successfully completed a Transportation of Dangerous Goods course acceptable to the authority having jurisdiction within the past three years.

1.4 REGULATORY REQUIREMENTS

- .1 Comply with the following:
 - .1 Environmental Contaminants Act (Canada)
 - .2 Environmental Protection and Enhancement Act (Alberta)
 - .3 Transportation of Dangerous Goods Act, 1992 (Canada)
 - .4 Other legislation and regulations which apply to the performance of the work of this section.

1.5 PERSONAL PROTECTIVE EQUIPMENT

- .1 Provide all necessary skin, eye and respiratory protective equipment for the safe handling of lead as per the Alberta Occupational Health and Safety Act Regulation and Code.

1.6 INSPECTION

- .1 The Department Representative will periodically inspect site conditions and work procedures inside and outside of the work area.
- .2 The Department Representative will perform the following milestone inspections:
 - .1 Milestone Inspection A – Final clearance inspection of work area following the removal of lead products.

Part 2 Execution

2.1 LEAD PRODUCTS

- .1 Locate and remove lead products designated to be disposed of as indicated in the Pinchin report "Hazardous Building Materials Assessment, Edmonton Institution, 21611 Meridian Street, Edmonton AB," dated June 23, 2017, and the Associated Engineering Preliminary Mechanical and Electrical Drawings, Revision No. A. Work will include the removal of all settled dust, over spray and debris materials.
- .2 Stockpile all lead products and sheeting ready for pickup by a hazardous waste disposal company, or by a metal recycling company.
- .3 Notify Department Representative to perform Milestone Inspection A.

2.2 TRANSPORTATION AND PERMANENT DISPOSAL

- .1 Transport waste lead products and sheeting in accordance with the Provincial and Federal legislation and regulations.
- .2 Ensure that all materials are properly packaged and labeled prior to transportation.
- .3 Transport hazardous waste materials in properly placarded vehicles.
- .4 Each load shall be accompanied by a properly completed Transportation of Dangerous Goods Regulation (TDGR) Waste Manifest.

2.3 DOCUMENTATION

- .1 Provide the Department Representative a copy of each waste manifest and or a letter from the recycling agency acknowledging receipt of the materials.

END OF SECTION

Part 1 General

1.1 SCOPE OF WORK

- .1 This specification covers the removal and destruction of Polychlorinated Biphenyl (PCB) containing light ballasts
- .2 Work will be subject to inspection by the Department Representative.

1.2 WORK INCLUDED

- .1 Furnish all labour, materials, services, insurance and equipment to complete the work of this section.
- .2 De-energize and disconnect power service and distribution to equipment and luminaries scheduled for removal.
- .1 Remove luminaries and accessories including light ballasts, identify, sort and separate. Dispose of non-PCB ballasts as normal construction waste.

1.3 RELATED WORK

- .1 Section 02 82 00 - Asbestos Removal
- .2 Section 02 83 00 - Lead Abatement
- .3 Section 02 83 01 - Removal and Disposal of Lead Products
- .4 Section 02 87 00 - Mercury Products Removal

1.4 QUALITY ASSURANCE

- .1 The current issue of the following regulations shall govern. Where conflict among these requirements or with these specifications exist, the more stringent requirements shall apply.
 - .1 Occupational Health and Safety Act, Regulation and Code.
 - .2 PCB Regulation, SOR/2008-273.
 - .3 Alberta Regulation 192/96, Environmental Protection and Enhancement Act, Waste Control Regulation Alberta Environment.
 - .4 Transportation of Dangerous Goods Act Regulations.

1.5 REGULATORY REQUIREMENTS

- .1 Comply with the following:
 - .1 Environmental Contaminants Act (Canada)
 - .2 Environmental Protection and Enhancement Act (Alberta)
 - .3 Transportation of Dangerous Goods Act, 1992 (Canada)
 - .4 Other legislation and regulations which apply to the performance of the work of this section.

1.6 SUBMITTALS

- .1 Before commencing work, Contractor shall:
 - .1 Submit proof satisfactory to the Department Representative that the site location, required permits, licenses, placards and arrangements for transport and destruction of PCB-containing or contaminated materials have been obtained. Ensure required manifest documentation regarding transport of special wastes is submitted in accordance with Part 3.3 of these specifications.
 - .2 Post caution signs where access to the work area is possible. Such signs shall delineate entry and protective equipment requirements and provide warning of potential health consequences.
 - .3 Submit written and individually signed forms to the Department Representative establishing that all workers handling PCB-containing or contaminated ballasts are trained in decommissioning procedures, spill response procedures, electrical lock-out procedures, use of protective equipment, entry and exit procedures from the work area and the applicability of federal and provincial regulations.
 - .4 Submit a form or letter, from a qualified journeyman electrician, identifying the panel location and circuit numbers of de-energized electrical lines. Detail re-energization and lock-out procedures. Provide a statement certifying same in accordance with applicable electrical codes and regulations.
 - .5 Submit, for approval by the Department Representative, site work procedures including entry and exit from the work area, worker decontamination, a respiratory protection program and contingency procedures for spill response, fire and other emergencies.
 - .6 Submit detailed inventory list of ballasts including manufacturer, model, serial number, date code, PCB content and weight.
 - .7 Provide certificate of destruction.

1.7 SCHEDULING OF WORK

- .1 The Contractor shall prepare and submit the construction schedule for review by the Department Representative three (3) days prior to the start of work. The schedule shall include milestone inspections and all other critical events relating to the work of this section and the work of others. The construction schedule shall incorporate Substantial Performance dates, turnover dates respecting related work elsewhere and time constraints as outlined by the building Department Representative.
- .2 The Contractor shall ensure Department Representatives approval of work area preparation and clean-up is obtained as specified.
- .3 The Contractor shall allow sufficient time for inspection of site by Department Representative following site preparations and prior to the execution of the work of this section.

1.8 PERSONAL PROTECTION

- .1 Observe posted decontamination and work procedures.
- .2 Workers handling PCB ballasts are advised to avoid skin and eye contact. Protective clothing and materials shall be treated as PCB- contaminated waste and disposed of

accordingly. Provide other body protection, including CSA approved safety footwear, required under applicable safety regulations.

- .3 Workers shall not eat, drink, smoke or chew gum in work area.
- .4 Workers shall be fully protected with protective clothing at all times when handling PCB-ballasts.

1.9 DEFINITIONS

- .1 Words and phrases used in this section shall have common meaning as implied by the context in which they are used and their common use in the industry or profession to which they apply.
- .2 Specific words and phrases used in this section shall have the following definitions:
 - .1 Work Area: Areas where work involving contact with PCB-containing materials is to take place.
 - .2 Contaminated: defines the state of materials, equipment, surfaces or areas which by virtue of physical contact with PCB-containing materials shall require decontamination, removal, storage or disposal, as specified in this section.

1.10 INSPECTION

- .1 The Department Representative will periodically inspect site conditions and work procedures inside and outside of the work area.
- .2 The Department Representative will perform the following milestone inspections:
 - .1 Milestone Inspection A - Pre-inspection of work area preparation and set-up prior to removal of PCBs.
 - .2 Milestone Inspection B - Final clearance inspection of work area following the removal of PCBs, but prior to removal from the site.

Part 2 Products

2.1 MATERIALS

- .1 Storage Containers: 16 gauge, 205 litre (45 gallon) drums, lined with suitably sized, 10 mil plastic bags, fitted with removable steel lids and sealed with PCB-resistant gasket materials including nitrile rubber, cork or Teflon.
- .2 Packing and Absorbent Materials: Sawdust or non-asbestos vermiculite.
- .3 Solvents: Varsol, kerosene or turpentine.
- .4 Disposable gloves (nitrile).
- .5 Protective eye wear.
- .6 Wood Pallets: of suitable size to allow transport, handling and storage.

Part 3 Execution

3.1 DECOMMISSIONING

- .1 Cordon off work area for decommissioning of PCB-containing equipment. Post PCB warning signs at points of entry to the work area.
- .2 Remove all sources of ignition. Remove all moveable objects.
- .3 Notify Department Representative of Milestone Inspection A.
- .4 Provide and wear specified protective equipment.
- .5 De-energize and disconnect, using a qualified journeyman electrician, all existing cable and conduit to luminaries and equipment scheduled for removal by this section.
- .6 Disconnect luminaries and remove ballasts and identify.
- .7 Pack identified PCB-containing ballasts in storage containers an absorbent material. Provide an accurate inventory of the contents of each container including number of ballasts, manufacturer numbers, serial numbers and an estimate of the total weight of the container in kilograms.
- .8 Place all other waste materials including disposable clothing, gloves, aprons, absorbent materials in separate storage containers and dispose as PCB-contaminated waste.
- .9 Clearly mark individual containers with a PCB warning label in such a manner as to indicate contents and required inventory information.
- .10 Notify Department Representative of Milestone Inspection B.

3.2 DISPOSAL / DESTRUCTION

- .1 As work progresses, and to prevent exceeding available storage capacity on site, remove sealed and labelled storage containers and transport to an authorized destruction facility in accordance with the requirements of the disposal authority and the Ministry of Environment.
- .2 Storage containers shall be placed on wooden pallets to allow periodic inspection of the container for leaks. Containers are to be stored no higher than two (2) containers high and shall be placed to allow movement, handling and chronological removal from the temporary storage facility in accordance with facility waste, maintenance and inspection records.
- .3 The Contractor's representative shall ensure proper handling, storage and disposal of containers in accordance with applicable guidelines and regulations. Each shipment shall require completion and signing of waste manifest forms. Consignor's copies of manifests to be retained by Department Representative. Ensure compliance of manifest system requirements for disposal of hazardous waste.
- .4 Co-operate with Ministry of Environment supervisors and immediately carry out instructions for remedial work at storage or disposal facilities to maintain environment at no additional cost to Department Representative.
- .5 Ensure facility operator is fully aware of the hazardous material being disposed of or stored.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

- .1 This Section includes requirements for identification, removal, preparation for disposal, transportation, and permanent disposal of mercury-containing fluorescent and mercury vapour lamps and thermostats.

1.2 RELATED WORK

- .1 Section 02 82 00 - Asbestos Removal
- .2 Section 02 83 00 - Lead Abatement
- .3 Section 02 83 01 - Removal and Disposal of Lead Products
- .4 Section 02 87 00 - PCB Ballast Removal

1.3 REMOVAL CONTRACTOR QUALIFICATIONS

- .1 Use qualified electrician to isolate the power and for removal of fluorescent and mercury vapour lamps or other mercury-containing equipment.

1.4 DISPOSAL CONTRACTOR QUALIFICATIONS

- .1 Handling, transportation and disposal of fluorescent and mercury vapour lamps and thermostats shall be performed by a hazardous waste company registered with Alberta Environment.
- .2 Carrier of hazardous wastes shall have successfully completed a Transportation of Dangerous Goods course acceptable to the authority having jurisdiction within the past three years.

1.5 REGULATORY REQUIREMENTS

- .1 Comply with the following:
 - .1 Environmental Contaminants Act (Canada)
 - .2 Environmental Protection and Enhancement Act (Alberta)
 - .3 Transportation of Dangerous Goods Act, 1992 (Canada)
 - .4 Other legislation and regulations which apply to the performance of the work of this section.

1.6 PERSONAL PROTECTIVE EQUIPMENT

- .1 Provide all personal protective equipment as per the Alberta Occupational Health and Safety Act Regulation and Code.

1.7 INSPECTION

- .1 The Department Representative will periodically inspect site conditions and work procedures inside and outside of the work area.
- .2 The Department Representative will perform the following milestone inspections:
 - .1 Milestone Inspection A – Final clearance inspection of work area following the removal of mercury, but prior to removal from the site.

Part 2 Execution

2.1 EQUIPMENT REMOVAL

- .1 Locate and remove fluorescent, mercury vapour lamps and switches designated to be disposed of.
- .2 Place all lamps, switches and equipment into containers to prevent breakage.
- .3 Provide an accurate inventory of the contents of each container including number of light tubes, switches and lamps and an estimate of the total weight of the container in kilograms.
- .4 Notify Department Representative of Milestone Inspection A.

2.2 TRANSPORTATION AND PERMANENT DISPOSAL

- .1 Transport mercury-containing materials in accordance with the Provincial and Federal legislation and regulations.
- .2 Ensure that all mercury-containing materials are properly packaged and labeled prior to transportation.
- .3 Transport hazardous waste materials in properly placarded vehicles.
- .4 Each load shall be accompanied by a properly completed Transportation of Dangerous Goods Regulation (TDGR) Waste Manifest.
- .5 Use an approved lamp recycling company to transport and permanently dispose of mercury-containing materials.

2.3 DOCUMENTATION

- .1 Provide the Department Representative a copy of each waste manifest and or a letter from the recycling agency acknowledging receipt of the materials.

END OF SECTION