



Scope of Work – Designated Substances Abatement/Procedures
Health and Wellness Centre Renovations (Construction Phase) – Project# P143-19-100
Koffler Student Services Centre (Building #143) 214 College Street Toronto M5T 2Z9

The intent of this scope is to remove asbestos-containing materials, designated substances and other hazardous materials required for the above-mentioned project. This document also includes procedures to be followed while working disturbing or working around the designated substances. Designated substances are defined in O. Reg. 490/09 under Occupational Health and Safety Act, R.S.O. 1990).

In addition to this scope of work, the project shall be governed in its entirety by Ontario Occupational Health and Safety Act and any Regulations made under this Act.

For information on designated substances for the current project refer to *Designated Substances in Building Materials Survey Report* issued for this project.

All ventilation shutdowns for the purpose of isolating and capping the ventilation system will be schedule after regular hours 6:00pm to 7:00am weekdays and weekends [NO CHANGE EXPECTED].

All asbestos abatement work and associated demolition is scheduled to be carried out after regular hours 6:00pm to 7:00am weekdays and weekends [NO CHANGE EXPECTED].

For demolition of non-asbestos building materials, please follow demolition key notes and demolition plans along with any details included in project documents.

Any demolition, new construction or other work item that is likely to disturb existing or discovered asbestos-containing materials shall be performed by qualified asbestos workers following appropriate asbestos procedures.

All adjacent spaces and offices shall remain operational during the project. It is important that noise level and worker movement remains at an absolute minimum within the work areas and in the adjacent corridors.

It is the contractor's responsibility to verify the extent of work, quantities and other site conditions.

Where required, in order to achieve the architectural, electrical and mechanical requirements of this project, the abatement work and procedures provided in the sub-sections below shall be completed by the contractor.

The University of Toronto asbestos waste bin located on the south of central steam plant (17 Ursula Franklin Street, Toronto, ON M5S 2S2) can be used for disposing asbestos waste only.

All items of scope of work listed below are part of the Base Bid Price unless otherwise specified.

TRAINING

Any worker who may inadvertently come into contact with any asbestos-containing materials in the course of their work for the current project must have at a minimum Asbestos Awareness Training as outlined in the University of Toronto, Asbestos Management Program, available at <https://ehs.utoronto.ca/resources/policies-and-procedures/>.

Workers performing any asbestos work will require appropriate training, including respirator fit testing, as identified in Ontario Regulation 278/05 and the University of Toronto Asbestos Management Program, available at <https://ehs.utoronto.ca/resources/policies-and-procedures/>. In case of conflict the more stringent procedures shall apply.



Workers performing removal or disturbance of surfaces applied with lead based paint and lead-containing materials shall have appropriate training, including respirator fit testing, as identified in Ontario Ministry of Labour Guidelines for Lead on Construction Projects, available at <https://www.labour.gov.on.ca/english/hs/pubs/lead/> and the University of Toronto Lead Management Program/Standard Operating Procedures for the Control of Lead During Building Maintenance and Construction Activities, available at <https://ehs.utoronto.ca/resources/policies-and-procedures/>. In case of conflict the more stringent procedures shall apply.

Workers performing removal or disturbance of silica-containing materials shall have appropriate training, including respirator fit testing, as identified in Ontario Ministry of Labour Guideline “Silica on Construction Projects” available at <https://www.labour.gov.on.ca/english/hs/pubs/silica/> and The University of Toronto “Crystalline Silica Procedures” available at <https://ehs.utoronto.ca/resources/policies-and-procedures/>. In case of conflict the more stringent procedures shall apply.

Workers performing work inside crawl space and removal/disturbance of other hazardous materials shall require appropriate trainings as specified in the relevant regulations/guidelines.

Work will only be allowed once the training certificates of workers working inside asbestos enclosures are verified by the consultants and/or the University of Toronto designated staff.

SCOPE OF WORK DETAILS

The project scope includes locations as detailed on architectural, mechanical, electrical and structural drawings/scope.

Negative air machines, able to maintain a negative pressure relative to the areas outside the enclosure will be required for all Type 2 and Type 3 enclosures. Prior to the start of the work, the contractor will arrange DOP tests of all negative air machines on site. Removal and reinstating of any components (windows etc.) if disturbed or removed for the purpose of exhaust outdoors shall be completed by the contractor as part of the base bid price.

All tools or other equipment shall be decontaminated by using a vacuum equipped with a HEPA filter and by damp wiping/washing when leaving the asbestos containment area.

It is the contractor’s responsibility to verify the extent of work, quantities and other site conditions.

1. SECTION 1: Type 2 Asbestos-Containing Insulation Removal and other Work Procedures in Crawl Space

Please Note: the sequence of work given below is a recommendation only. The Contractors have the opportunity of selecting any other appropriate methodology provided the requirements of Ontario Health and Safety Act, O. Reg 278/05 and the University of Toronto Asbestos Management Program are not compromised.

- 1.1 The University of Toronto will require all compliance requirements and safety procedures for confined space in the crawl spaces based on proposed work methodology. Additional make up air if required can be achieved by mechanical ventilation (e.g., installing negative air units).
- 1.2 Remove and dispose as asbestos waste ALL asbestos-containing and non-asbestos insulation on pipe fittings (including elbows, tees, bends, pipe tapers, pipe straights etc.) and pipe straight sections, as required. Type 2 glovebag removal procedures shall be used. For pipes that are scheduled for complete removal, the contractors can remove insulation at convenient locations and wrap and dispose as asbestos waste the pipe length. Type 2 procedures (with full enclosure) may be used at locations where glovebag removal is not possible provided the quantity of



material to be removed is one square meter or less. **For the purpose of Base Bid consider removal of insulation from a total of 25 fittings and 20 linear meter of pipe straight section to be abated** (on less than 150mm diameter piping system).

- 1.3 In the event of any trench excavation/cutting; Remove and dispose as asbestos waste ALL debris/rubble, construction debris, flooring, concrete heaps/piles, construction material heaps and any other stored materials in order to achieve the required level.

2. SECTION 2: Asbestos-Containing window Caulking and Glazing Putty Abatement

- 2.1 Vacuum all loose and flaking paint present on window, windowsills and lintels.
- 2.2 Remove and dispose as asbestos waste window caulking and glazing putty. Type 1 asbestos procedures shall be followed for removal of window caulking and glazing putty if using non-powered tools. If work is done by means of power tools, asbestos Type 2 asbestos procedures are to be followed. Dispose the removed materials as asbestos waste.
- 2.3 Prevent any fallout of glazing putty or caulking onto the windowsills and exterior area around the building. Clean fallout, if any, from windowsills and or exterior area.

3. SECTION 3: Type 2 Asbestos Abatement Work [Asbestos-containing thermal mechanical insulation]

Please follow the project drawings for exact locations for completion of this section. This section of work includes removal and disposal of asbestos-containing insulation on pipe fittings, other than in the crawl space (including elbows, tees, bends, pipe tapers, pipe straights etc.), as required. Type 2 glovebag removal procedures shall be used. Type 2 procedures (with full enclosure) may be used at locations where glovebag removal is not possible provided the quantity of material to be removed is one square meter or less. **For the purpose of Base Bid consider removal of insulation from a total of 5 fittings and 5 linear meter of pipe straight section to be abated** (on less than 150mm diameter piping system).

4. SECTION 4: Lead Abatement/Procedures

Black Paint on the exterior ramp railing was sampled during current investigation and analyzed for lead content. The laboratory analytical results identified this paint finish as low lead level paint 226 µg/g or 0.026% of Lead Content).

All remaining untested paint finishes on walls, structural components, windows, doors, bulkheads, baseboards, floors, ceilings, piping systems, ductwork, mechanical equipment and all other surfaces within the current project locations and other areas of the building should be assumed to contain lead ($\geq 0.1\%$ or 1000 µg/g or 1000PPM Lead Content) unless proven otherwise through confirmatory sampling or a review of previous sampling/abatement records.

There is no regulatory limit currently in Ontario that determines what amount of lead in paint constitutes the paint to be considered "lead based paint". The Environmental Abatement Council of Canada (EACC) – Lead Guideline For Construction, Renovation, Maintenance or Repair (2014) recommends that a content of 0.1% (i.e. 1000 µg/g or 1000 mg/kg or 1000 ppm lead) is considered a "de minimis" or "virtually safe" level of lead in paint or surface coatings, provided that aggressive disturbance or heating does not occur.

The above lead-based paint standards are the generally accepted threshold for defining a "lead-based paint". These levels are used as action levels where special precautions are typically implemented to contain debris created during construction or renovation activities and to protect workers from exposure during these activities.



All remaining untested paint finishes on walls, structural components, windows, doors, bulkheads, baseboards, floors, ceilings, piping systems, ductwork, mechanical equipment and all other surfaces within the building shall be assumed to contain lead (any concentration of lead content).

Work listed below involving lead paint (any concentration) is included in the current scope of work.

- Work of removal and disposal of all loose, bubbling and peeling paint finishes, within the current project locations. This also includes removal and disposal of all loose, bubbling and peeling paint finishes discovered behind currently concealed locations.
- Work involving cutting, sanding, grinding or any other disturbance or removal of lead-based materials or surfaces applied with lead paint (any-concentration).

The classification, general measures and procedures (or Type of operations) required for removal or disturbance of lead paint, lead painted materials and lead based materials shall depend on the type of work to be conducted, the procedures adopted and the limit of lead in paint accepted by the General Contractor and their sub-contractors.

For removal or disturbance of lead paint, lead painted materials and lead based materials, the General Contractor and their sub-contractors work procedures and training requirements as identified in Ontario Ministry of Labour, Immigration, Training and Skills Development Guidelines for Lead on Construction Projects, available at <https://www.labour.gov.on.ca/english/hs/pubs/lead/> and the University of Toronto Standard Operating Procedures for the Control of Lead During Building Maintenance and Construction Activities, available at <https://ehs.utoronto.ca/resources/policies-and-procedures/>. In case of conflict the more stringent procedures shall apply.

Lead-containing wastes should be recycled if practicable or handled and disposed of according to Ontario Regulation 347.

5. SECTION 5: Silica Abatement/Procedures

Crystalline silica is the primary component of concrete, concrete block, cement, mortar, drywall etc. where scheduled for disturbance or demolition for the current renovation project.

For any work involving disturbance or removal of silica containing materials, the Contractor shall follow work procedures and training requirements as identified in:

The Ontario Ministry of Labour Guideline “Silica on Construction Projects” available at <https://www.labour.gov.on.ca/english/hs/pubs/silica/> and The University of Toronto “Crystalline Silica Procedures” available at <https://ehs.utoronto.ca/resources/policies-and-procedures/>. In case of conflict the more stringent procedures shall apply.

The classification, general measures and procedures (or Type of operations) required shall depend on the type of work to be conducted and the procedures adopted by the contractor. The following section outlines the classification of silica containing materials disturbance based on the guideline and procedures referred above.

Type 1 Operations

- Drilling of holes in concrete or rock that is not part of a tunneling operation or road construction.
- Any other operation at a project that requires the handling of silica-containing material in a way that may result in a worker being exposed to airborne silica.
- Entry into a dry mortar removal or abrasive blasting area while airborne dust is visible for less than 15 minutes for inspection and/or sampling.



Type 2 Operations

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

Type 3 Operations

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

6. **SECTION 6: Removal of other hazardous materials**

- 6.1 **Polychlorinated Biphenyls (PCBs):** All PCB-containing ballasts shall be removed and separated from other waste and disposed of as PCB waste at an authorized destruction facility. The PCB content of “assumed PCB-containing” fluorescent light ballasts and HID lamp ballasts should be verified at this time by determining the date of manufacture and other pertinent information by referring to the Environment Canada document entitled “Identification of Lamp Ballasts Containing PCBs” (Report EPS 2/CC/2 (revised) August 1991) to aid in identification. Follow provincial regulations. As per R.R.O 1990, Regulation 347, *General – Waste Management*, the land disposal of PCB waste is prohibited. PCB wastes in Ontario are regulated under R.R.O 1990, Regulation 362, *Waste Management – PCBs* (Reg. 362), made under the Environmental Protection Act. Any PCB-containing equipment taken out of service should be properly handled and disposed of at an authorized destruction facility in accordance with the requirements of Federal Regulation SOR/2008-273 and Reg. 362.
- 6.2 **Ozone-depleting substances (ODSs):** Remove and dispose coolant in refrigeration and air conditioning equipment where required for the current project. Under the Environmental Protection Act, it is unlawful to discharge these substances into the natural environment. The Ministry of Environment has issued Ontario Regulation 463/10 “Ozone Depleting Substances and Other Halocarbons”. Handling and disposal of all units shall be conducted by licensed personnel certified to handle ODSs.

7. **SECTION 7: General**

- 7.1 In addition to this Scope of Work, the project shall be governed by the following. In the event of any conflict, most stringent shall apply.
- 7.1.2 Ontario Regulation 278/05, Occupational Health and Safety Act.
- 7.1.3 University of Toronto Asbestos Management Program, available at <https://ehs.utoronto.ca/resources/policies-and-procedures/>
- 7.1.4 Ontario Ministry of Labour Guidelines for Lead on Construction Projects, available at <https://www.labour.gov.on.ca/english/hs/pubs/lead/>



- 7.1.5 University of Toronto Lead Management Program for Building Maintenance and Construction Projects Standard/Standard Operating Procedures for the Control of Lead, available at <https://ehs.utoronto.ca/resources/policies-and-procedures/>
- 7.1.6 Ontario Ministry of Labour Guideline “Silica on Construction Projects” available at <https://www.labour.gov.on.ca/english/hs/pubs/silica/>
- 7.1.7 University of Toronto “Crystalline Silica Procedures” available at <https://ehs.utoronto.ca/resources/policies-and-procedures/>
- 7.2 All scaffold and/or other equipment assemblies in order to access work locations shall be in accordance with the standards required under applicable Acts and Regulations.
- 7.3 Rip-proof polyethylene sheet (6 mil minimum thickness) shall be used for all enclosures and drop sheets.
- 7.4 All tools or other equipment shall be decontaminated by using a vacuum equipped with a HEPA filter and by damp wiping/washing when leaving the asbestos containment area.
- 7.5 All asbestos waste shall be placed into appropriate asbestos waste receptacles. Asbestos waste must be double-bagged, or double-contained, in receptacles that are clearly marked as containing asbestos. The bags or containers shall be selected to prevent any perforations or tears during filling, transport and disposal. The bags shall be rip-proof polyethylene bags sealed with duct tape. The outer bags must be HEPA vacuumed or damp wiped to remove any surface contamination immediately before being removed from the work area.
- 7.6 Ventilation to and from the work area will remain shutdown during the work. However, the contractor will be required to temporarily seal all ventilation inlets and outlets.
- 7.7 Quality Control inspections and air monitoring will be performed by a consultant and University of Toronto staff throughout the project. Any contamination of surround areas indicated by visual inspection or air monitoring will require the complete enclosure and clean-up of the affected areas without any extra cost to the University of Toronto.
- 7.8 The contractor to protect against any damages to all electrical/mechanical systems, sprinklers, cables, conduits etc. during the execution of work.
- 7.9 All bagged and other normal construction waste disposal shall be done on dates and time coordinated with the Project Manager.
- 7.10 Isolation/Installation Responsibilities [For Abatement Work]:

	<u>Item</u>	<u>Responsibility</u>
7.2.1	Electrical shutdowns	Arranged by Project Manager
7.2.2	Electrical panel/cable supply	Contractor
7.2.3	Electrical isolation & temporary panel installation	Contractor
7.2.3	Ventilation shutdowns	Arranged by Project Manager
7.2.4	Duct capping	Contractor
7.2.4	Isolation of sprinklers, heat detectors	Arranged by Project Manager



February 20, 2025

Attention: Ms. Melissa Lao

**Re: Designated Substances in Building Materials Survey Report [DSSR]
Health and Wellness Centre Renovations (Construction Phase) – Project# P143-19-100
Koffler Student Services Centre Building (Building #143)**

Dear Ms. Lao:

Further to your request F&S Hazardous Construction Materials Group (HCMG) is pleased to provide the University Planning, Design & Construction (UPDC) this final report summarizing observations made during a review of available reports, abatement records, bulk sampling records and current investigations/sampling for accessible designated substances in building materials for the above captioned project at the University of Toronto facility Koffler Student Services Centre Building (Building #143) located at 214 College Street Toronto M5T 2Z9

Ontario Regulation 490/09 - Designated Substances (O. Reg. 490/09), made under the Occupational Health and Safety Act, outlines required steps to control exposure of workers to designated substances. Under O. Reg. 490/09 there are eleven (11) designated substances, acrylonitrile, arsenic, asbestos, benzene, coke oven emissions, ethylene oxide, isocyanates, lead, mercury, silica and vinyl chloride. This regulation applies to every employer and worker at a workplace where the designated substances are present, produced, processed, used, handled or stored and at which a worker is likely to be exposed to the designated substance. This assessment, issued for the above-mentioned project satisfies the Owner's requirements under Section 30 of the Ontario Occupational Health and Safety Act (OHSA), Revised Statutes of Ontario 1990, as amended.

This report provides status of accessible designated substances for the current project locations in specific as detailed on project architectural, mechanical, electrical and structural drawings and for remaining areas of the building in general.

For a detailed designated substances abatement scope of work please refer to the following document issued for this project:

Scope of Work – Designated Substances Abatement/Procedures
Health and Wellness Centre Renovations (Construction Phase) – Project# P143-19-100
Koffler Student Services Centre (Building #143) 214 College Street Toronto M5T 2Z9

In the event the General Contractor observes any suspect asbestos-containing material, not mentioned in this report, the work shall be immediately stopped and the Project Manager be contacted for arranging further investigation and abatement.

OBSERVATIONS AND RECOMMENDATIONS

Based on a review of the available reports, bulk sampling records, abatement records and current investigations/sampling for accessible designated substances in building materials the following are our observations and recommendations.

ASBESTOS

If removal or disturbances of asbestos-containing materials is required, all procedures as defined in Ontario Regulation 278/05 and the University of Toronto Asbestos Control Program, available at <https://ehs.utoronto.ca/resources/policies-and-procedures/> shall be followed. In case of conflict the more stringent procedures shall apply.



Removal of asbestos-containing materials must be conducted by a qualified environmental contractor and all appropriate procedures as detailed in this report and applicable regulations shall be followed.

Representative bulk samples of building materials suspected to contain asbestos were collected following the asbestos bulk sampling procedures prescribed in Code for the Determination of Asbestos by Bulk Samples, dated the 23rd of August 1985 and issued by the Ministry of Labour in O. Reg. 278/05. Any material that contains 0.5 per cent (%) or more asbestos by dry weight is considered to contain asbestos.

A total of three (3) bulk samples of suspect asbestos-containing building materials were collected during the current investigations. All bulk samples were submitted to EMC Scientific Inc. of Mississauga, Ontario, an independent analytical laboratory, for analysis of asbestos type and concentration by Polarized Light Microscopy (PLM) with dispersion staining. A copy of laboratory analytical report is attached at Appendix A. A summary of sample results is presented in Table 1.

Table 1 – Asbestos Bulk Sample Results Summary

Sample Number	Location	Material Description	Asbestos Content
143-110225-1A	Exterior wall/ramp base	Caulking	None Detected
143-110225-1B	Exterior wall/ramp base	Caulking	None Detected
143-110225-1C	Exterior wall/ramp base	Caulking	None Detected

Thermal Mechanical Insulation

Friable asbestos-containing (Chrysotile) thermal mechanical insulation is confirmed to be present on mechanical systems, including, but not limited to, heating and plumbing pipe, straights, valves, tees, elbows and fittings within the current project areas in basement level, crawl space and throughout the remainder of the building.

All asbestos-containing thermal mechanical insulation was removed from the 1st, 2nd and 3rd floor of the current project locations as part of Phase 1 of this project, except asbestos-containing thermal mechanical insulation on plumbing system concealed behind the plaster wall in Room 106. Please refer to the floor plans attached at Appendix B.

Friable asbestos-containing thermal insulation may exist in presently inaccessible and hidden wall/ceiling/floor penetrations and cavities. Any insulating material discovered in such locations shall be assumed to contain asbestos unless proven otherwise through confirmatory sampling.

No removal or disturbance of asbestos-containing thermal mechanical insulation shall proceed without following appropriate asbestos procedures as listed below.

- Removal of asbestos-containing thermal mechanical insulation shall follow Type 2, Type 2 glove bag or Type 3 asbestos abatement procedures based on quantity and location of materials to be removed [Type 2 procedures for one square meter or less area of asbestos-containing thermal mechanical insulation to be removed (inside an enclosure). Type 3 procedures for greater than one square meter of asbestos-containing thermal mechanical insulation to be removed (inside an enclosure)].

Asbestos-Containing Piping Insulation and Debris in Crawl Space

Historic asbestos-containing (Crocidolite, Chrysotile & Amosite) debris mixed with dirt and other materials is present in crawl space within the current project locations. In addition, asbestos-containing thermal mechanical insulation is present on piping system with the crawl space.



Please refer picture log attached at Appendix C.

Please Note: this crawl space is designated as a “confined space”. Signs are posted at the entrance.

- Any work in the crawl space by electrical, mechanical, or other trades INCLUDING INSPECTIONS shall be carried out following Type 2 asbestos procedures. Workers will require appropriate training including respirator fit testing as identified in Ontario Regulation 278/05 and the University of Toronto Asbestos Management Program.
- Removal of asbestos-containing thermal mechanical insulation shall follow Type 2 or Type 2 glove bag asbestos abatement procedures based on quantity and location of materials to be removed [Type 2 procedures for one square meter or less area of asbestos-containing thermal mechanical insulation to be removed (inside an enclosure)].
- Removal of asbestos-containing floor dirt/debris shall follow Type 2 or Type 3 asbestos abatement procedures based on quantity of dirt/debris to be removed.

Window Glazing Putty and Caulking

Non-friable asbestos-containing (Chrysotile) window caulking and window glazing putty is considered to be present on all exterior windows within this building.

No removal or disturbance of asbestos-containing window caulking and glazing putty shall proceed without following appropriate asbestos procedures as listed below.

- Any window restoration work shall proceed with caution considering the presence of asbestos in glazing putty and caulking material in addition to lead based paint. Type 1 asbestos procedures shall be followed for removal of window caulking and glazing putty if using non-powered tools. If work is done by means of power tools, asbestos Type 2 asbestos procedures are to be followed. Dispose the removed materials as asbestos waste.

Exterior Caulking

The laboratory analytical results of bulk samples of exterior wall/ramp base caulking collected during the current investigation identify these materials not to contain asbestos. Please refer to summary of sample results presented in Table 1 above and a copy of laboratory analytical results attached at Appendix A.

Wall caulking is suspected to be present at various other locations within the building, it will be prudent to consider all wall caulking within the building to contain asbestos unless proven otherwise through confirmatory sampling.

No removal or disturbance of asbestos-containing caulking shall proceed without following appropriate asbestos procedures as listed below:

- Removal of asbestos-containing caulking shall proceed with caution. Type 1 asbestos procedures shall be followed for removal of wall caulking if using non-powered tools. If the work is done by means of power tools, asbestos Type 2 procedures shall be followed. Dispose the removed materials as asbestos waste.

Flooring Materials

All asbestos-containing flooring materials removed from the 1st, 2nd and 3rd floor of the current project locations as part of Phase 1 of this project. Please refer to the Abatement floor plans attached at Appendix B.



Floor finishes in other areas of the building consist of both asbestos-containing and non-asbestos vinyl flooring. All vinyl floor finishes (non-friable) and adhesive mastics/levelling compounds (non-friable) within the building shall be considered to contain asbestos unless proven otherwise through confirmatory sampling or a review of available records.

Asbestos-containing vinyl flooring and mastic are suspected to be present in other areas of the building under non-asbestos flooring (carpet, vinyl sheet, wood and non-asbestos floor tiles, etc.).

No removal or disturbance of asbestos-containing vinyl flooring shall proceed without following appropriate asbestos procedures as listed below.

- Type 2 (full enclosure) asbestos abatement procedures shall be followed for removal of asbestos-containing vinyl floor tiles and mastic. Grinding of asbestos-containing mastic shall follow Type 2 (full enclosure) asbestos procedures if the grinder is equipped with a HEPA vacuum attachment. The procedures shall be elevated to Type 3 if the grinding equipment is not equipped with a HEPA vacuum attachment.
- Under the University of Toronto Asbestos Management Program, the design or work should not include installing rigid flooring over existing asbestos-containing vinyl floor tiles or sheeting.

Manufactured Asbestos Cement Products (Transite)

Manufactured asbestos cement products (Transite) in the form of rainwater leader pipes are present in the current project locations and throughout the remainder of this building.

No disturbance, cutting, drilling, grinding, sanding, etc. of asbestos-containing transite pipes is allowed without following appropriate asbestos procedures as listed below.

- Type 1 procedures are required for the intact removal of asbestos cement products (Transite). If the material is broken, cut, drilled, ground, sanded, etc. the more stringent Type 2 or Type 3 asbestos procedures must be followed.

Sprayed Fireproofing

Sprayed fireproofing currently present at sporadic locations of this building does not contain asbestos, based on laboratory analytical results of homogeneous bulk asbestos samples.

Plaster

Based on laboratory analytical results of asbestos bulk samples of this homogeneous material obtained in the past, all plaster finishes in this building can be considered not to contain asbestos.

Drywall Joint Compound

Based on laboratory analytical results of drywall joint compound applications on gypsum board and drywall finishes obtained during current and past investigations, all drywall joint compounds applications in this building can be considered not to contain asbestos.

Ceiling Tiles

Based on laboratory analytical results of asbestos bulk samples of this homogeneous material obtained in the past, all accessible/visible ceiling tiles in this building can be considered not to contain asbestos.

Ceramic Tile Grout

Grouts on wall and ceramic tiles where present within the current project locations were sampled as a part of Phase 1 investigation and are identified as not to contain asbestos.



Texture Coat Finishes

Based on laboratory analytical results of asbestos bulk samples of this homogeneous material obtained in the past and limited locations of texture coat finishes, all accessible/visible texture coat finishes in this building can be considered not to contain asbestos.

Roofing Materials

The majority (75%) of the roof sections of this building have been removed and replaced in the past.

No asbestos-containing materials were identified in the replaced sections of the roof. Based on laboratory analytical results of bulk samples of this homogeneous material obtained in the past, no asbestos-containing roofing materials are suspected in the remaining roof sections.

Block Masonry Sealant

Based on laboratory analytical results of representative asbestos bulk samples of block masonry sealant present underneath the paint on the walls collected from available masonry locations within this building in the past, all block masonry sealant present underneath the paint on visible masonry walls of this building can be considered not to contain asbestos.

Other

No other building accessible building materials suspected to contain asbestos were observed within the current project locations.

Asbestos-containing materials for which either the sampling records are not available or that are currently hidden or are inaccessible may be present within the building. These materials include:

• Window glazing putty	• Door caulking	• Transite in HV cable trench	• Gaskets in piping systems
• Gaskets/internal liners in mechanical and electrical equipment	• Electrical wiring jacket	• Electrical panel backing	• Fire stop material
• Fire rated door liners			

Investigation including sampling and analysis is recommended in the event of discovery of such materials for determination of presence/absence of asbestos. Appropriate asbestos removal procedures shall be implemented if the material is identified as asbestos-containing.

No removal or disturbance of asbestos-containing materials shall proceed without following appropriate asbestos procedures.

LEAD

Black Paint on the exterior ramp railing was sampled during current investigation and analyzed for lead content. The laboratory analytical results identified this paint finish as low lead level paint (226 µg/g or 0.026% of Lead Content). Copies of laboratory analytical reports are attached at Appendix A.

All remaining untested paint finishes on walls, structural components, windows, doors, bulkheads, baseboards, floors, ceilings, piping systems, ductwork, mechanical equipment and all other surfaces within the current project locations and other areas of the building shall be assumed to contain lead (≥0.1% or 1000 µg/g or 1000PPM Lead Content) unless proven otherwise by confirmatory testing.

There is no regulatory limit currently in Ontario that determines what amount of lead in paint constitutes the paint to be considered “lead based paint”. The Environmental Abatement Council of



Canada (EACC) – Lead Guideline For Construction, Renovation, Maintenance or Repair (2014) recommends that a content of 0.1% (i.e. 1000 µg/g or 1000 mg/kg or 1000 ppm lead) is considered a "de minimis" or "virtually safe" level of lead in paint or surface coatings, provided that aggressive disturbance or heating does not occur.

The above lead-based paint standards are the generally accepted threshold for defining a "lead-based paint". These levels are used as action levels where special precautions are typically implemented to contain debris created during construction or renovation activities and to protect workers from exposure during these activities.

The classification, general measures and procedures (or Type of operations) required for removal or disturbance of lead paint, lead painted materials and lead based materials shall depend on the type of work to be conducted, the procedures adopted and the limit of lead in paint accepted by the General Contractor and their sub-contractors.

The General Contractor and their sub-contractors shall follow the requirements as identified in Ontario Ministry of Labour Guidelines for Lead on Construction Projects, available at <https://www.labour.gov.on.ca/english/hs/pubs/lead/> and the University of Toronto Standard Operating Procedures for the Control of Lead During Building Maintenance and Construction Activities, available at <https://ehs.utoronto.ca/resources/policies-and-procedures/>. In case of conflict the more stringent procedures shall apply.

Lead-containing wastes should be recycled if practicable or handled and disposed of according to Ontario Regulation 347.

Lead shall also prudently presumed to be present in the following materials:

- As a component of the solder on joints between copper pipe and fittings.
- As a component of the solder on the wire connections of electric components.
- As a component of wool present as caulking in bell fittings at cast iron drains.
- As a component of glazing on spectra glaze blocks and ceramic tiles.
- As a component of lead-acid batteries in emergency lights.
- As lead sheeting.
- As pigmented mortar.
- As lead piping.

MERCURY

Elemental mercury may be present in the electro-thermal switching devices and may be present in trace amount as vapours in metal halide bulbs, fluorescent light tubes and incandescent mercury bulbs in other current project locations and the remainder of the building. It is recommended that at the time of their disposal, all mercury vapour bulbs may be recycled and possibly reused by qualified personnel or may be disposed of according to applicable regulations.

SILICA

Silica-containing materials are present within the current project locations and in other areas throughout the building. Crystalline silica is the primary component of many building materials such as concrete, concrete block, cement, mortar, drywall etc. Silica has also been found as a filler material in insulation. Exposure to airborne crystalline silica can occur when these building materials are disturbed or turned into powder (particularly grinding, drilling or cutting operations and during major demolition).

The General Contractor shall follow work procedures as identified in The Ontario Ministry of Labour Guideline "Silica on Construction Projects" available at



<https://www.labour.gov.on.ca/english/hs/pubs/silica/> and The University of Toronto “Crystalline Silica Procedures” available at <https://ehs.utoronto.ca/resources/policies-and-procedures/>. In case of conflict the more stringent procedures shall apply.

The classification, general measures and procedures (or Type of operations) required shall depend on the type of work to be conducted and the procedures adopted by the contractor. The following section outlines the classification of silica containing materials disturbance based on the guideline and procedures referred above.

Type 1 Operations

- Drilling of holes in concrete or rock that is not part of a tunneling operation or road construction.
- Any other operation at a project that requires the handling of silica-containing material in a way that may result in a worker being exposed to airborne silica.
- Entry into a dry mortar removal or abrasive blasting area while airborne dust is visible for less than 15 minutes for inspection and/or sampling.

Type 2 Operations

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

Type 3 Operations

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

OTHER DESIGNATED SUBSTANCES - Acrylonitrile, Arsenic, Benzene, Coke Oven Emissions, Ethylene Oxide, Isocyanates and Vinyl Chloride

The building is not and was not used for any process or manufacturing and no above ground or underground fuel storage tanks were observed within the renovation areas, therefore none of the other Designated Substances listed above are suspected to be present.

Polychlorinated Biphenyls (PCBs)

PCB-containing fluorescent are suspected in light ballasts as well as in mechanical equipment within the current project locations and other areas of the building.

All PCB-containing ballasts shall be removed and separated from other waste and disposed of as PCB waste at an authorized destruction facility. The PCB content of “assumed PCB-containing” fluorescent light ballasts and HID lamp ballasts should be verified at this time by determining the date of manufacture and other pertinent information by referring to the Environment Canada document entitled “Identification of Lamp Ballasts Containing PCBs” (Report EPS 2/CC/2 (revised) August 1991) to aid in identification. Follow provincial regulations. As per R.R.O 1990, Regulation 347, General – Waste Management, the land disposal of PCB waste is prohibited. PCB



wastes in Ontario are regulated under R.R.O 1990, Regulation 362, Waste Management – PCBs (Reg. 362), made under the Environmental Protection Act. Any PCB-containing equipment taken out of service should be properly handled and disposed of at an authorized destruction facility in accordance with the requirements of Federal Regulation SOR/2008-273 and Reg. 362.

Ozone-Depleting Substances (ODSs)

Ozone-depleting substances shall be expected to be encountered as coolant in refrigeration and air conditioning equipment. Under the Environmental Protection Act, it is unlawful to discharge these substances into the natural environment. The Ministry of Environment has issued Ontario Regulation 463/10 “Ozone Depleting Substances and Other Halocarbons”. Handling and disposal of all units shall be conducted by licensed personnel certified to handle ODSs.

TRAINING

Any worker who may inadvertently come into contact with any asbestos-containing materials in the course of their work for the current project must have at a minimum Asbestos Awareness Training as outlined in the University of Toronto, Asbestos Management Program, available at <https://ehs.utoronto.ca/resources/policies-and-procedures/>.

Workers performing any asbestos work will require appropriate training, including respirator fit testing, as identified in Ontario Regulation 278/05 and the University of Toronto Asbestos Management Program, available at <https://ehs.utoronto.ca/resources/policies-and-procedures/>. In case of conflict the more stringent procedures shall apply.

Workers performing removal or disturbance of surfaces applied with lead based paint and lead-containing materials shall have appropriate training, including respirator fit testing, as identified in Ontario Ministry of Labour Guidelines for Lead on Construction Projects, available at <https://www.labour.gov.on.ca/english/hs/pubs/lead/> and the University of Toronto Lead Management Program/Standard Operating Procedures for the Control of Lead During Building Maintenance and Construction Activities, available at <https://ehs.utoronto.ca/resources/policies-and-procedures/>. In case of conflict the more stringent procedures shall apply.

Workers performing removal or disturbance of silica-containing materials shall have appropriate training, including respirator fit testing, as identified in Ontario Ministry of Labour Guideline “Silica on Construction Projects” available at <https://www.labour.gov.on.ca/english/hs/pubs/silica/> and The University of Toronto “Crystalline Silica Procedures” available at <https://ehs.utoronto.ca/resources/policies-and-procedures/>. In case of conflict the more stringent procedures shall apply.

Workers performing removal or disturbance of other hazardous materials shall require appropriate trainings as specified in the relevant regulations/guidelines.

Work will only be allowed once the training certificates of workers working inside asbestos enclosures are verified by the consultants and/or the University of Toronto designated staff.

CONCLUSION

Based on the information contained in the available asbestos survey reports, abatement records, bulk sampling records and current investigation/sampling; designated substances (Asbestos, Lead, Mercury and Silica) are present in different building materials within the current project locations and other areas of the Koffler Student Services Building (Building #143).

NOTE: If additional materials not covered in this report are discovered during the project activities and suspected of containing designated substances, all work that may disturb the material shall be



stopped and the Project Manager be contacted for arranging further investigation (i.e., sampling and analysis) to determine the presence of any designated substances.

CLOSURE

The conclusions presented in this report represent the best technical judgment based on the data obtained from the review of available reports, abatement records, bulk sampling records and current investigations of the current project locations during this survey. The conclusions are based on the site conditions at the time the survey was performed at the specific testing and/or sampling locations and can only be extrapolated to an undefined limited area around these locations.

Information provided in this report is intended for the subject project in compliance to the requirements under Section 30 of the Ontario Occupational Health and Safety Act (OHSA), Revised Statutes of Ontario 1990, as amended. Any use by a third party of this report or any reliance by a third party on or decisions made by a third party based on the findings described in this report, is the sole responsibility of such third parties. The University of Toronto F&S Hazardous Construction Materials Group accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted

If any conditions become apparent that differ significantly from our understanding of conditions as presented in this report, we request that we be notified immediately to reassess the conclusions provided herein.

Sincerely,

Prepared By:

Faiq Amir
Inspector (C.Tech-Environmental)
Hazardous Construction Materials Group
University of Toronto
F&S Property Management
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faiq.amir@utoronto.ca

Reviewed By:

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Manager
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University of Toronto
F&S Property Management
Phone: 416-791-8880
irfan.miraj@utoronto.ca



APPENDIX A

Copy of Laboratory Analytical Results

Laboratory Analysis Report

To:

Faiq Amir
University of Toronto
Environmental Health & Safety
215 Huron Street, 7th Floor
Toronto, Ontario
M5S 1A1

EMC LAB REPORT NUMBER: A115296

Project Name: Koffler Student Center (143)

Analysis Method: Polarized Light Microscopy – EPA 600

Date Received: Feb 12/25

Date Analyzed: Feb 13/25

Analyst: Jayoda Perera



Project No: 1160487

Number of Samples: 3

Date Reported: Feb 13/25

Client's Sample ID	Lab Sample No.	Description/Location	Sample Appearance	SAMPLE COMPONENTS (%)			
				Asbestos Fibres		Non-asbestos Fibres	Non-fibrous Material
143-110225-1A	A115296-1	Exterior wall/ ramp base/ caulking	Grey, caulking	ND			100
143-110225-1B	A115296-2	Exterior wall/ ramp base/ caulking	Grey, caulking	ND			100
143-110225-1C	A115296-3	Exterior wall/ ramp base/ caulking	Grey, caulking	ND			100

Note:

1. Bulk samples are analyzed using Polarized Light Microscopy (PLM) and dispersion staining techniques. The analytical procedures are in accordance with EPA 600/R-93/116 method.
2. The results are only related to the samples analyzed. **ND** = None Detected (no asbestos fibres were observed), **NA** = Not Analyzed (analysis stopped due to a previous positive result).
3. This report may not be reproduced, except in full without the written approval of EMC Scientific Inc. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government.
4. The Ontario Regulatory Threshold for asbestos is 0.5%. The limit of quantification (LOQ) is 0.5%.



REQUEST FOR ANALYSIS

A115296

5800 Ambler Drive, Suite 100, Mississauga, ON
L4W4J4 Ph: 905.629.9247 Fax: 905.629.2607

Environmental Health & Safety, 7th Floor
215 Huron Street Toronto, Ontario M5S 1A1

Other

Faiq Amir

Koffler Student Center (143)

24 Hours

X

X

x

Comments: Stop further analysis for each alpha numerical set once asbestos is identified by PLM method. e-mail results to: yangting.shek@utoronto.ca
With CC to: ehs.office@utoronto.ca
irfan.miraj@utoronto.ca
faiq.amir@utoronto.ca

Date _____

Date _____

Date _____

**CLIENT NAME: UNIVERSITY OF TORONTO
255 MCCAUL ST 4TH FLOOR
TORONTO, ON M5T1W7
(416) 946-0101**

ATTENTION TO: IRFAN MIRAJ

PROJECT:

AGAT WORK ORDER: 25T247082

OCCUPATIONAL HYGIENE REVIEWED BY: Sukhwinder Randhawa, Inorganic Team Lead

DATE REPORTED: Feb 19, 2025

PAGES (INCLUDING COVER): 5

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*Notes

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information is available on request from AGAT Laboratories, in accordance with ISO/IEC 17025:2017, ISO/IEC 17025:2005 (Quebec), DR-12-PALA and/or NELAP Standards.
- This document is signed by an authorized signatory who meets the requirements of the MELCCFP, CALA, CCN and NELAP.
- For environmental samples in the Province of Quebec: The analysis is performed on and results apply to samples as received. A temperature above 6°C upon receipt, as indicated in the Sample Reception Notification (SRN), could indicate the integrity of the samples has been compromised if the delay between sampling and submission to the laboratory could not be minimized.



Certificate of Analysis

AGAT WORK ORDER: 25T247082

PROJECT:

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: UNIVERSITY OF TORONTO

ATTENTION TO: IRFAN MIRAJ

SAMPLING SITE:

SAMPLED BY:

Lead in Paint

DATE RECEIVED: 2025-02-12

DATE REPORTED: 2025-02-18

SAMPLE DESCRIPTION: 143-110225-L1

SAMPLE TYPE: Paint

DATE SAMPLED: 2025-02-11

Parameter	Unit	G / S	RDL	6519808
Lead	µg/g		10	226

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Kari



Quality Assurance

CLIENT NAME: UNIVERSITY OF TORONTO

AGAT WORK ORDER: 25T247082

PROJECT:

ATTENTION TO: IRFAN MIRAJ

SAMPLING SITE:

SAMPLED BY:

Occupational Hygiene Analysis

RPT Date:			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Lead in Paint															
Lead	6514372		<10	<10	NA	< 10	112%	80%	120%	102%	80%	120%	100%	70%	130%

Comments: NA signifies Not Applicable.

Duplicate NA: results are under 5X the RDL and will not be calculated.

Certified By: _____



Nour

Method Summary

CLIENT NAME: UNIVERSITY OF TORONTO

AGAT WORK ORDER: 25T247082

PROJECT:

ATTENTION TO: IRFAN MIRAJ

SAMPLING SITE:

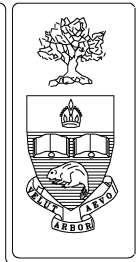
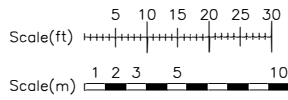
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Occupational Hygiene Analysis			
Lead	MET-93-6106	modified from EPA SW 846 3050B, 6010C & SM 3120B	ICP/OES



APPENDIX B

Abatement Floor Plans



University
of Toronto

Office of
Space
Management

Koffler
Student
Services
Centre

Bldg #143
1st Floor

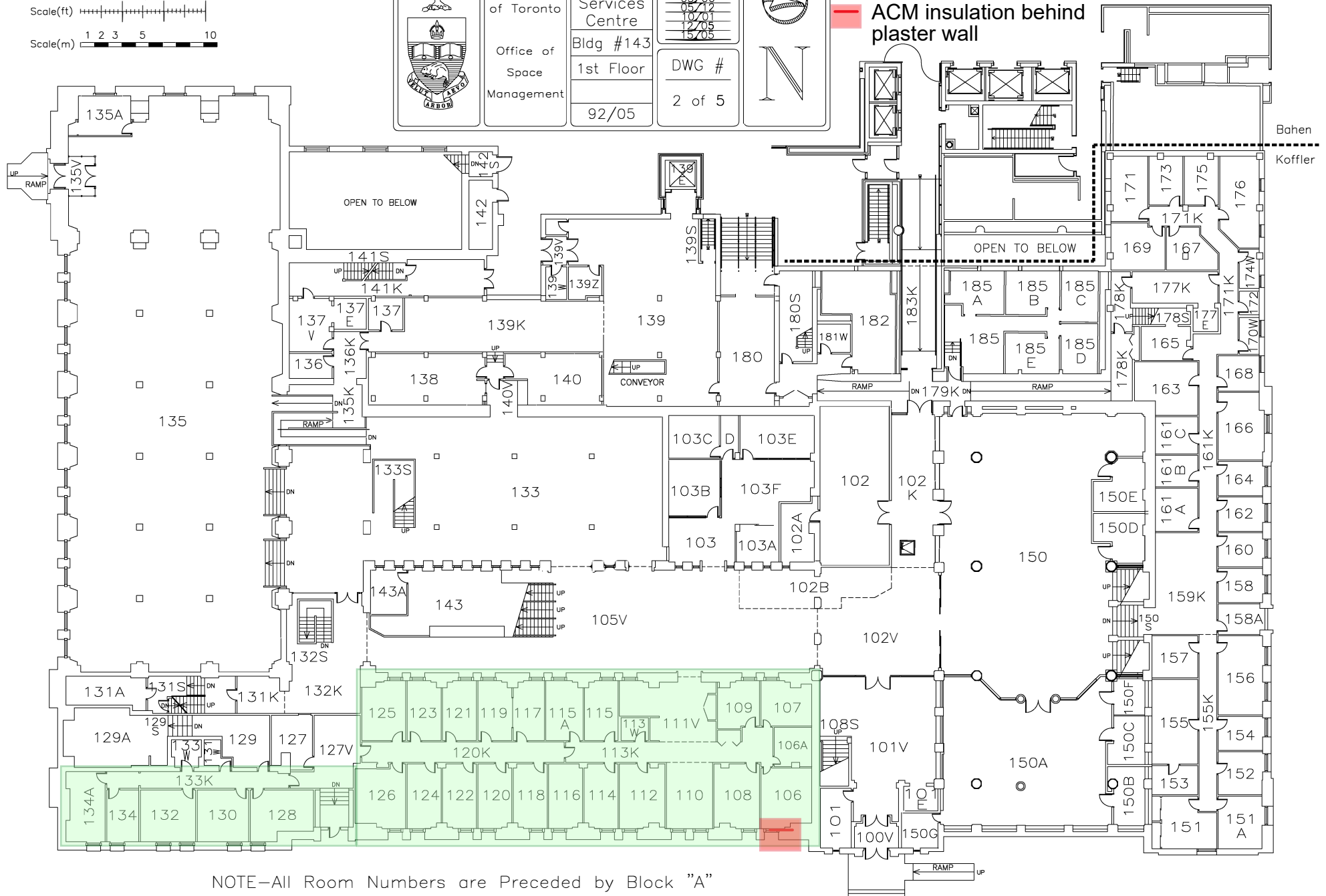
92/05

Revisions
98/09
99/11
03/06
05/12
10/01
12/03
13/03

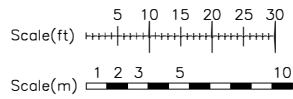
DWG #
2 of 5




All ACM abated-2024
ACM insulation behind
plaster wall



NOTE-All Room Numbers are Preceded by Block "A"





University of Toronto

Office of Space Management

Koffler Student Services Centre

Bldg #143

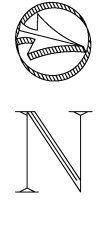
2nd Floor


92/05

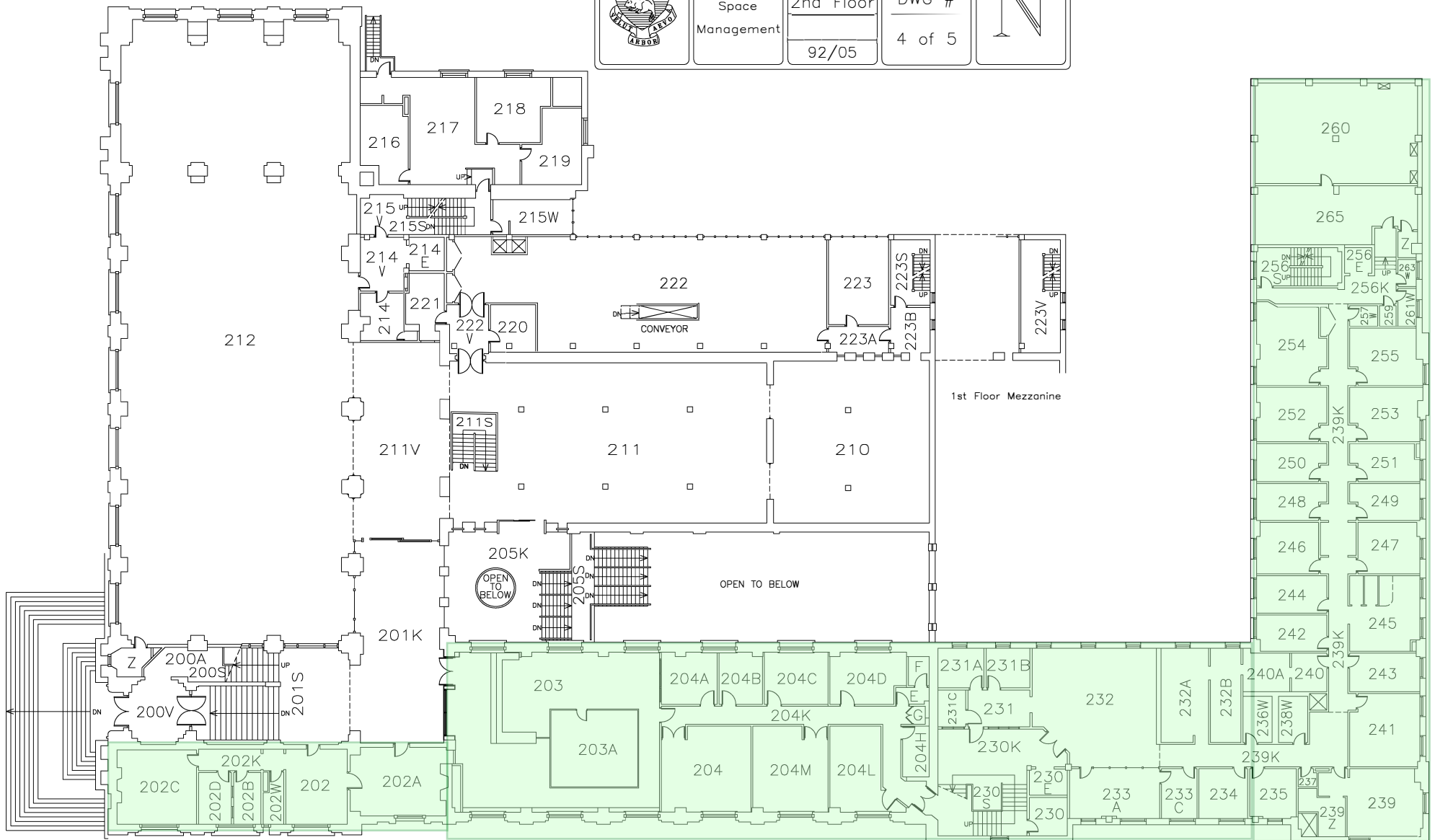
Revisions
94/12
99/01
12/05
14/10
15/05

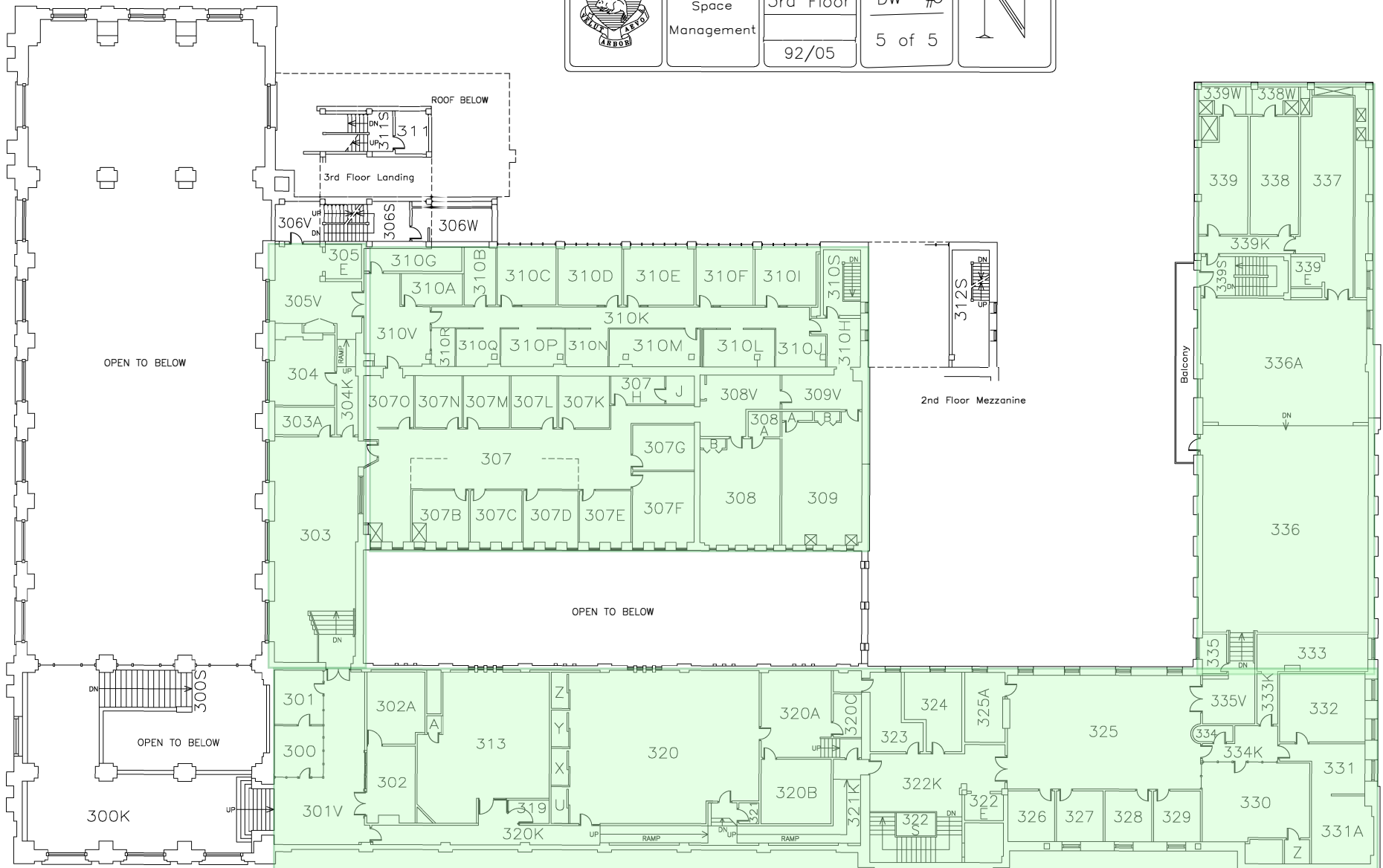
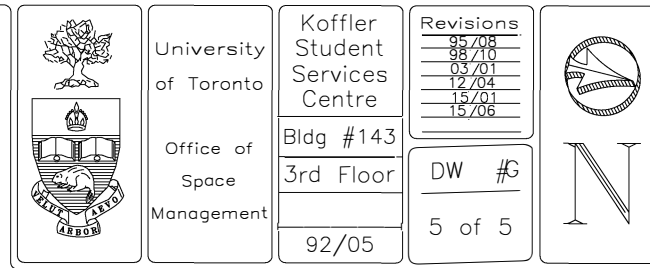
DWG #

4 of 5



 All ACM abated-2024







APPENDIX C

Crawl Space Photo Log



Health & Wellness Centre Renovation (Construction Phase) P143-19-100
Crawl Space North of B3 - Photo Log

