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ALGONQUIN COLLEGE

Final Report

ASBESTOS MANAGEMENT PLAN

1385 Woodroffe Ave.
OTTAWA, ONTARIO, K2G 1V8

October 2017

InAIR Project#: 17c059

Prepared By:
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ASBESTOS MANAGEMENT PLAN

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PREFACE

InAIR Environmental LTD. was commissioned by Algonquin College to provide an Asbestos Management Plan (AMP) for all buildings located on its Woodroffe campus at 1385 Woodroffe Avenue in Ottawa, Ontario.

An Asbestos Management Plan (AMP) is required for each building with asbestos containing materials (ACM's) in order to comply with Canada Labour Code and provincial regulations governing the safe work environment for employees, public and contractors visiting or working in a building containing asbestos.

The Algonquin College Asbestos Management Plan (AMP) performs several functions:

- To act as a common term of reference for the safe operation and management of a building containing asbestos materials.
- To be a central depository of information for each building.
- To act as a control mechanism to ensure compliance.
- To communicate roles and responsibilities of those required to work with or around asbestos materials.
- To communicate the accepted procedures for working with asbestos materials.

This document provides information, procedures, and work practices necessary for the Asbestos Management Plan (AMP) to be functional. The AMP sets guidelines for all facility maintenance, alteration, repair or other activities that may disturb asbestos, and it provides ongoing re-assessment of asbestos containing materials (ACM's), specifically with regards to its current condition. If continuing disturbance or severe deterioration of asbestos is indicated, the material shall be removed. Major renovations in a building will be preceded by the removal of ACM's in the project area.

Based on information provided by Algonquin College and on InAIR's inspections and sampling, the following buildings were determined to have Asbestos Containing Materials (ACMs): Woodroffe Campus Buildings "WA" (Which includes the Central Heating Plant and the interconnecting tunnels), "WB", "WC" and "WD". The following buildings were found by inspection and sampling conducted by InAIR to not contain accessible ACMs: Centre Point Campus Building "CA", Woodroffe Buildings "WE", "WF", "WG", "WH", "WJ", "WK", "WM", "WN", "WP", "WR 1,2 and 3", "WS", "WT", "WV" and "WZ". All readers of this report are reminded that potential hazardous substances (including hidden ACMs) may be present in any disturbed building materials. When encountering an building material with unknown asbestos content, all appropriate measures must be taken to ensure that appropriate health and safety protocols are being followed. Should any individual encounter a material that they feel may be an ACM they should immediately report it to their supervisor who in turn shall report it to the manager of Facility Operations and Maintenance (FOMS) Team. In accordance with Ont. Reg. 278/05 any operation that may expose a worker to asbestos are classified as Type 1, Type 2 and Type 3 operations and all involved workers must receive the appropriate training by a competent person.

ASBESTOS MANAGEMENT PLAN

The AMP describes work practices for minor disturbance of non-friable materials (Types 1 and 2). This document is divided so that specific sections can be copied and provided to the worker or contractor performing the work. The AMP includes policies for inspection of work, air monitoring, and worker training.

As per O.Reg. 278/05 under the Occupational Health and Safety Act (Ontario), all asbestos abatement workers and supervisors must carry a accreditation card from the Province of Ontario indicating that they have attended an asbestos training class accepted by the Province for this certification, and that the worker or supervisor is qualified to conduct asbestos work in Ontario.

ASBESTOS MANAGEMENT PLAN

DEFINITIONS

Abatement - control or attend to.

Amended Water - water that has been treated with a chemical agent to enhance the wetting of asbestos material prior to removal.

Amosite - "brown asbestos" is from the amphibole family.

Area by area survey - survey of large areas where each plane within the area is sampled visually and scientifically tested for the presence of ACM, i.e., corridors, assembly areas, total basement, boiler rooms, etc.

Asbestos - naturally occurring mineral silicates that are capable of being separated into fibres. Asbestos comes from the Greek word indestructible.

Asbestos Containing Material (ACM) - any material found to contain asbestos that is at or above the limit defined by provincial standards (Ontario 0.5% by dry weight), as determined by the standard Polarized Light Microscopy (PLM) method for the analysis of bulk samples.

Friable - can be crushed, crumbled, or reduced to a powder by hand pressure when dry.

Generic survey - spot check type survey where a small number of random samples are done at different locations of similar or non-similar materials to get a localized perspective as to where ACM are located. This type of survey would be good in areas such as boiler rooms where high concentrations of most materials are suspect to contain asbestos in localized areas such as boiler jacketing, pipe lagging, and exhaust breaching.

PCM - Phase contrast microscopy approved method for measurement of airborne particulate matter.

PLM - Polarized light microscopy method of detection for asbestos in bulk samples.

Room by room survey - survey of individual rooms where each plane within the room is sampled visually and scientifically tested for the presence of ACM.

Serpentine and amphiboles - rock types that are used to define different types of asbestos.

TEM - method of detection used for positive identification of airborne asbestos fibres via the use of an electron microscope.

Worker- is the asbestos abatement contractor or the maintenance staff who has had asbestos awareness training.

ASBESTOS MANAGEMENT PLAN

CONTACT LIST

1385 WOODROFFE AVENUE OTTAWA, ONTARIO

Name	Address	Number
Algonquin College	Samuel S.C. Chang 1385 Woodroffe Avenue Room G201 Ottawa, Ontario K2G 1V8	Phone (613) 727-4273, ext 5578 Cell ( ) Fax ( )
Human Resources and Social Development Canada - Labour Program Occupational Safety	EMERGENCY 24 HR.	Phone (613) 946-2800 Cell ( ) Fax ( )
Health Canada - Workplace Health and Public Safety Programme	EMERGENCY 7:30-5:30	Phone (613) 954-6541 Cell ( ) Fax ( )
Ontario Ministry of Labour	Eastern Region Office 347 Preston Street Tower III, 4th Floor Ottawa, Ontario K1S 3J4	Phone (613) 228-8050 Fax (613) 727-2900
	Health & Safety Contact Centre	Phone (1 877) 202-0008

ASBESTOS MANAGEMENT PLAN

EMERGENCY PROCEDURES

If Type 2 procedures cannot be strictly observed due to the urgency of the situation (e.g., a leaking asbestos insulated pipe), some judgement will be required of the person responsible for the work, and other staff or contractors responding to the emergency. The general principle of emergency response work is to protect the workers performing the repair and to minimize the exposure of others to airborne asbestos. The procedures given below should be followed to the extent possible in the circumstances of the emergency.

VACATE the area of unnecessary personnel.

CONTACT Algonquin College for guidance on contamination.

LIMIT the asbestos contamination.
Construct enclosure around area if time permits.
Shut down ventilation system serving area.
Use drop sheet under work to minimize clean-up if possible.

Worker performing repair shall wear protective respirator and disposable suit. If normal work clothes are worn, they must be disposed of if visibly contaminated.

Perform emergency repair with minimum disturbance of asbestos.

Obtain asbestos equipment and perform clean-up of visible material before allowing unprotected personnel to enter area. Use HEPA filtered vacuum or wet cleaning. Dispose of all cleaning supplies as contaminated waste.

The worker should wipe off or vacuum disposable clothing and footwear. Proceed to washroom to wash face and hands.

Notify the Property Manager regarding the asbestos disturbance. The Property Manager will contact an asbestos abatement contractor to arrange for removal, clean-up or repair of the asbestos material.

INFORM the following of the emergency:

- Human Resources Development Canada - Labour Program, Occupational Safety
- Provincial Ministry of Labour
- Algonquin College
- All residents in the building
- Workers Compensation Board (when private sector Clients/contractors present)

Before removing an enclosure, monitor the air to confirm acceptable levels and document readings. **OBTAIN** verification from the Workplace Health and Safety Program on air monitoring requirements. If the regulatory bodies do not perform the monitoring, hire a qualified consultant.

Arrange for a Property Manager to **INSPECT** the work as soon as possible and, in conjunction with the regulatory bodies, to **OVERSEE** the work and **APPROVE** the corrective work required.

A qualified consultant may oversee asbestos work on behalf of the Property Manager.

DOCUMENT THE DISPOSAL OF THE ASBESTOS AND THE PROCEDURES USED.

ASBESTOS MANAGEMENT PLAN

EMERGENCIES - GENERAL INFORMATION

Examples of possible emergencies: an asbestos clad boiler explodes; heating main breaks and floods the building.

Most asbestos emergencies are unique, but basic procedures apply in all cases:

- handle emergencies as quickly as possible;
- follow standard procedures;
- notify regulatory agencies and the Property Manager at once.

The main goal is to limit contamination, and to decontaminate and/or enclose problem areas with polyethylene. Shut off air-handling units to affected areas; post warning signs.

In a minor emergency, decontamination may be handled by trained in-house personnel or by a reputable asbestos contractor.

The asbestos emergency is under control when the asbestos relating to the emergency is enclosed.

Before removing an enclosure, monitor the air to confirm acceptable levels and document readings. If the regulatory bodies do not perform the monitoring, hire a qualified consultant.

PART 1

BUILDING SPECIFIC INFORMATION

Building Specific Information

Construction Date:	**1967**
Address:	**1385 Woodroffe Ave, Ottawa, ON K2G 1V8** **Ottawa, Ontario**
Configuration:	**Classrooms/Workshops, Cafeterias, Office Spaces, & Mechanical/Utility Rooms**
Primary Use:	**College Campus**
Number of Buildings:	**Twenty (20) Buildings**

PART 2

VARIOUS REPORTS

2017 Asbestos Reassessment - Building A
2017 Asbestos Reassessment - Building B
2017 Asbestos Reassessment - Building C
2017 Asbestos Reassessment - Building D

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Asbestos Condition Re-Assessment Report

October 2017

Algonquin College of Applied Arts and Technology
Building A
Woodroffe Campus
Nepean, Ontario

Prepared for:
Department of Physical Resources, Engineering Services
Algonquin College of Applied Arts and Technology
1385 Woodroffe Avenue
Nepean, Ontario
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1. Summary

InAIR Environmental Ltd. (InAIR) was retained by the Department of Physical Resources, Engineering Services of Algonquin College to conduct an asbestos reassessment for Building A on the Woodroffe Campus of Algonquin College. This entailed a floor-by-floor and room-by-room survey, where accessible, of all areas in the building containing asbestos containing materials (ACM's) that were identified in a previous Asbestos Assessment conducted in 2015 by InAIR. The survey also comprised of identifying and sampling suspect ACM's that were not identified in the previous assessment by InAIR.

All ACM's found in the building were evaluated for their current condition. The findings of the evaluation are included in the Tables in this report.

2. Background

Building A on the Woodroffe Campus of Algonquin College consists of two (2) floors, as well as a lower level.

InAIR conducted, where accessible, a floor-by-floor, room by room, survey of all areas in the building. The survey determined the condition of the existing ACMs, and verified all ACM's that had been removed throughout the building since the 2015 InAIR survey. The 2017 survey also confirmed the accessibility of the ACM's by onsite personnel, including maintenance personnel, whom might come in contact with the materials.

3. Methodology

InAIR's Environmental Technician, Chantal Thompson, and Junior Environmental Technician, Cole Johnston, conducted the asbestos materials reassessment survey of Building A on the Woodroffe Campus of Algonquin College in June 2017 under the direction of InAIR Environmental's Certified Industrial Hygienist (CIH), Donald Weekes.

The initial asbestos survey for the Algonquin College Woodroffe campus under the new provincial regulations was conducted by InAIR in 2007. In order to continue to comply with the provisions of O. Reg 278/05 governing asbestos in buildings, Algonquin has requested that the annual update be performed with a reassessment of the ACM's' presence, condition and quantities.

3.1 Inspection

The survey was conducted floor-by-floor and room-by-room, where accessible, of all ACMs identified in the data of the initial Asbestos Survey (InAIR, 2007) and the previous Asbestos Reassessment (InAIR, 2015). Detailed observations were made during the current survey and were recorded on a data table found in Appendix I. The locations of all ACM's are identified in the attached floor plans, also found in Appendix I. The following observations were recorded at each existing ACM location:

- Presence of previously identified ACM's
- Identification of suspect ACM
- Condition of ACM (good, fair or poor)
- Accessibility of ACM

Destructive testing was not included in the investigation. However, it is recommended prior to any major renovation or demolition that a Designated Substance Survey be performed to verify that the materials that are likely to be disturbed during the renovation or demolition are non-asbestos containing.

Due to the nature of building construction, some inherent limitations exist as to the possible thoroughness of the asbestos survey. The survey did not include the demolition of floors, floor finishes, plaster ceilings or walls or other areas to examine concealed conditions. No confined space was accessed for the purposes of this report.

It is possible that ACM's not mentioned in this report are present in non-accessible areas and concealed spaces (i.e., wall and ceiling cavities), or confined spaces. No other areas outside the defined work boundaries have been assessed.

Finally, ACM's were ranked on a basis for the need of removal/repair/surveillance in accordance with the action levels established in Appendix A of the Asbestos Management Plan.

Protective measures were employed to minimize the potential for generating asbestos dust during inspection and sampling. When bulk sampling was necessary, all semi-destructive sampling locations were repaired as necessary and every attempt was made where possible to select locations in lower occupancy areas.

3.2 Evaluation of ACM's

This section summarizes the criteria utilized in evaluating the current ACM's based on condition and accessibility.

3.2.1 Assessment of Condition

Spray Applied Fireproofing, Insulation and Texture Finishes

The following criteria are used to evaluate the condition of spray applied ACM's as fireproofing, thermal insulation, or texture, decorative or acoustic finishes.

GOOD — Surface of material shows no significant signs of damage, deterioration or delamination. Up to 1 percent visible damage to surface is allowed within range of **GOOD**. Evaluation of sprayed fireproofing requires the surveyor to be familiar with the irregular surface texture typical of sprayed asbestos products. **GOOD** condition includes unencapsulated or unpainted fireproofing or texture finishes, where no delamination or damage is observed, and encapsulated fireproofing or texture finishes where the encapsulation has been applied after the damage or fallout occurred.

POOR — Sprayed materials show signs of damage, delamination or deterioration. More than one percent damage to surface of ACM spray.

A 'Fair' condition is not utilized or considered as a valid criterion in the evaluation of sprayed fireproofing, sprayed insulation, or texture coat finishes.

The evaluation of spray applied ACM's as fireproofing, non-mechanical thermal insulation, or texture, decorative or acoustic finishes which are present above ceilings may be limited by the number of observations made, and by building components such as ducts or full height walls that obstruct the above ceiling observations. Persons entering the ceiling area are advised to be watchful for ACM DEBRIS prior to accessing or working above ceilings in areas of buildings with ACM, regardless of the reported condition.

Mechanical Insulation

The following criteria are used to evaluate the condition of mechanical insulation (on boilers, breaching ductwork, piping, tanks, etc.)

GOOD — Insulation is completely covered in jacketing and exhibits no evidence of damage or deterioration. No insulation is exposed. Includes conditions where the jacketing has minor surface damage (i.e., scuffs or stains), but the jacketing is not penetrated.

FAIR — Minor penetrating damage to jacketed insulation (cuts, tears, nicks, deterioration or delamination) or undamaged insulation that has never been jacketed. Insulation is exposed but not showing surface disintegration. The extent of missing insulation ranges should be minor to none.

POOR — Original insulation jacket is missing, damaged, deteriorated or delaminated. Insulation is exposed and significant areas have been dislodged. Damage cannot be readily repaired.

The evaluation of mechanical insulation may be limited by the number of observations made and building components such as ducts or full height walls that obstruct observations. In these circumstances, it is not possible to observe each meter of mechanical insulation from all angles.

Non-Friable and Potentially Friable Materials

Non-friable materials generally have little potential to release airborne fibres, even when damaged by mechanical breakage. However, some non-friable materials (such as exterior asbestos cement products) may have deteriorated so that the binder no longer effectively contains the asbestos fibres. In such cases of significantly deteriorated non-friable material, the material will be treated as a friable product.

3.2.2 Evaluation of Accessibility

The following criteria are used to evaluate the accessibility of known or suspected ACM:

ACCESSIBLE — Areas of the building within reach from floor level of all building users. Includes areas such as gymnasiums, workshops and storage areas where activities of the building users may result in disturbance of ACM not normally within reach from floor level.

Frequently entered maintenance areas within reach of maintenance staff, without the need for a ladder.

Includes pipes chases, tunnels and service areas or areas within reach from a fixed ladder or catwalk.

MODERATELY ACCESSIBLE

Areas of the building above 8 ft where the use of a ladder is required to reach ACM materials that are exposed to view from floor or ladder without removing or opening other building components such as ceiling tiles, or service access doors or hatches. Does not include infrequently accessed service areas of the building.

Areas of the building which require the removal of a building component, including lay-in ceilings and access panels into solid ceiling systems. Includes rarely entered crawlspaces, attic spaces etc. Observations are limited to the extent visible from the access points.

INACCESSIBLE

Areas of the building behind inaccessible solid ceiling systems, walls, or mechanical equipment, etc, where demolition of the ceiling, wall or equipment is required to reach the ACM. Evaluation of the condition and extent of ACM is limited or impossible, depending on the surveyor's ability to visually examine the materials which are inaccessible.

Debris from Damaged Non-Friable ACM

The presence of fallen ACM, from damaged non-friable ACM, is reported separately from the non-friable ACM source. Only fallen non-friable ACM that has become friable is reported as DEBRIS.

3.2.3 Action Matrix

Friable ACM

ACCESS	CONDITION			DEBRIS
	GOOD	FAIR	POOR	
ACCESSIBLE	ACTION 5/7[1] ACTION 7	ACTION 5/6[2] ACTION 6/5[3]	ACTION 3	ACTION 1
MODERATELY ACCESSIBLE	ACTION 7	ACTION 6 ACTION 7	ACTION 4	ACTION 2
INACCESSIBLE	ACTION 7	ACTION 7	ACTION 7	ACTION 7

[1] If material in **ACCESSIBLE/GOOD** condition is not removed **ACTION 7** is required.
[2] If material in **ACCESSIBLE/FAIR** condition is not removed **ACTION 6** is required.
[3] Remove ACM in **ACCESSIBLE/FAIR** condition if ACM is likely to be disturbed.

ACTION 1 - Immediate Clean-Up of DEBRIS that is Likely to Be Disturbed
Restrict access that is likely to cause a disturbance of the ACM **DEBRIS** and clean up ACM **DEBRIS** immediately. Utilize correct asbestos procedures. This action is required for compliance with regulatory requirements. The surveyor should immediately notify the Occupational Health and Safety Coordinator of this condition.

ACTION 2 - Type 2 Precautions for Entry into Areas with ACM DEBRIS
At locations where ACM **DEBRIS** can be isolated in lieu of removal or cleaned up, use appropriate means to limit entry to the area. Restrict access to the area to persons utilizing Type 2 asbestos precautions. The precautions will be required until the ACM **DEBRIS** has been cleaned up, and the source of the **DEBRIS** has been stabilized or removed.

ACTION 3 - ACM Removal Required for Compliance
Remove ACM for compliance with regulatory requirements. Utilize asbestos procedures appropriate to the scope of the removal work.

ACTION 4 - Type 2 Precautions for Access into Areas Where ACM is Present and Likely to be Disturbed by Access
Use Type 2 asbestos precautions when entry or access into an area is likely to disturb the ACM. **ACTION 4** must be used until the ACM is removed (Use ACTION 1 or 2 if **DEBRIS** is present).

ACTION 5 - Proactive ACM Removal
Remove ACM in lieu of repair, or at locations where the presence of asbestos in **GOOD** condition is not desirable.

ACTION 6 - ACM Repair

Repair ACM found in **FAIR** condition, and not likely to be damaged again or disturbed by normal use of the area or room. Upon completion of the repair work treat ACM as material in **GOOD** condition and implement **ACTION 7**. If ACM is likely to be damaged or disturbed, during normal use of the area or room, implement **ACTION 5**.

ACTION 7 - Routine Surveillance

Institute routine surveillance of the ACM. Trained workers or contractors must use appropriate asbestos precautions (Type 1, Type 2 or Type 3) during disturbance of the remaining ACM.

3.3 Bulk Sampling

No bulk sampling was completed as part of the asbestos reassessment of Building A. No suspect materials were identified that had not been previously sampled as part of InAIR's 2015 asbestos reassessment.

4. Results

The survey reassessed all the areas that included ACM's outlined in the previous (2015) asbestos InAIR survey. Any additional suspect asbestos containing materials not previously identified which were located during the survey were to be sampled and sent under a chain-of-custody form for laboratory analysis by Polarized Light Microscopy (PLM). No samples were collected on the day of the survey.

4.1 Survey Reassessment Results

ACM sample locations are detailed on floor plans found in Appendix I at the end of the survey report.

All ACM locations, amounts and condition are outlined in Table 1 in Appendix I at the end of the survey report.

Suspect ACM sample laboratory results can be found in Appendix I at the end of the survey report.

Lower Level

The lower level of Building A on the Woodroffe Campus of Algonquin College mainly consists of a mechanical room.

Suspect asbestos containing materials located in the lower level of Building A include: Pipe insulation and elbow parging, vinyl floor tiles, and tank insulation.

Table 1 outlines the suspect asbestos containing materials that were located and found by laboratory analyses to be asbestos containing. Laboratory analyses of these building materials found asbestos content above the Ontario Ministry of Labour standard of 0.5% asbestos content by weight.

Table 1. Asbestos Containing Building Materials Found in the Lower Level of Algonquin College Building A, Woodroffe Campus, Ottawa, Ontario. (August 2017)

Location ID	Location Description	Building Material	Condition	Accessibility
WA000- Tunnel	Tunnel	Parging Elbow	Good	Inaccessible
WA000- Tunnel	Tunnel	Orange Parging Elbow	Good	Inaccessible
WA000- Tunnel	Tunnel	White Parging Elbow	Good	Inaccessible
WA000- Tunnel	Tunnel	Green Parging Elbow	Good	Inaccessible
WA000- Tunnel	Tunnel	White Vinyl Floor Tile	Good	Accessible
WA000- Heating Plant	Heating Plant	Orange Pipe Parging	Good	Inaccessible
WA000- Heating Plant	Heating Plant	Orange Pipe Parging	Good	Inaccessible
WA000- Heating Plant	Heating Plant	Orange Tank Insulation	Good	Accessible
WA000- Heating Plant	Heating Plant	Chimney Parging	Good	Inaccessible

According to governmental regulation, the building materials outlined in Table 1 are considered asbestos containing. All applicable governmental regulations regarding the abatement and disposal of the asbestos containing material should be followed.

Floor One

The first floor of Building A on the Woodroffe Campus of Algonquin College mainly consists of offices, classrooms and athletic facilities.

Suspect asbestos containing materials located on the first floor of Building A include: pipe insulation, ceiling tiles, drywall joint compound, carpet mastic, and various vinyl floor tiles and mastic.

In some cases, samples of the suspect asbestos containing materials were found by laboratory analysis to contain less than (<) 0.5% asbestos. This amount of asbestos is below the Ontario Ministry of Labour standard for asbestos content of 0.5% by weight. However, because the materials contain asbestos, it is recommended that the materials be handled with caution.

Table 2 outlines the suspect asbestos containing materials that were located and found by laboratory analyses to be asbestos containing. Laboratory analyses of these building materials found asbestos content above the Ontario Ministry of Labour standard of 0.5% asbestos content by weight. It is noted that some of these ACM's have been removed and properly disposed of in a landfill.

Table 2. Asbestos Containing Building Materials Found on the First Floor of Algonquin College Building A, Woodroffe Campus, Ottawa, Ontario. (August 2017)

Location ID	Location Description	Building Material	Condition	Accessibility
WA100	Ceiling above Reception area	Elbow Parging	Good	Inaccessible
WA101	Vault	Pipe Insulation	Good	Inaccessible
WA101	Vault	Floor Tile	Good	Removed
WA101	Vault	Mastic	Good	Removed
WA103	Office	Pipe Insulation	Good	Inaccessible
WA109A	Spa	Floor Carpet	Good	Removed
WA110	Salon	Pipe Fittings	Good	Removed
WA110	Salon	Pipe Fittings	Good	Removed
WA110	Salon	Pipe Fittings	Good	Removed
WA110	Salon	Mastic	Good	Removed
WA110	Salon	Mastic	Good	Removed
WA110	Salon	Mastic	Good	Removed
WA110	Salon	Mastic	Good	Removed
WA116	Classroom	Pipe Insulation	Poor	Inaccessible
WA133	Classroom	Drywall Joint Compound	Good	Accessible
WA140H	Office	Ceiling Tile	Good	Moderately Accessible

WA140H	Office	Grey Vinyl Floor Tile	Good	Accessible
WA141	Shop	Black Mastic	Good	Accessible
WA141	Shop	Blue Mastic	Good	Accessible
WA141	Shop	Blue Vinyl Floor Tile	Good	Accessible
WA141B	Storage	Blue Mastic	Good	Accessible
WA141B	Storage	Blue Vinyl Floor Tile	Good	Accessible
WA150	Storage	Vinyl Floor Tile	Good	Accessible
WA150	Office	Grey/White Specks Vinyl Floor Tile	Good	Accessible
WA150	Office	Pipe Elbow	Good	Inaccessible
WA151	Storage	Grey Pipe Insulation	Good	Removed
WA158	Office	Vinyl Floor Tile	Good	Accessible
WA158	Office	Grey Pipe Insulation	Good	Removed
WA158A	Office	Vinyl Floor Tile	Good	Accessible
WA158A	Office	Pipe Elbow Insulation (grey/white)	Good	Inaccessible
WA158B	Office	Vinyl Floor Tile	Good	Accessible
WA158B	Office	Black Mastic	Good	Accessible
WA158C	Office	Vinyl Floor Tile	Good	Accessible
WA158C	Office	Black Mastic	Good	Accessible
WA158D	Office	Vinyl Floor Tile	Good	Accessible
WA158D	Office	Black Mastic	Good	Accessible
WA159	Office	Vinyl Floor Tile	Good	Accessible
WA159	Office	Black Mastic	Good	Accessible
WA181	Art Classroom	Pipe Elbow Insulation	Poor	Inaccessible
WA183	Loading/Receiving Bay	Pipe Elbow (White)	Good	Inaccessible
WA190	Innovation Centre	Vinyl Floor Tile	Good	Removed
WA190A	Shipping/Receiving	Vinyl Floor Tile	Good	Accessible
WA190B	Mail Services	Vinyl Floor Tile	Good	Accessible
WA190C	Publishing	Vinyl Floor Tile	Good	Accessible
WA190L	IT Closet	Vinyl Floor Tile	Good	Accessible
WA191E	Office	Ceiling Drywall Joint Compound	Good	Removed
WA191E	Office	Ceiling Drywall Joint Compound	Good	Removed
WA191E	Office	Ceiling Drywall Joint Compound	Good	Removed

According to governmental regulation, the building materials outlined in Table 2 are considered asbestos containing. All applicable governmental regulations regarding the abatement and disposal of the asbestos containing material should be followed.

Floor Two

The second floor of Building A on the Woodroffe Campus of Algonquin College mainly consists of offices and classrooms.

Suspect asbestos containing materials located on the second floor of Building A include: various vinyl floor tiles and mastic.

Certain samples of suspect asbestos containing materials were found by laboratory analysis to contain less than (<) 0.5% asbestos. This amount of asbestos is below the Ontario Ministry of Labour standard for asbestos content of 0.5% by weight, but the material should be handled with caution due to its asbestos content.

Table 3 outlines the suspect asbestos containing materials that were located and found by laboratory analysis to be asbestos containing. Laboratory analyses of these building materials found asbestos content above the Ontario Ministry of Labour standard of 0.5% asbestos content by weight.

Table 3. Asbestos Containing Building Materials Found on the Second Floor of Algonquin College Building A, Woodroffe Campus, Ottawa, Ontario. (August 2017)

	Location Description	Building Material	Condition	Accessibility
WA201	Wheelchair Storage	Vinyl Floor Tile	Good	Accessible
WA202	Classroom	Mastic	Good	Removed
WA202	Classroom	Mastic	Good	Removed
WA212	Classroom	Black Mastic	Good	Accessible
WA212	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WA212	Classroom	Black Mastic	Good	Accessible
WA212	Classroom	Yellow Vinyl Floor Tile	Good	Accessible
WA212	Classroom	Black Mastic	Good	Accessible
WA213	Classroom	Black Mastic	Good	Accessible
WA213	Classroom	Yellow Vinyl Floor Tile	Good	Accessible
WA214	Office	Black Mastic	Good	Accessible
WA214	Office	Yellow Vinyl Floor Tile	Good	Accessible
WA214	Office	Light Brown Vinyl Floor Tile	Good	Accessible
WA214C	Office	Light Brown Vinyl Floor Tile	Good	Accessible
WA214D	Storage	Light Brown Vinyl Floor Tile	Good	Accessible

According to governmental regulation, the building materials outlined in Table 3 are considered asbestos containing. All applicable governmental regulations regarding the abatement and disposal of the asbestos containing materials should be followed.

4.2 ACMs in FAIR and POOR Condition

In accordance with the Asbestos Operations and Management Plan, ACMs in locations listed on Table 4 that have been assessed as being in poor condition should be removed, repaired or encapsulated. The removal shall be conducted in accordance with all applicable governmental regulations governing asbestos abatement. No ACMs were found in this building to be in "fair" condition.

Table 4. ACMs in Fair and POOR Condition – Building A, Woodroffe Campus (August 2017)

Floor	Location ID	Location Description	Material Qty @ Location	Building Material	Asbestos Type	Content %	Condition	Accessibility	Action
1	WA116	Classroom	6	Grey/White Pipe Elbow Insulation	N/A	N/A	Poor	Moderately Accessible	ACTION 4
1	WA181	Drawing Room Classroom	6	Pipe Elbow Insulation	N/A	N/A	Poor	Moderately Accessible	ACTION 4

5. Estimated Cost of Mitigation Measures

The following section describes materials, approximate quantity and associated estimated costs of removal for ACM locations assessed as fair or poor. Estimated costs do not include labour and materials for reinstallation. Table 5 summarizes the estimated cost of abatement at each location.

Table 5. Estimated Cost of Removal of ACM in Fair and POOR Condition – Building A, Woodroffe Campus

Location		Bldg. Component	Approx. Quantity	Recommended Action	Estimated Cost*
Floor	Room/ Area				
1	WA116	Grey/White Pipe Elbow Insulation	6	ACTION 4	$ 500.00
1	WA181	Pipe Elbow Insulation	6	ACTION 4	$ 500.00
Total Estimated Cost**					**$ 1,000.00**

* Estimate in Canadian dollars as per October 2017

** These prices do not include re-insulation. The prices for the abatement monitoring and the air sampling during and following the abatement are also not included.

Report Conditions and Limitations

The findings contained in this report rely on data and information collected during the limited asbestos reassessment conducted by InAIR Environmental Ltd. in the subject building, and are based solely on site conditions present at the time of our survey. The observations presented in this report are based on the specific areas assessed and hence the findings may not apply throughout the entire building.

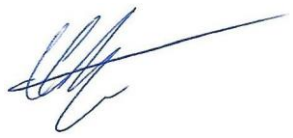
Due to the nature of the survey and the limited data collected, the assessors cannot warrant against undiscovered environmental liabilities. Should additional information become available, InAIR Environmental Ltd. requests that this information be brought to our attention so that we may re-assess the conclusions and recommendations presented herein.

This report is intended for the sole use of Algonquin College and its authorized personnel. InAIR Environmental Ltd. accepts no responsibility for any unauthorized use of the information contained within this report by any third party.

We trust that the information presented in this report meets your current requirements. Should you have any questions or concerns regarding the report please do not hesitate to contact the undersigned.

InAIR Environmental Limited

Report prepared by:



Connor Algie, B.Eng.
Junior Environmental Engineer

Report reviewed by:

Donald M. Weekes, CIH, CSP
Partner

Appendix I

Floorplans

ALGONQUIN COLLEGE

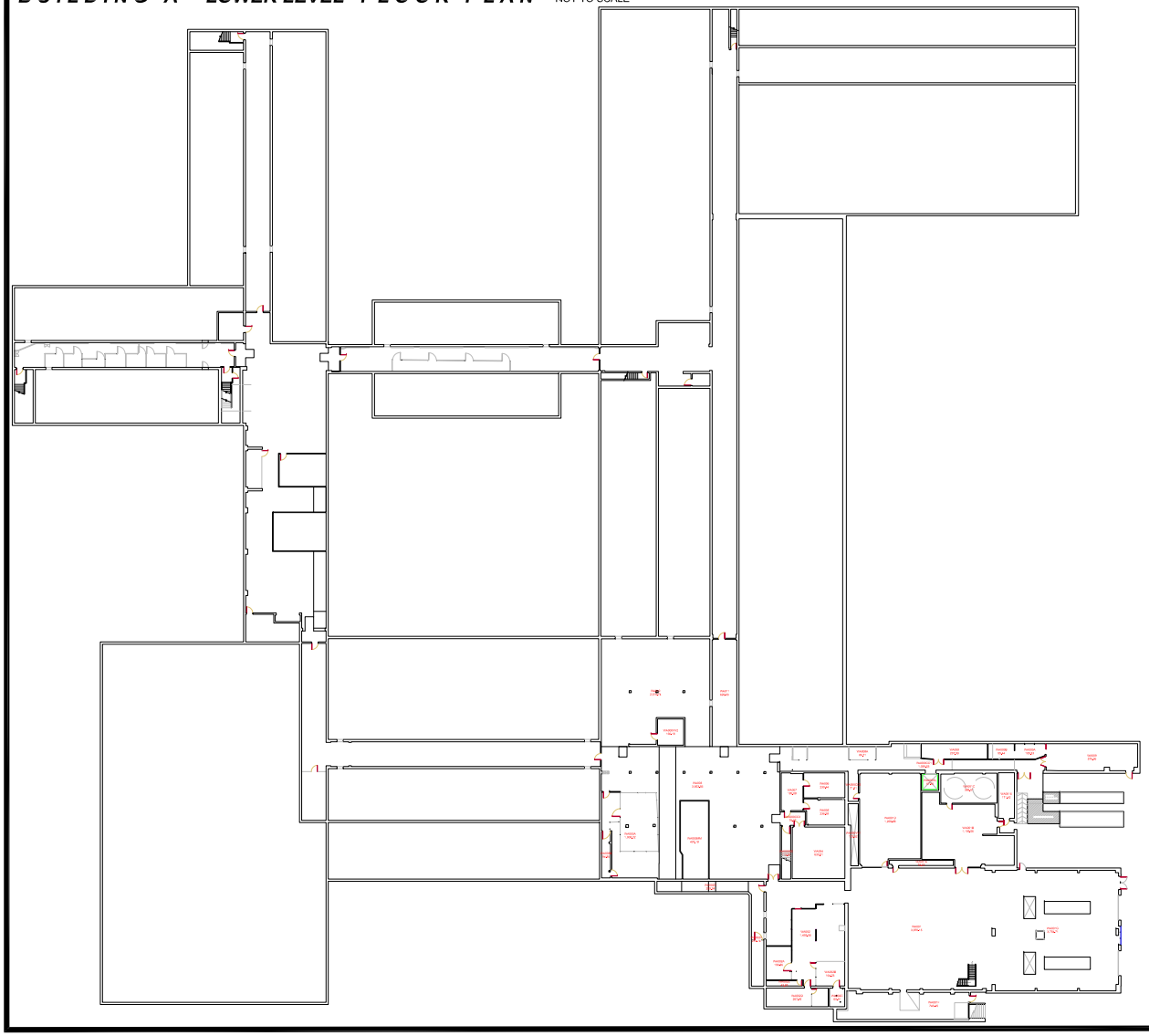
PHYSICAL RESOURCES DEPARTMENT

FACILITIES PLANNING & DEVELOPMENT

1385 WOODROFFE AVENUE | G-BUILDING | OTTAWA | ONTARIO | K2G | 1V8 TEL: 613-727-4728, EXT. 7710

BUILDING A - LOWER LEVEL FLOOR PLAN

NOT TO SCALE



Identified ACM Legend:

Positive for Asbestos (>0.5%)

VFT: Vinyle Floor Tile
DJC: Drywall Joint Compound

[1] Black Mastic
[2] Green VFT
[3] White VFT
[4] DJC
[5] Brown VFT
[6] Pipe Elbow Insulation
[7] Grey VFT
[8] Ceiling Tile
[9] Blue VFT
[10] Red VFT
[11] Chimney Parging

InAIR Environmental Ltd.

Project No.: 17c059
Drawn: CA

Date: 22/08/2017
Reviewed: DW

ALGONQUIN COLLEGE

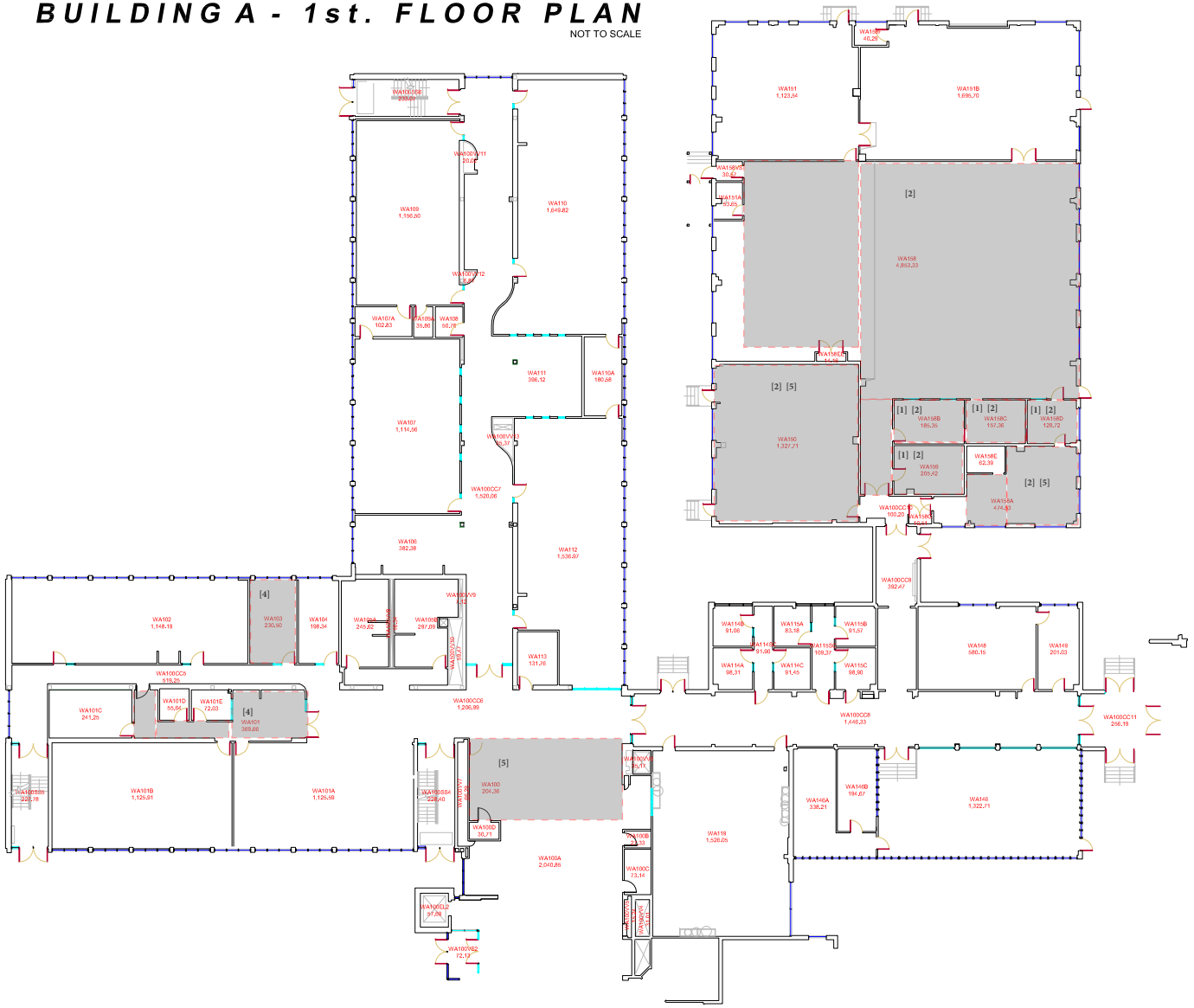
PHYSICAL RESOURCES DEPARTMENT

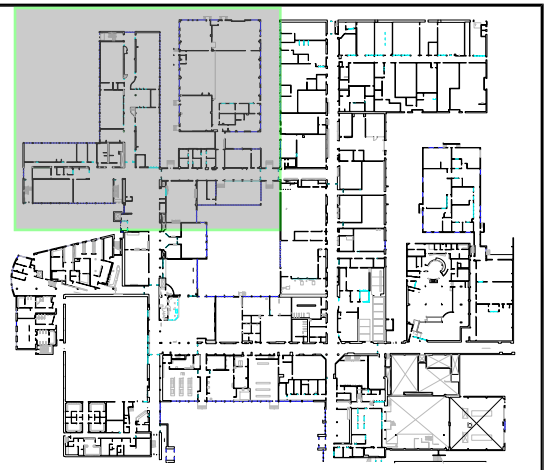
FACILITIES PLANNING & DEVELOPMENT

1385 WOODROFFE AVENUE | G-BUILDING | OTTAWA | ONTARIO | K2G | 1V8 TEL: 613-727-4728, EXT. 7710

BUILDING A - 1st. FLOOR PLAN

NOT TO SCALE





Identified ACM Legend:

Positive for Asbestos (>0.5%)

VFT: Vinyle Floor Tile
DJC: Drywall Joint Compound

[1] Mastic
[2] VFT
[3] DWJC
[4] Pipe Insulation
[5] Pipe Elbow Insulation
[6] Tar
[7] Ceiling Tile
[8] Parging
[9] Stipple

InAIR Environmental Ltd.

Project No.: 17c059
Drawn: CA

Date: 22/08/2017
Reviewed: DW

ALGONQUIN COLLEGE

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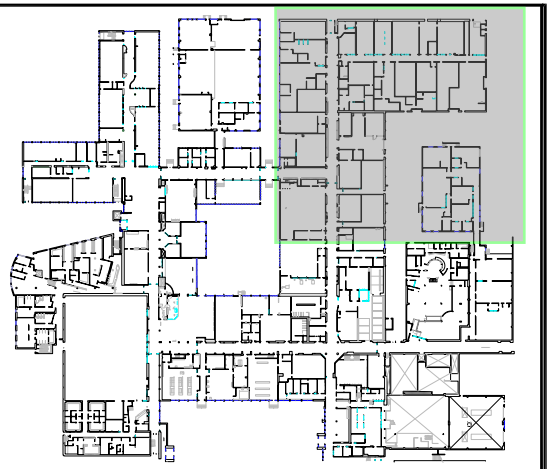
BUILDING A - 1st. FLOOR PLAN

NOT TO SCALE



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BUILDING A - 1st. FLOOR PLAN

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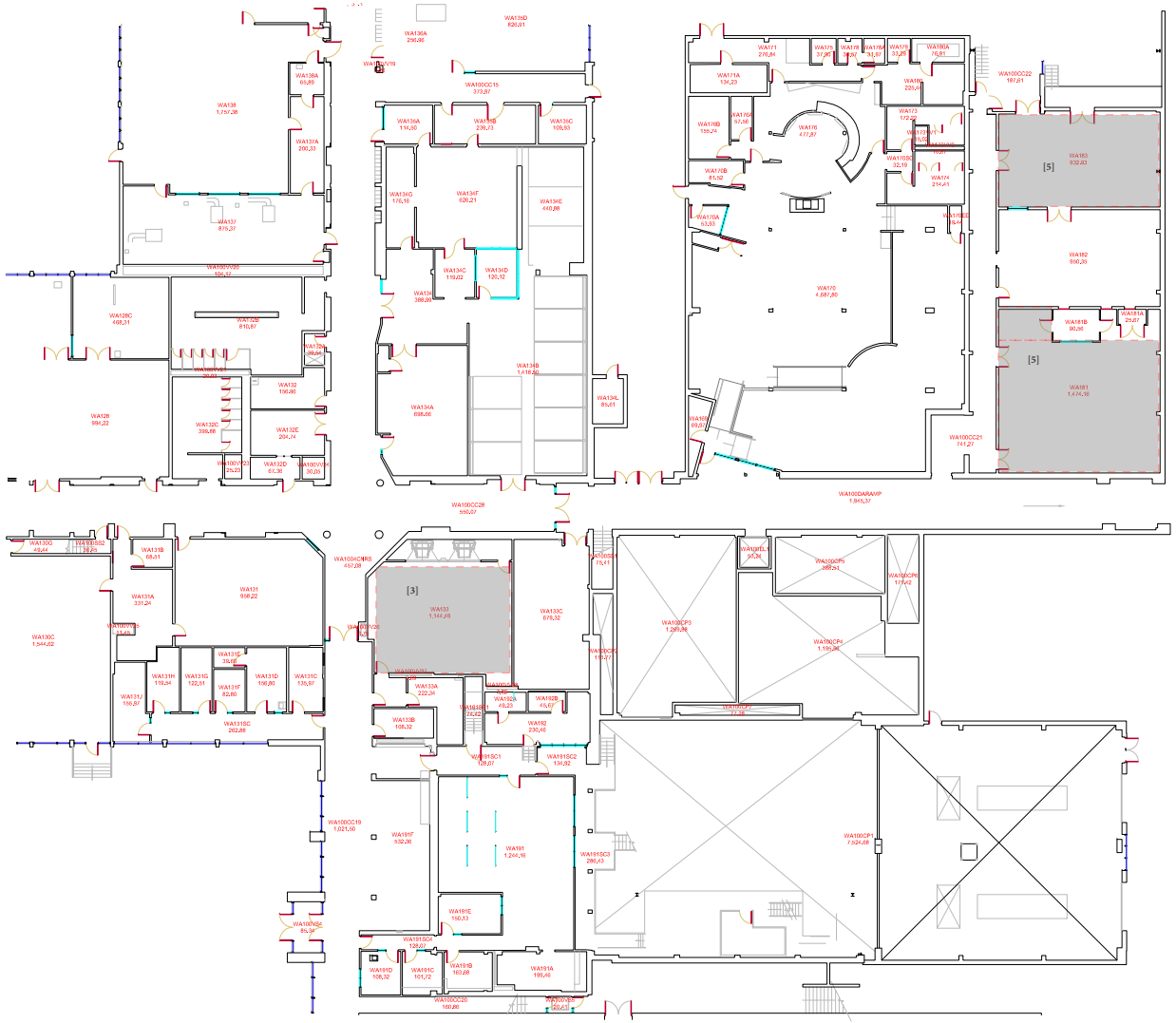

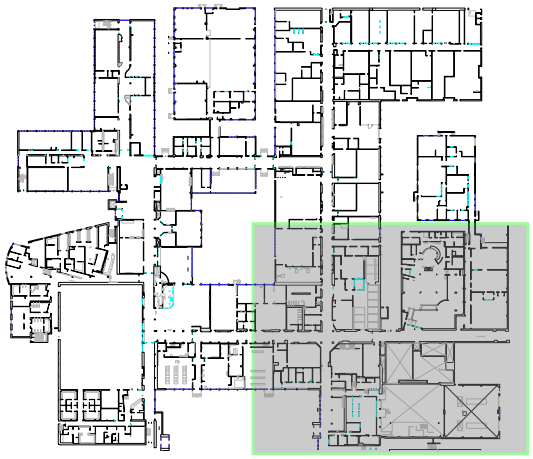

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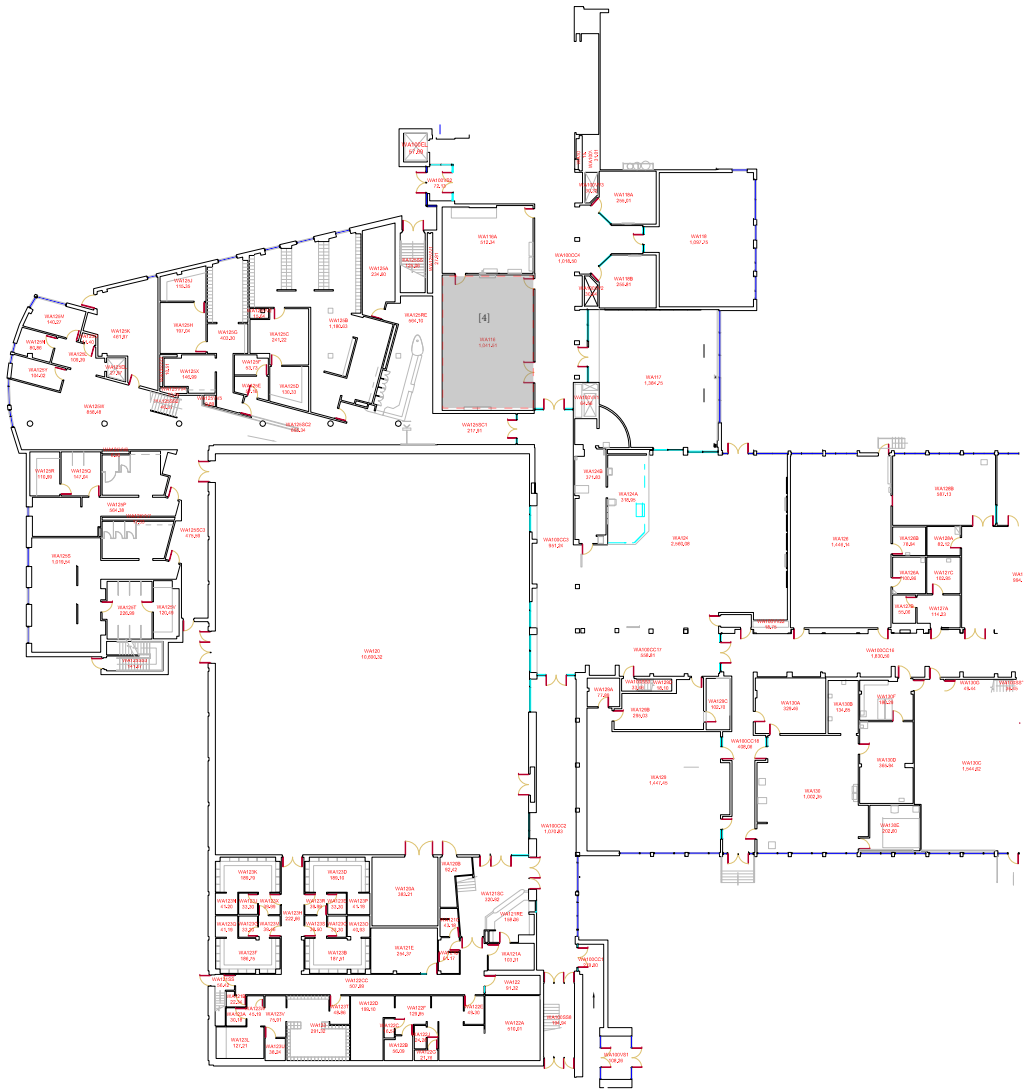

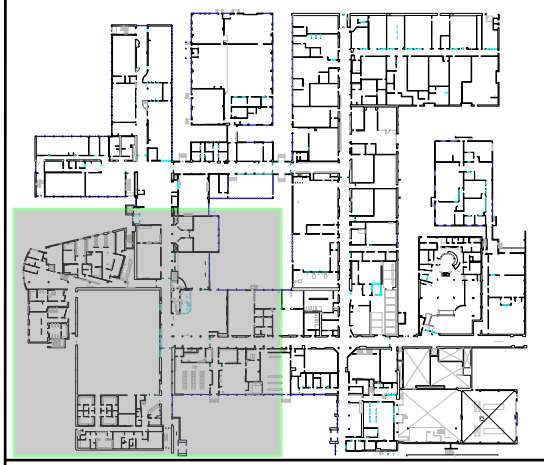

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InAIR Environmental Ltd.

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ALGONQUIN COLLEGE

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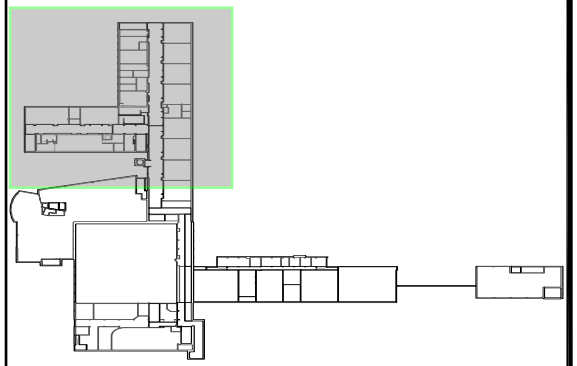
1385 WOODROFFE AVENUE | G-BUILDING | OTTAWA | ONTARIO | K2G | 1V8 TEL: 613-727-4728, EXT. 7710

BUILDING A - 2nd. FLOOR PLAN

NOT TO SCALE



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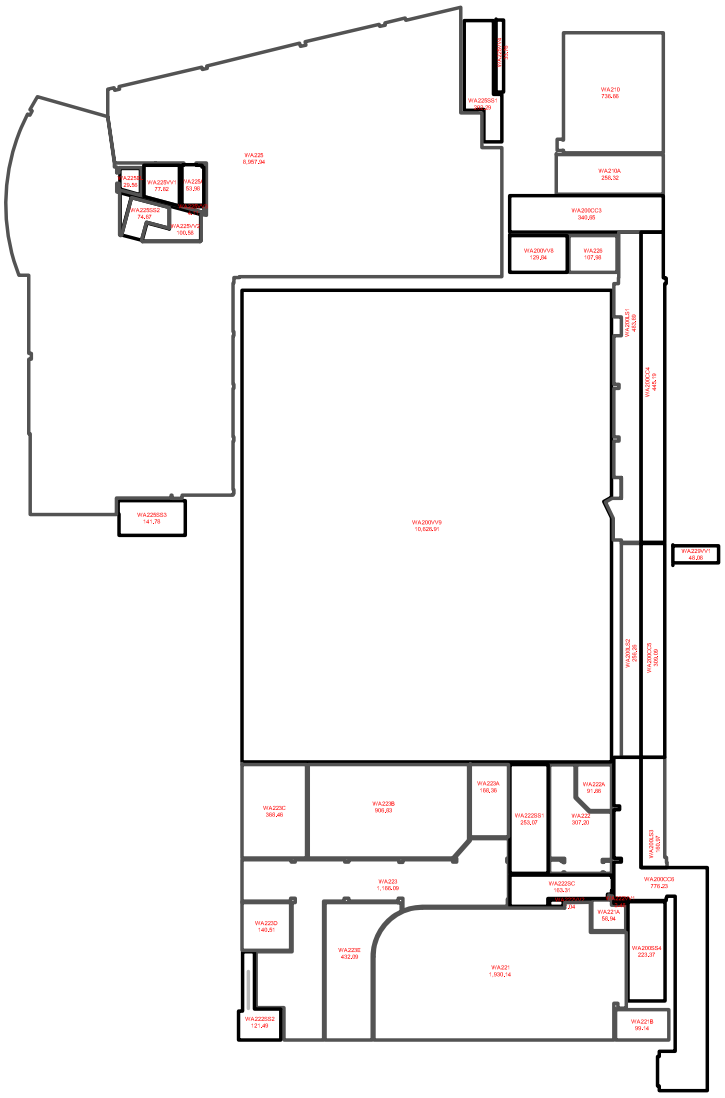

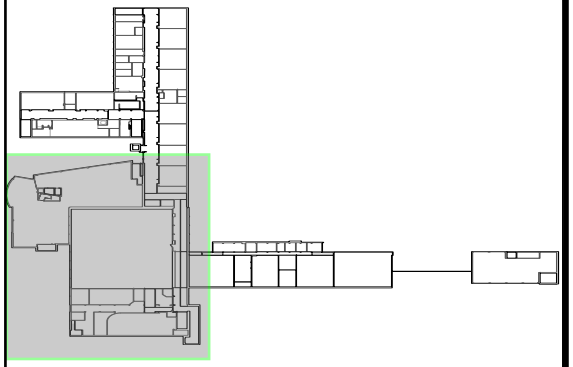

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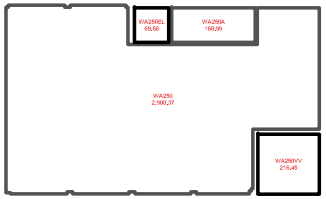

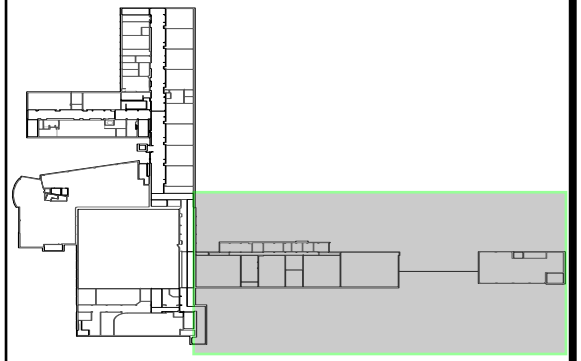

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Drawn: CA

Date: 22/08/2017
Reviewed: DW

InAIR Environmental Ltd.
1390 Prince of Wales Drive, Suite 503, Ottawa, Ontario K2C 3N6
Phone: (613) 224-3863 Fax: (613) 224-2561 Web: www.inairenvironmental.ca

Asbestos Condition Re-Assessment Report

October 2017

Algonquin College of Applied Arts and Technology
Building B
Woodroffe Campus
Nepean, Ontario

Prepared for:
Department of Physical Resources, Engineering Services
Algonquin College of Applied Arts and Technology
1385 Woodroffe Avenue
Nepean, Ontario
K2G 1V8

InAIR Environmental Ltd.
1390 Prince of Wales Drive, Suite 503, Ottawa, Ontario K2C 3N6
Phone: (613) 224-3863 Fax: (613) 224-2561 Web: www.inairenvironmental.ca

Table of Contents

1. Summary

InAIR Environmental Ltd. (InAIR) was retained by the Department of Physical Resources, Engineering Services of Algonquin College to conduct an asbestos reassessment for Building B on the Woodroffe Campus of Algonquin College. This entailed a floor-by-floor and room-by-room survey, where accessible, of all areas in the building containing asbestos containing materials (ACM's) that were identified in a previous Asbestos Assessment conducted in 2015 by InAIR. The survey also comprised of identifying and sampling suspect ACM that was not identified in the previous assessment by InAIR.

All ACM's found in the building were evaluated for their current condition. The findings of the evaluation are included in the Tables in this report.

2. Background

Building B on the Woodroffe Campus of Algonquin College consists of four (4) floors and a basement that is primarily used for storage.

InAIR conducted, where accessible, a floor-by-floor, room by room, survey of all areas in the building. The survey determined the condition of the existing ACMs, and verified all ACM that had been removed throughout the building since the 2015 InAIR survey. The 2017 survey also confirmed the accessibility of the ACM's by onsite personnel, including maintenance personnel, whom might come in contact with the materials.

3. Methodology

InAIR's Project Manager, Mark St. Pierre, Environmental Technician, Chantal Thompson, and Junior Environmental Technician, Cole Johnston, conducted the asbestos materials reassessment survey of Building B on the Woodroffe Campus of Algonquin College in August 2017 under the direction of InAIR Environmental's Certified Industrial Hygienist (CIH), Donald Weekes.

The initial asbestos survey for the Algonquin College Woodroffe campus under the new provincial regulations was conducted by InAIR in 2007. In order to continue to comply with the provisions of O. Reg 278/05 governing asbestos in buildings, Algonquin has requested that an update be performed with a reassessment of the ACM's' presence, condition and quantities.

3.1 Inspection

The survey was conducted floor-by-floor and room-by-room, where accessible, of all ACMs identified in the data of the previous Asbestos Reassessment (InAIR, 2015). Detailed observations made during the current survey were recorded on a data table found in Appendix I. Locations of the ACM are identified in the attached floor plans, also found in Appendix I. The following observations were recorded at each existing ACM location:

- Presence of previously identified ACM
- Identification of suspect ACM
- Condition of ACM (good, fair or poor)
- Accessibility of ACM

Destructive testing was not included in the investigation. However, it is recommended prior to any major renovation or demolition that a Designated Substance Survey be performed to verify that the materials that are likely to be disturbed during the renovation or demolition are non-asbestos containing.

Due to the nature of building construction, some inherent limitations exist as to the possible thoroughness of the asbestos survey. The survey did not include the demolition of floors, floor finishes, plaster ceilings or walls or other areas to examine concealed conditions. No confined space was accessed for the purposes of this report.

It is possible that the ACM's mentioned in this report are also present in non-accessed areas and concealed spaces (i.e., wall and ceiling cavities), or confined spaces. No other areas outside the defined work boundaries have been assessed.

Finally, ACM's were ranked on a basis for the need of removal/repair/surveillance of the ACM's in accordance with the action levels established in Appendix A of the Asbestos Operations and Management Manual.

Protective measures were employed to minimize the potential for generating asbestos dust during inspection and sampling. When bulk sampling was necessary, all semi-destructive sampling locations were repaired as necessary and every attempt was made where possible to select locations in lower occupancy areas and after normal working hours.

3.2 Evaluation of ACM

This section summarizes the criteria utilized in evaluating the current ACM based on condition and accessibility

3.2.1 Assessment of Condition

Spray Applied Fireproofing, Insulation and Texture Finishes

The following criteria are used to evaluate the condition of ACM spray applied as fireproofing, thermal insulation or texture, decorative or acoustic finishes.

GOOD — Surface of material shows no significant signs of damage, deterioration or delamination. Up to 1 percent visible damage to surface is allowed within range of **GOOD**. Evaluation of sprayed fireproofing requires the surveyor to be familiar with the irregular surface texture typical of sprayed asbestos products. **GOOD** condition includes unencapsulated or unpainted fireproofing or texture finishes, where no delamination or damage is observed, and encapsulated fireproofing or texture finishes where the encapsulation has been applied after the damage or fallout occurred.

POOR — Sprayed materials show signs of damage, delamination or deterioration. More than one percent damage to surface of ACM spray.

A 'Fair' condition is not utilized or considered as a valid criterion in the evaluation of sprayed fireproofing, sprayed insulation, or texture coat finishes.

The evaluation of ACM spray applied as fireproofing, non-mechanical thermal insulation, or texture, decorative or acoustic finishes which are present above ceilings, may be limited by the number of observations made, and by building components such as ducts or full height walls that obstruct the above ceiling observations. Persons entering the ceiling area are advised to be watchful for ACM DEBRIS prior to accessing or working above ceilings in areas of buildings with ACM, regardless of the reported condition.

Mechanical Insulation

The following criteria are used to evaluate the condition of mechanical insulation (on boilers, breeching ductwork, piping, tanks etc.)

GOOD — Insulation is completely covered in jacketing and exhibits no evidence of damage or deterioration. No insulation is exposed. Includes conditions where the jacketing has minor surface damage (i.e., scuffs or stains), but the jacketing is not penetrated.

FAIR — Minor penetrating damage to jacketed insulation (cuts, tears, nicks, deterioration or delamination) or undamaged insulation that has never been jacketed. Insulation is exposed but not showing surface disintegration. The extent of missing insulation ranges should be minor to none.

POOR — Original insulation jacket is missing, damaged, deteriorated or delaminated. Insulation is exposed and significant areas have been dislodged. Damage cannot be readily repaired.

The evaluation of mechanical insulation may be limited by the number of observations made and building components such as ducts or full height walls that obstruct observations. In these circumstances, it is not possible to observe each meter of mechanical insulation from all angles.

Non-Friable and Potentially Friable Materials

Non-friable materials generally have little potential to release airborne fibres, even when damaged by mechanical breakage. However, some non-friable materials (such as exterior asbestos cement products) may have deteriorated so that the binder no longer effectively contains the asbestos fibres. In such cases of significantly deteriorated non-friable material, the material will be treated as a friable product.

3.2.2 Evaluation of Accessibility

The following criteria are used to evaluate the accessibility of known or suspected ACM:

ACCESSIBLE — Areas of the building within reach from floor level of all building users. Includes areas such as gymnasiums, workshops and storage areas where activities of the building users may result in disturbance of ACM not normally within reach from floor level.

Frequently entered maintenance areas within reach of maintenance staff, without the need for a ladder. Includes pipes chases, tunnels and service areas or areas within reach from a fixed ladder or catwalk.

MODERATELY ACCESSIBLE

Areas of the building above 8 ft where the use of a ladder is required to reach ACM materials that are exposed to view from floor or ladder without removing or opening other building components such as ceiling tiles, or service access doors or hatches. Does not include infrequently accessed service areas of the building.

Areas of the building which require the removal of a building component, including lay-in ceilings and access panels into solid ceiling systems. Includes rarely entered crawlspaces, attic spaces etc. Observations are limited to the extent visible from the access points.

INACCESSIBLE

Areas of the building behind inaccessible solid ceiling systems, walls, or mechanical equipment, etc, where demolition of the ceiling, wall or equipment is required to reach the ACM. Evaluation of the condition and extent of ACM is limited or impossible, depending on the surveyor's ability to visually examine the materials which are inaccessible.

Debris from Damaged Non-Friable ACM

The presence of fallen ACM, from damaged non-friable ACM, is reported separately from the non-friable ACM source. Only fallen non-friable ACM that has become friable is reported as DEBRIS.

3.2.3 Action Matrix

Friable ACM

ACCESS	CONDITION			DEBRIS
	GOOD	FAIR	POOR	
ACCESSIBLE	ACTION 5/7[1] ACTION 7	ACTION 5/6[2] ACTION 6/5[3]	ACTION 3	ACTION 1
MODERATELY ACCESSIBLE	ACTION 7	ACTION 6 ACTION 7	ACTION 4	ACTION 2
INACCESSIBLE	ACTION 7	ACTION 7	ACTION 7	ACTION 7

[1] If material in **ACCESSIBLE/GOOD** condition is not removed **ACTION 7** is required.
[2] If material in **ACCESSIBLE/FAIR** condition is not removed **ACTION 6** is required.
[3] Remove ACM in **ACCESSIBLE/FAIR** condition if ACM is likely to be disturbed.

ACTION 1 - Immediate Clean-Up of DEBRIS that is Likely to Be Disturbed
Restrict access that is likely to cause a disturbance of the ACM **DEBRIS** and clean up ACM **DEBRIS** immediately. Utilize correct asbestos procedures. This action is required for compliance with regulatory requirements. The surveyor should immediately notify the Occupational Health and Safety Coordinator of this condition.

ACTION 2 - Type 2 Precautions for Entry into Areas with ACM DEBRIS
At locations where ACM **DEBRIS** can be isolated in lieu of removal or cleaned up, use appropriate means to limit entry to the area. Restrict access to the area to persons utilizing Type 2 asbestos precautions. The precautions will be required until the ACM **DEBRIS** has been cleaned up, and the source of the **DEBRIS** has been stabilized or removed.

ACTION 3 - ACM Removal Required for Compliance
Remove ACM for compliance with regulatory requirements. Utilize asbestos procedures appropriate to the scope of the removal work.

ACTION 4 - Type 2 Precautions for Access into Areas Where ACM is Present and Likely to be Disturbed by Access
Use Type 2 asbestos precautions when entry or access into an area is likely to disturb the ACM. **ACTION 4** must be used until the ACM is removed (Use ACTION 1 or 2 if **DEBRIS** is present).

ACTION 5 - Proactive ACM Removal
Remove ACM in lieu of repair, or at locations where the presence of asbestos in **GOOD** condition is not desirable.

ACTION 6 - ACM Repair
Repair ACM found in **FAIR** condition, and not likely to be damaged again or disturbed by normal use of the area or room. Upon completion of the repair work treat ACM as material in **GOOD** condition and implement **ACTION 7**. If ACM is likely to be damaged or disturbed, during normal use of the area or room, implement **ACTION 5**.

ACTION 7 - Routine Surveillance
Institute routine surveillance of the ACM. Trained workers or contractors must use appropriate asbestos precautions (Type 1, Type 2 or Type 3) during disturbance of the remaining ACM.

3.3 Bulk Sampling

During the reassessment by InAIR of Building B, one (1) bulk sample was collected of Brown Air Cell Insulation for laboratory analyses. This material had not been sampled as part of InAIR's 2015 asbestos reassessment.

All suspect asbestos containing materials collected by InAIR were sent under a Chain-of-Custody form to EMSL Canada Inc. (EMSL) located in Ottawa, Ontario for analysis using Polarized Light Microscopy (PLM) with dispersion staining. The analytical method follows the United States Environmental Protection Agency (US EPA) Method 600 (R-93/116 and M4-82-020) for the determination of asbestos in bulk materials. EMSL is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP) to perform asbestos analysis of bulk samples.

4. Results

The survey reassessed all the areas that included ACM's outlined in the previous (2015) asbestos InAIR survey. Any additional suspect asbestos containing materials not previously identified which were located during the survey were sampled and sent under a chain-of-custody form for laboratory analysis by Polarized Light Microscopy (PLM). One (1) bulk sample of pipe insulation was collected for laboratory analysis. The laboratory results indicated that the collected sample did not contain asbestos.

4.1 Survey Reassessment Results

ACM sample locations are detailed on floor plans found in Appendix I at the end of the survey report.

All ACM locations, amounts and condition are outlined in Table 1 in Appendix I at the end of the survey report.

Suspect ACM sample laboratory results can be found in Appendix I at the end of the survey report.

Basement

The basement of Building B on the Woodroffe Campus of Algonquin College mainly consists of storage areas. All asbestos containing materials on the basement floor of Building B on the Woodroffe Campus of Algonquin College have been removed.

Floor One

The first floor of Building B on the Woodroffe Campus of Algonquin College mainly consists of offices, classrooms, and a cafeteria.

Suspect asbestos containing materials located on the first floor of Building B include: tar, ceiling stipple, pipe insulation, vinyl floor tile (red, grey, and orange), pipe fittings, and mastic.

Table 1 outlines the suspect asbestos containing materials that were located and found by laboratory analyses to be asbestos containing. Laboratory analyses of these building materials found asbestos content above the Ontario Ministry of Labour standard of 0.5% asbestos content by weight.

Table 1. Asbestos Containing Building Materials Found on the First Floor of Algonquin College Building B, Woodroffe Campus, Ottawa, Ontario. (August 2017)

Location ID	Location Description	Building Material	Condition	Accessibility
WB100CC7	Corridor B112A - B115D	Tar on Duct Insulation	Good	Inaccessible
WB100CC8	Hallway Outside WB119	Ceiling Stipple	Good	Moderately Accessible
WB100CC9	Corridor B122A - B125D	Tar on Duct Insulation	Good	Inaccessible
WB100CC9	Corridor B122A - B125D	Ceiling Stipple	Good	Moderately Accessible
WB100CC9	Corridor B122A - B125D	Ceiling Stipple	Good	Moderately Accessible
WB100CC10	Corridor B112A - B115D	Tar on Duct Insulation	Good	Inaccessible
WB100CC11	Corridor B134A - B137D	Tar on Duct Insulation	Good	Inaccessible

Location ID	Location Description	Building Material	Condition	Accessibility
WB100CC13	Corridor B144A - B147D	Tar on Duct Insulation	Good	Inaccessible
WB100CC14	Hallway between B132 and B163	Pipe Insulation	Good	Inaccessible
WB100ROTUNDA	Stage/Sitting Area	Red Vinyl Floor Tile	Good	Accessible
WB101	Janitor's Closet	Grey Vinyl Floor Tile	Good	Accessible
WB112A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB112B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB112C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB112D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB113	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB114S	Office	Grey Vinyl Floor Tile	Good	Accessible
WB115A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB115B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB115C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB115D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB116	Storage	Grey Vinyl Floor Tile	Fair	Accessible
WB117	Office	Pipe Fittings	Removed	
WB117	Office	Pipe Fittings	Removed	
WB117	Office	Pipe Fittings	Removed	
WB118	Washroom	Tar on Duct Insulation	Good	Inaccessible
WB119	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB122A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB122B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB122C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB122D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB124S	Office	Orange Vinyl Floor Tile	Good	Accessible
WB125A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB125B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB125C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB125D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB126	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB130	Classroom	Silver Pipe Insulation	Removed	
WB131	Women's Washroom	Tar on Duct Insulation	Good	Inaccessible
WB132	Classroom	Pipe Insulation	Removed	
WB132	Classroom	Vinyl Floor Tile	Good	Accessible
WB133	Office	Floor Tile	Good	Accessible
WB133	Office	Floor Tile	Good	Accessible
WB134A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB134B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB134C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB134D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB135	IT Room	Vinyl Floor Tile	Fair	Accessible
WB135	IT Room	Mastic	Good	Accessible
WB136s	Office	Orange Vinyl Floor Tile	Good	Accessible
WB137A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB137B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB137C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB137D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB138	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB139	Office	Grey Vinyl Floor Tile	Good	Accessible
WB139A	Office	Grey Vinyl Floor Tile	Good	Accessible

Location ID	Location Description	Building Material	Condition	Accessibility
WB142	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB143	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB144A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB144B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB144C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB144D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB145	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB146s	Office	Orange Vinyl Floor Tile	Good	Accessible
WB147A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB147B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB147C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB147D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB148	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB152	Classroom	Grey Pipe Elbow	Poor	Accessible
WB152	Classroom	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB163	Food Service Supplies Storage	Grey Vinyl Floor Tile	Good	Accessible
WB164	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB165	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB166	Electrical Room	Grey Vinyl Floor Tile	Good	Accessible
WB166	Classroom	Vinyl Floor Tile	Good	Accessible
WB167	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB168	IT Closet	Grey Vinyl Floor Tile	Good	Accessible
WB170A	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB181	IT Closet	Grey Vinyl Floor Tile	Good	Accessible
WB181	IT Closet	Tar on Duct Insulation	Good	Inaccessible
WB187	IT Closet	Grey Vinyl Floor Tile	Good	Accessible

According to governmental regulation, the building materials outlined in Table 1 are considered asbestos containing. All applicable governmental regulations regarding the abatement and disposal of the asbestos containing material should be followed.

Floor Two

The second floor of Building B on the Woodroffe Campus of Algonquin College mainly consists of offices and classrooms.

Suspect asbestos containing materials located on the second floor of Building B include: tar, vinyl floor tile (green and grey), and drywall joint compound.

Table 2 outlines the suspect asbestos containing materials that were located and found by laboratory analyses to be asbestos containing. Laboratory analyses of these building materials found asbestos content above the Ontario Ministry of Labour standard of 0.5% asbestos content by weight.

Table 2. Asbestos Containing Building Materials Found on the Second Floor of Algonquin College Building B, Woodroffe Campus, Ottawa, Ontario. (August 2017)

Location ID	Location Description	Building Material	Condition	Accessibility
WB200CC1	Hallway between WB251 to WB267	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB200CC4	Hallway between WB268 to WB280	Green Vinyl Floor Tile	Good	Accessible
WB200CC4	Hallway between WB268 to WB280	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB200CC7	Hallway between WB202 to WB291	Green Vinyl Floor Tile	Good	Accessible
WB200CC8	Corridor between B212A & B215D	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB200CC8	Corridor between B212A & B215D	Green Vinyl Floor Tile	Good	Accessible
WB200CC10	Corridor between B222A & B225D	Green Vinyl Floor Tile	Good	Accessible
WB200CC10	Corridor between B222A & B225D	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB200CC12	Corridor between B234A & B237D	Green Vinyl Floor Tile	Good	Accessible
WB200CC12	Corridor between B234A & B237D	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB200CC14	Corridor between B251 & B245	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB210D	Office	Green Vinyl Floor Tile	Good	Accessible
WB212A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB212B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB212C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB212D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB213	IT Room	Grey Vinyl Floor Tile	Good	Accessible
WB214S	Office	Grey Vinyl Floor Tile	Good	Accessible
WB215A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB215B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB215C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB215D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB216	Storage	Floor Tile	Good	Accessible
WB218	Men's Washroom	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB220	Office	Grey Vinyl Floor Tile	Good	Accessible
WB221	Office	Grey Vinyl Floor Tile	Good	Accessible
WB222A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB222B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB222C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB222D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB223	IT Room	Floor Tile	Good	Accessible
WB224S	Office	Green Vinyl Floor Tile	Good	Accessible
WB225A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB225B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB225C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB225D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB226	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB227	Office	Grey Vinyl Floor Tile	Good	Accessible
WB231	Women's Washroom	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB232	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB233	Office	Floor Tile	Good	Accessible
WB234A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB234B	Office	Grey Vinyl Floor Tile	Good	Accessible

Location ID	Location Description	Building Material	Condition	Accessibility
WB234C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB234D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB235	IT Room	Grey Vinyl Floor Tile	Good	Accessible
WB236S	Office	Green Vinyl Floor Tile	Good	Accessible
WB237A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB237B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB237C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB237D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB238	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB243	Office	Grey Vinyl Floor Tile	Good	Accessible
WB244A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB244B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB244C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB244D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB245	IT Room	Grey Vinyl Floor Tile	Good	Accessible
WB246S	Office	Green Vinyl Floor Tile	Good	Accessible
WB247A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB247B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB247C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB247D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB248	IT Room	Grey Vinyl Floor Tile	Good	Accessible
WB249	Office	Grey Vinyl Floor Tile	Good	Accessible
WB250	Janitor's Closet	Grey Vinyl Floor Tile	Good	Accessible
WB253	Classroom	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB253	Classroom	Silver Pipe Elbow	Good	Inaccessible
WB253	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB255	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB255A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB257	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB257	Classroom	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB261	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB261A	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB262	Janitorial/Storage	Grey Vinyl Floor Tile	Good	Accessible
WB267	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB289	Classroom	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB292	Storage	Drywall Joint Compound	Good	Accessible

According to governmental regulation, the building materials outlined in Table 2 are considered asbestos containing. All applicable governmental regulations regarding the abatement and disposal of the asbestos containing materials should be followed.

Floor Three

The third floor of Building B on the Woodroffe Campus of Algonquin College mainly consists of offices and classrooms.

Suspect asbestos containing materials located on the third floor of Building B include: vinyl floor tile (red/orange, grey, and white/grey), pipe elbows, and tar.

Table 3 outlines the suspect asbestos containing materials that were located and found by laboratory analyses to be asbestos containing. Laboratory analyses of these building materials found asbestos content above the Ontario Ministry of Labour standard of 0.5% asbestos content by weight.

Table 3. Asbestos Containing Building Materials Found on the Third Floor of Algonquin College Building B, Woodroffe Campus, Ottawa, Ontario. (August 2017)

Location ID	Location Description	Building Material	Condition	Accessibility
WB300CC1	WB351cc-WB357cc	Red/Orange Vinyl Floor Tile	Good	Accessible
WB300CC2	Hallway behind WB370	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB300CC3	Hallway behind WB383	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB300CC4	WB366cc-WB302cc	Red/Orange Vinyl Floor Tile	Good	Accessible
WB300CC5	WB366cc-WB302cc	Red/Orange Vinyl Floor Tile	Good	Accessible
WB300CC6	WB312-WB215	Red/Orange Vinyl Floor Tile	Good	Accessible
WB300CC8	WB322-WB325	Red/Orange Vinyl Floor Tile	Good	Accessible
WB300CC10	WB334-WB337	Red/Orange Vinyl Floor Tile	Good	Accessible
WB300CC12	WB344-WB347	Red/Orange Vinyl Floor Tile	Good	Accessible
WB300CC13	WB362-WB266	Red/Orange Vinyl Floor Tile	Good	Accessible
WB301	Janitor's Closet	Silver Pipe Elbow	Good	Inaccessible
WB302	Office	Black/Yellow Tar on Duct Insulation	Fair	Inaccessible
WB302	Office	Grey Vinyl Floor Tile	Good	Accessible
WB302A	Office	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB302A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB312B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB312C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB312D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB313	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB314S	Office	Red/Orange Vinyl Floor Tile	Good	Accessible
WB315A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB315B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB315C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB315D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB316	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB319	Classroom	Grey Vinyl Floor Tile	Fair	Accessible
WB320	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB322B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB322C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB322D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB323	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB324S	Office	Red/Orange Vinyl Floor Tile	Good	Accessible
WB325A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB325B	Office	Grey Vinyl Floor Tile	Good	Accessible

Location ID	Location Description	Building Material	Condition	Accessibility
WB325C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB325D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB326	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB327	Classroom	White/Grey Floor Tile	Good	Accessible
WB330	Classroom	Silver Pipe Elbow	Good	Inaccessible
WB332	Classroom	Silver Pipe Elbow	Fair	Inaccessible
WB333	Office	Silver Pipe Elbow	Fair	Inaccessible
WB334A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB334B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB334C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB334D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB337A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB337B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB337C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB337D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB338	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB339	Office	White/Grey Floor Tile	Good	Accessible
WB341	Washroom	Black/Yellow Tar on Duct Insulation	Fair	Inaccessible
WB342	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB343	Office	White/Grey Floor Tile	Good	Accessible
WB344A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB344B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB344C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB344D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB345	IT Room	Grey Vinyl Floor Tile	Fair	Accessible
WB346S	Office	Red/Orange Vinyl Floor Tile	Good	Accessible
WB347A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB347B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB347C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB347D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB349	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB351	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB351A	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB353	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB353A	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB353A	Storage	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB355	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB357	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB357	Classroom	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB357A	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB357A	Storage	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB357B	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB357B	Storage	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB362	Electrical Room	White/Grey Floor Tile	Good	Accessible
WB362	Electrical Room	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB364	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB365	Computer Lab	White/Grey Floor Tile	Good	Accessible
WB366	Computer Lab	White/Grey Floor Tile	Good	Accessible
WB371	Common Area	Red/Orange Vinyl Floor Tile	Good	Accessible
WB372	Common Area	Red/Orange Vinyl Floor Tile	Good	Accessible

Location ID	Location Description	Building Material	Condition	Accessibility
WB373	Computer Lab	Red/Orange Vinyl Floor Tile	Good	Accessible
WB373	Computer Lab	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB373A	Computer Lab	Red/Orange Vinyl Floor Tile	Good	Accessible
WB373A	Computer Lab	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB373B	Computer Lab	Red/Orange Vinyl Floor Tile	Good	Accessible
WB373B	Computer Lab	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB374	Office	Red/Orange Vinyl Floor Tile	Good	Accessible
WB380	IT Room	Grey Vinyl Floor Tile	Good	Accessible
WB384A	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB384B	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB386	Electrical	Grey Vinyl Floor Tile	Fair	Accessible
WB387	Storage	Grey Vinyl Floor Tile	Good	Accessible

According to governmental regulation, the building materials outlined in Table 3 are considered asbestos containing. All applicable governmental regulations regarding the abatement and disposal of the asbestos containing materials should be followed.

Floor Four

The fourth floor of Building B on the Woodroffe Campus of Algonquin College mainly consists of offices and classrooms.

Suspect asbestos containing materials located on the fourth floor of Building B include: pipe insulation, ceiling stucco, ceiling tile, drywall joint compound, various baseboards and mastic, and various vinyl floor tiles and mastic.

Table 4 outlines the suspect asbestos containing materials that were located and found by laboratory analyses to be asbestos containing. Laboratory analyses of these building materials found asbestos content above the Ontario Ministry of Labour standard of 0.5% asbestos content by weight.

Table 4. Asbestos Containing Building Materials Found on the Fourth Floor of Algonquin College Building B, Woodroffe Campus, Ottawa, Ontario. (August 2017)

Location ID	Location Description	Building Material	Condition	Accessibility
WB400CC1	Hallway	Cream/White Ceiling Stipple	Good	Moderately Accessible
WB400CC2	Hallway	Cream/White Ceiling Stipple	Good	Moderately Accessible
WB400CC2	Hallway	Green Vinyl Floor Tile	Good	Accessible
WB400CC4	Hallway	Cream/White Ceiling Stipple	Good	Moderately Accessible
WB400CC4	Hallway	Green Vinyl Floor Tile	Good	Accessible
WB400CC6	Hallway	Cream/White Ceiling Stipple	Good	Moderately Accessible
WB400CC6	Hallway	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB400CC7	Hallway	Cream/White Ceiling Stipple	Good	Moderately Accessible
WB400CC7	Hallway	Black/Yellow Tar on Duct Insulation	Good	Inaccessible

Location ID	Location Description	Building Material	Condition	Accessibility
WB400CC8	Hallway	Green Vinyl Floor Tile	Good	Accessible
WB400CC9	Hallway	Cream/White Ceiling Stipple	Good	Moderately Accessible
WB400CC9	Hallway	Green Vinyl Floor Tile	Good	Accessible
WB400CC10	Hallway	Cream/White Ceiling Stipple	Good	Moderately Accessible
WB400CC10	Hallway	Green Vinyl Floor Tile	Good	Accessible
WB401	Janitor's Closet	Grey Vinyl Floor Tile	Good	Accessible
WB402	Boardroom	Grey Vinyl Floor Tile	Good	Accessible
WB410	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB411	Office	Grey Vinyl Floor Tile	Good	Accessible
WB411	Office	Silver Pipe Elbow	Good	Inaccessible
WB412A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB412B	B412B office & halls	Grey Vinyl Floor Tile	Good	Accessible
WB412C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB412D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB413	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB414S	Office	Grey Vinyl Floor Tile	Good	Accessible
WB414S	Office	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB415A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB415B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB415C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB415D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB417	Office	Grey Vinyl Floor Tile	Good	Accessible
WB417	Office	Silver Pipe Elbow	Good	Inaccessible
WB419	Office	Grey Vinyl Floor Tile	Good	Accessible
WB419	Office	Silver Pipe Elbow	Good	Inaccessible
WB420A	Meeting Room	Black/Yellow Tar on Duct Insulation	Good	Inaccessible
WB420B	Meeting Room	Grey Vinyl Floor Tile	Good	Accessible
WB420C	IT Room	Green Vinyl Floor Tile	Good	Accessible
WB421	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB422	Office	Grey Vinyl Floor Tile	Good	Accessible
WB423A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB423B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB423C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB423D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB424	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB425S	Office	Grey Vinyl Floor Tile	Good	Accessible
WB426A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB426B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB426C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB426D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB427	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB430	Classroom	Silver Pipe Elbow	Good	Inaccessible
WB432	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB433	Office	Grey Vinyl Floor Tile	Good	Accessible
WB434A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB434B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB434C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB434D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB435	IT Room	Floor Tile	Good	Accessible
WB436	Storage	Grey Vinyl Floor Tile	Good	Accessible

Location ID	Location Description	Building Material	Condition	Accessibility
WB437A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB437B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB437C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB437D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB438	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB439	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB439	Classroom	Silver Pipe Elbow	Good	Inaccessible
WB439X	Office	Grey Vinyl Floor Tile	Good	Accessible
WB439X	Office	Cream/White Ceiling Stipple	Good	Moderately Accessible
WB439X	Office	Green Vinyl Floor Tile	Good	Accessible
WB440	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB441	Men's Washroom	Cream/White Ceiling Stipple	Good	Moderately Accessible
WB442	Office	Grey Vinyl Floor Tile	Good	Accessible
WB443	Office	Grey Vinyl Floor Tile	Good	Accessible
WB443B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB444A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB444B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB444C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB444D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB445	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB446	Office	Cream/White Ceiling Stipple	Good	Moderately Accessible
WB446S	Office	Green Vinyl Floor Tile	Good	Accessible
WB447A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB447B	Office	Grey Vinyl Floor Tile	Good	Accessible
WB447C	Office	Grey Vinyl Floor Tile	Good	Accessible
WB447D	Office	Grey Vinyl Floor Tile	Good	Accessible
WB448	Storage	Grey Vinyl Floor Tile	Good	Accessible
WB449	IT Room	Grey Vinyl Floor Tile	Good	Accessible
WB449A	Office	Grey Vinyl Floor Tile	Good	Accessible
WB455	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB457	Classroom	Grey Vinyl Floor Tile	Good	Accessible
WB457A	Small Transition Room	Grey Vinyl Floor Tile	Good	Accessible
WB457B	Small Transition Room	Grey Vinyl Floor Tile	Good	Accessible

According to governmental regulations, the building materials outlined in Table 4 are considered asbestos containing. All applicable governmental regulations regarding the abatement and disposal of the asbestos containing materials should be followed.

4.2 ACM's in FAIR and Poor Condition

In accordance with the Asbestos Operations and Management Plan, ACM's in locations listed on Table 5 that have been assessed as being in 'fair' or 'poor' condition should be removed, repaired or encapsulated. The removal shall be conducted in accordance with all applicable governmental regulations governing asbestos abatement.

Table 5. ACMs in "Fair" and "Poor" Condition – Building B, Woodroffe Campus (August 2017**)**

Floor	Location ID	Location Description	Material Qty @ Location	Building Material	Asbestos Type	Content %	Condition	Accessibility	Action
1	WB116	Storage	5 m^2	Grey Vinyl Floor Tile	Chrysotile	8%	Fair	Accessible	ACTION 5/6[2] ACTION 6/5[3]
1	WB135	IT Room	5 m^2	Vinyl Floor Tile	Chrysotile	8%	Fair	Accessible	ACTION 5/6[2] ACTION 6/5[3]
1	WB152	Classroom	8 Elbows	Grey Pipe Elbow	Chrysotile	80%	Poor	Inaccessible	ACTION 7
3	WB302	Office	5 m^2	Black/Yellow Tar on Duct Insulation	Chrysotile	2%	Fair	Inaccessible	ACTION 7
3	WB319	Classroom	6 Elbows	Silver Pipe Elbow Insulation	Chrysotile	80%	Poor	Inaccessible	ACTION 7
3	WB332 WB333	Office	4 Elbows	Silver Pipe Elbow Insulation	Chrysotile	80%	Fair	Inaccessible	ACTION 7
3	WB341	Washroom	1 m^2	Black/Yellow Tar on Duct Insulation	Chrysotile	2%	Fair	Inaccessible	ACTION 7
3	WB345	IT Room	5 m^2	Grey Floor Tile	Chrysotile	8%	Fair	Accessible	ACTION 5/6[2] ACTION 6/5[3]
3	WB386	Electrical	10 m^2	Grey Vinyl Floor Tile	Chrysotile	8%	Fair	Accessible	ACTION 5/6[2] ACTION 6/5[3]

5. Estimated Cost of Mitigation Measures

The following section describes materials, approximate quantity and associated estimated costs of removal for ACM locations assessed as fair and poor condition. Estimated costs do not include labour and materials for reinstallation. Table 6 summarizes the estimated cost of abatement at each location.

Table 6. Estimated Cost of Removal for ACM in "Fair" or "Poor" Condition – Building B, Woodroffe Campus

Location		ACM	Approx. Quantity	Recommended Action	Estimated Cost**
Floor	Room				
1	WB116	Grey Vinyl Floor Tile	5 m^2	ACTION 5/6[2] ACTION 6/5[3]	**$1,000**
	WB135	Vinyl Floor Tile	5 m^2	ACTION 5/6[2] ACTION 6/5[3]	**$1,000**
	WB152	Grey Pipe Elbow	8 Elbows	ACTION 7	**$3,000**
3	WB302	Black/Yellow Tar on Duct Insulation	5 m^2	ACTION 7	**$1,000**
	WB319	Silver Pipe Elbow Insulation	6 Elbows	ACTION 7	**$2,500**
	WB332 WB333	Silver Pipe Elbow Insulation	4 Elbows	ACTION 7	**$2,000**
	WB341	Black/Yellow Tar on Duct Insulation	1 m^2	ACTION 7	**$1,000**
	WB345	Grey Floor Tile	5 m^2	ACTION 5/6[2] ACTION 6/5[3]	**$1,000**
	WB386	Grey Vinyl Floor Tile	10 m^2	ACTION 5/6[2] ACTION 6/5[3]	**$1,500**
Total Estimated Cost**					**$14,000.00**

*Estimate in Canadian dollars as per October, 2017
** These prices do not include re-insulation. The prices for the abatement monitoring and the air sampling during and following the abatement are also not included.

InAIR Environmental Ltd.
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Report Conditions and Limitations

The findings contained in this report rely on data and information collected during the limited asbestos reassessment conducted by InAIR Environmental Ltd. in the subject building, and are based solely on-site conditions present at the time of our survey. The observations presented in this report are based on the specific areas assessed and hence the findings may not apply throughout the entire building.

Due to the nature of the survey and the limited data collected, the assessors cannot warrant against undiscovered environmental liabilities. Should additional information become available, InAIR Environmental Ltd. requests that this information be brought to our attention so that we may re-assess the conclusions and recommendations presented herein.

This report is intended for the sole use of Algonquin College and its authorized personnel. InAIR Environmental Ltd. accepts no responsibility for any unauthorized use of the information contained within this report by any third party.

We trust that the information presented in this report meets your current requirements. Should you have any questions or concerns regarding the report please do not hesitate to contact the undersigned.

InAIR Environmental Limited

Report prepared by:

Connor Algie, B.Eng.
Junior Environmental Engineer

Report reviewed by:

Donald M. Weekes, CIH, CSP
Partner

Appendix I

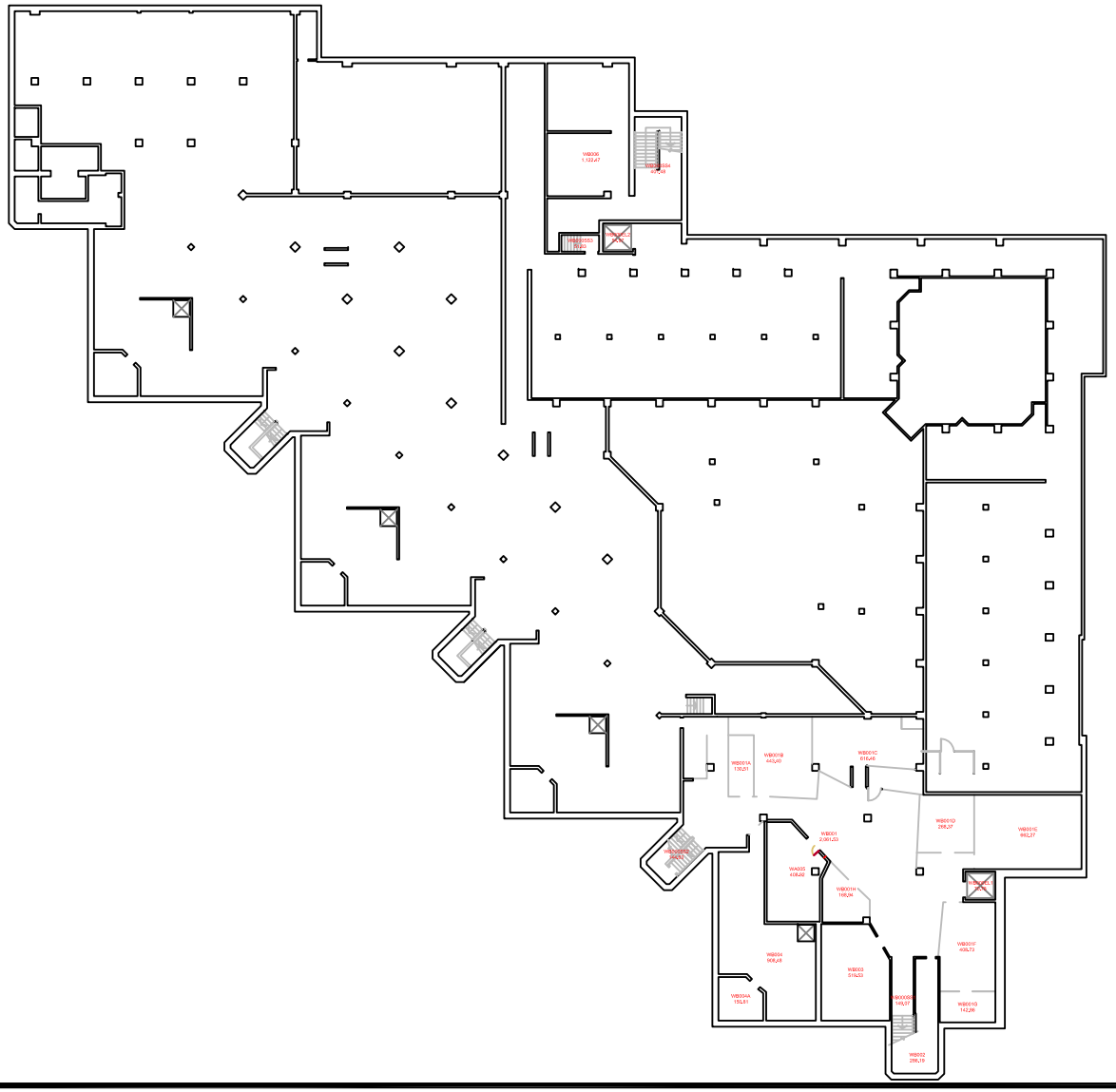
Floorplans
Laboratory Report (1)

ALGONQUIN COLLEGE

PHYSICAL RESOURCES DEPARTMENT
FACILITIES PLANNING & DEVELOPMENT
1385 WOODROFFE AVENUE | G-BUILDING | OTTAWA | ONTARIO | K2G | 1V8 TEL: 613-727-4728, EXT. 7710

BUILDING B - LOWER LEVEL FLOOR PLAN

NOT TO SCALE



Identified ACM Legend:

Positive for Asbestos (>0.5%)

VFT: Vinyle Floor Tile
DJC: Drywall Joint Compound

[1] Black Mastic
[2] Green VFT
[3] White VFT
[4] DJC
[5] Brown VFT
[6] Pipe Elbow Insulation
[7] Grey VFT
[8] Ceiling Tile
[9] Blue VFT
[10] Red VFT
[11] Chimney Parging

InAIR Environmental Ltd.

Project No.: 17c059
Drawn: CA
Date: 22/08/2017
Reviewed: DW

ALGONQUIN COLLEGE

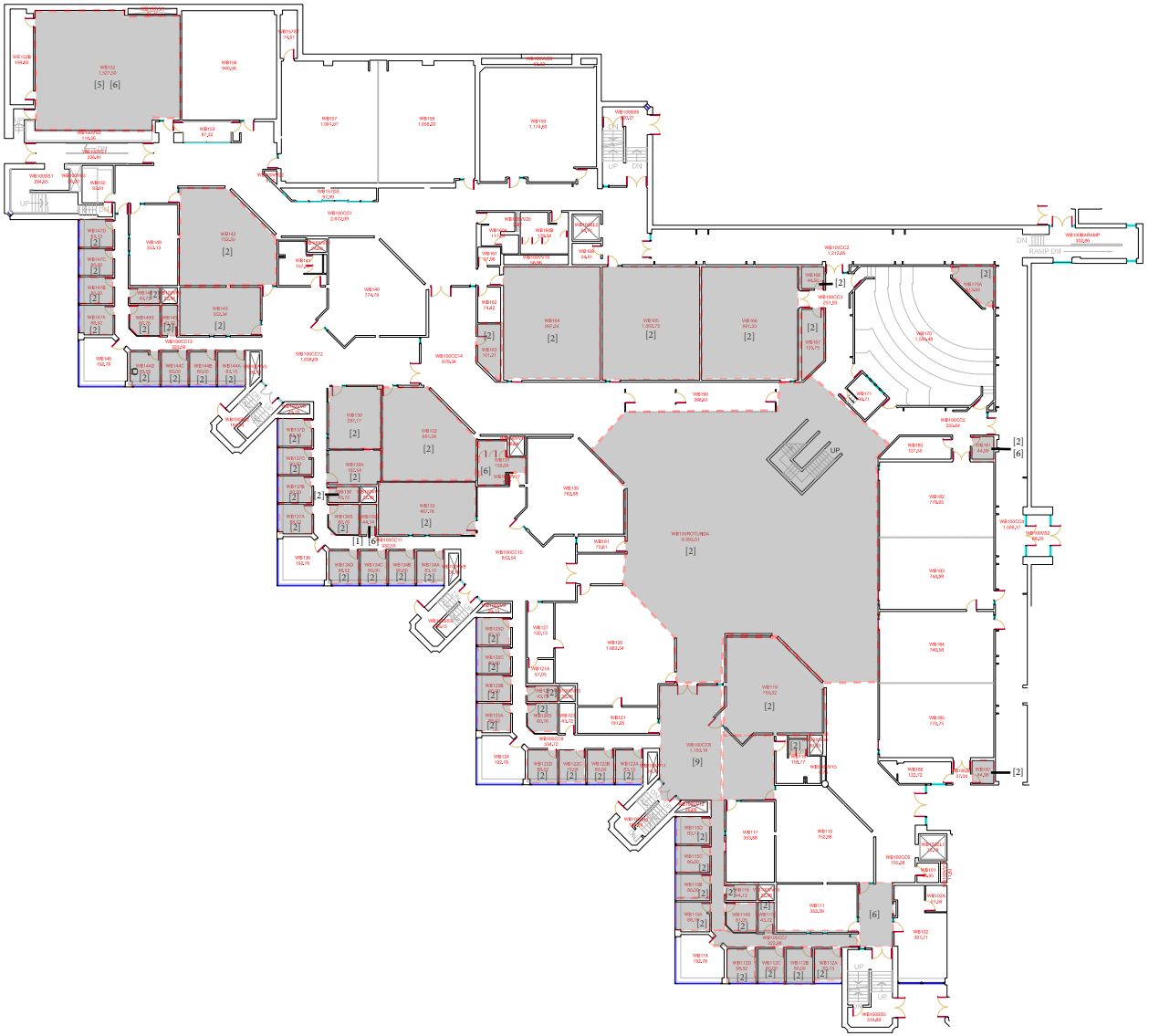
PHYSICAL RESOURCES DEPARTMENT

FACILITIES PLANNING & DEVELOPMENT

1385 WOODROFFE AVENUE | G-BUILDING | OTTAWA | ONTARIO | K2G | 1V8 TEL: 613-727-4728, EXT. 7710

BUILDING B - 1st. FLOOR PLAN

NOT TO SCALE



Identified ACM Legend:

Positive for Asbestos (>0.5%)

VFT: Vinyle Floor Tile
DJC: Drywall Joint Compound

[1] Mastic
[2] VFT
[3] DWJC
[4] Pipe Insulation
[5] Pipe Elbow Insulation
[6] Tar
[7] Ceiling Tile
[8] Parging
[9] Stipple

InAIR Environmental Ltd.

Project No.: 17c059
Drawn: CA

Date: 22/08/2017
Reviewed: DW

ALGONQUIN COLLEGE

PHYSICAL RESOURCES DEPARTMENT

FACILITIES PLANNING & DEVELOPMENT

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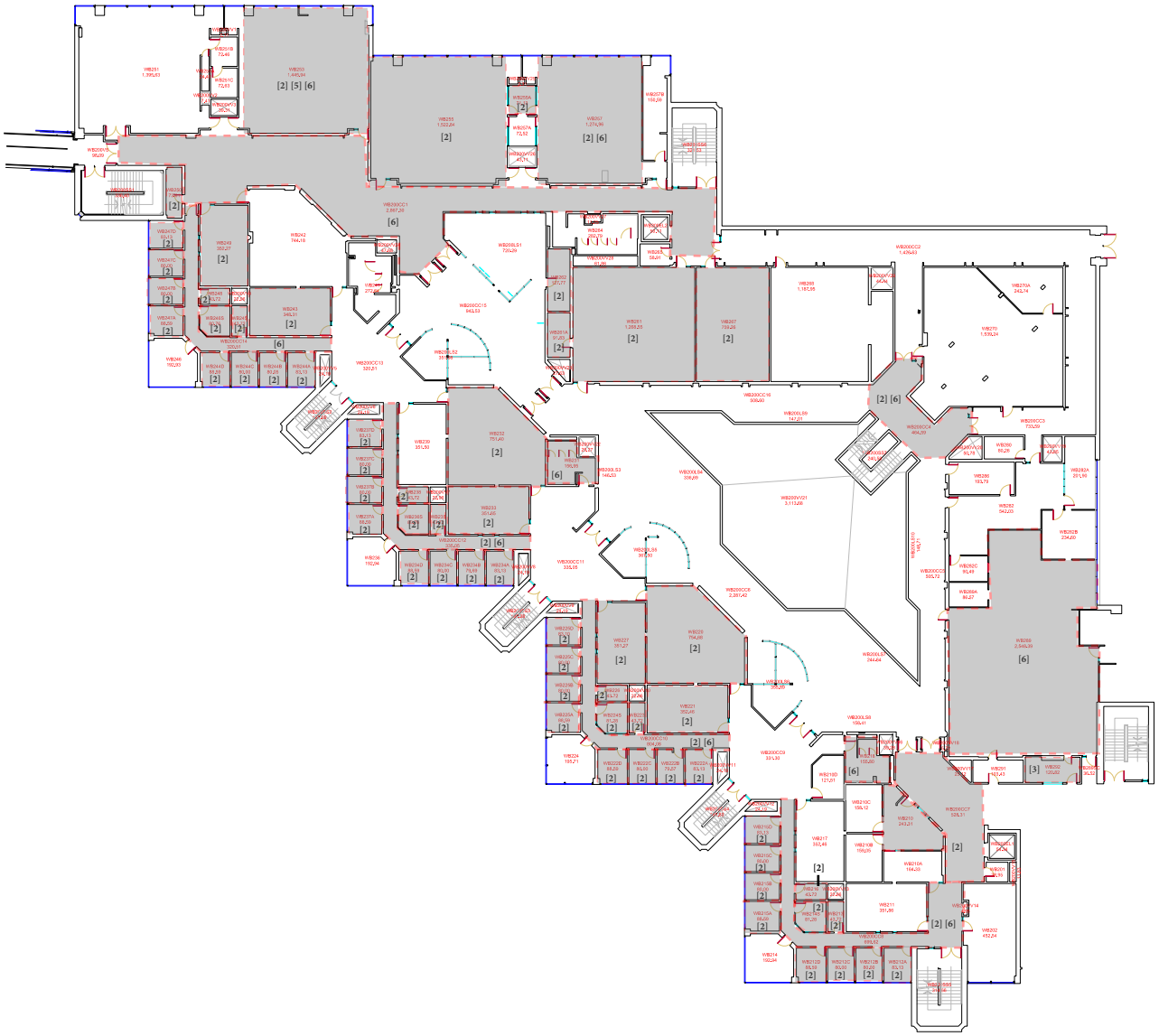
BUILDING B - 2nd. FLOOR PLAN

NOT TO SCALE



Identified ACM Legend:

Positive for Asbestos (>0.5%)

VFT: Vinyle Floor Tile
DJC: Drywall Joint Compound

[1] Mastic
[2] VFT
[3] DWJC
[4] Pipe Insulation
[5] Pipe Elbow Insulation
[6] Tar
[7] Ceiling Tile
[8] Parging
[9] Stipple

InAIR Environmental Ltd.

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Date: 22/08/2017
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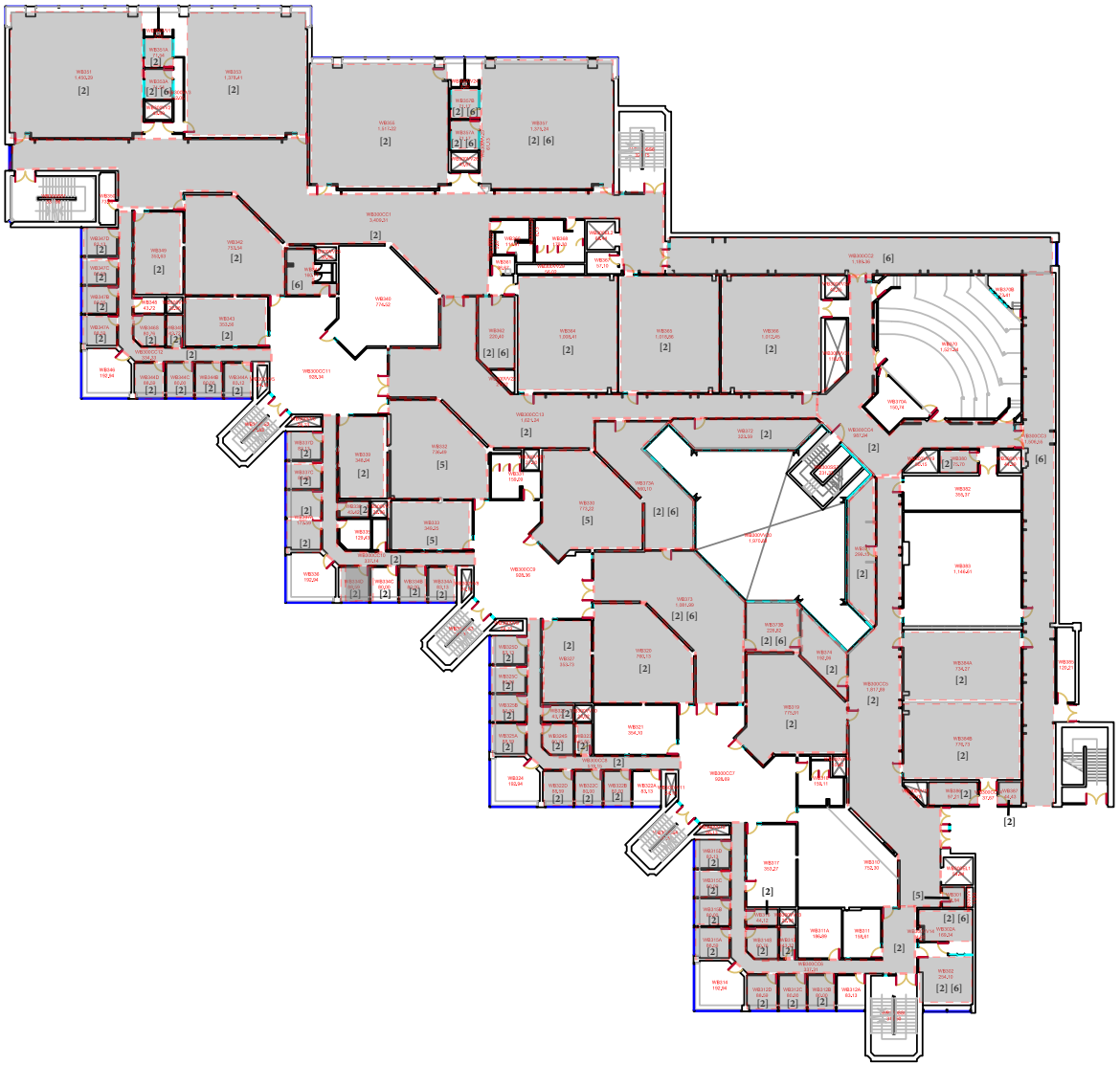
BUILDING B - 3rd. FLOOR PLAN

NOT TO SCALE



Identified ACM Legend:

Positive for Asbestos (>0.5%)

VFT: Vinyle Floor Tile
DJC: Drywall Joint Compound

[1] Mastic
[2] VFT
[3] DWJC
[4] Pipe Insulation
[5] Pipe Elbow Insulation
[6] Tar
[7] Ceiling Tile
[8] Parging
[9] Stipple

InAIR Environmental Ltd.

Project No.: 17c059
Drawn: CA
Date: 22/08/2017
Reviewed: DW

ALGONQUIN COLLEGE

PHYSICAL RESOURCES DEPARTMENT

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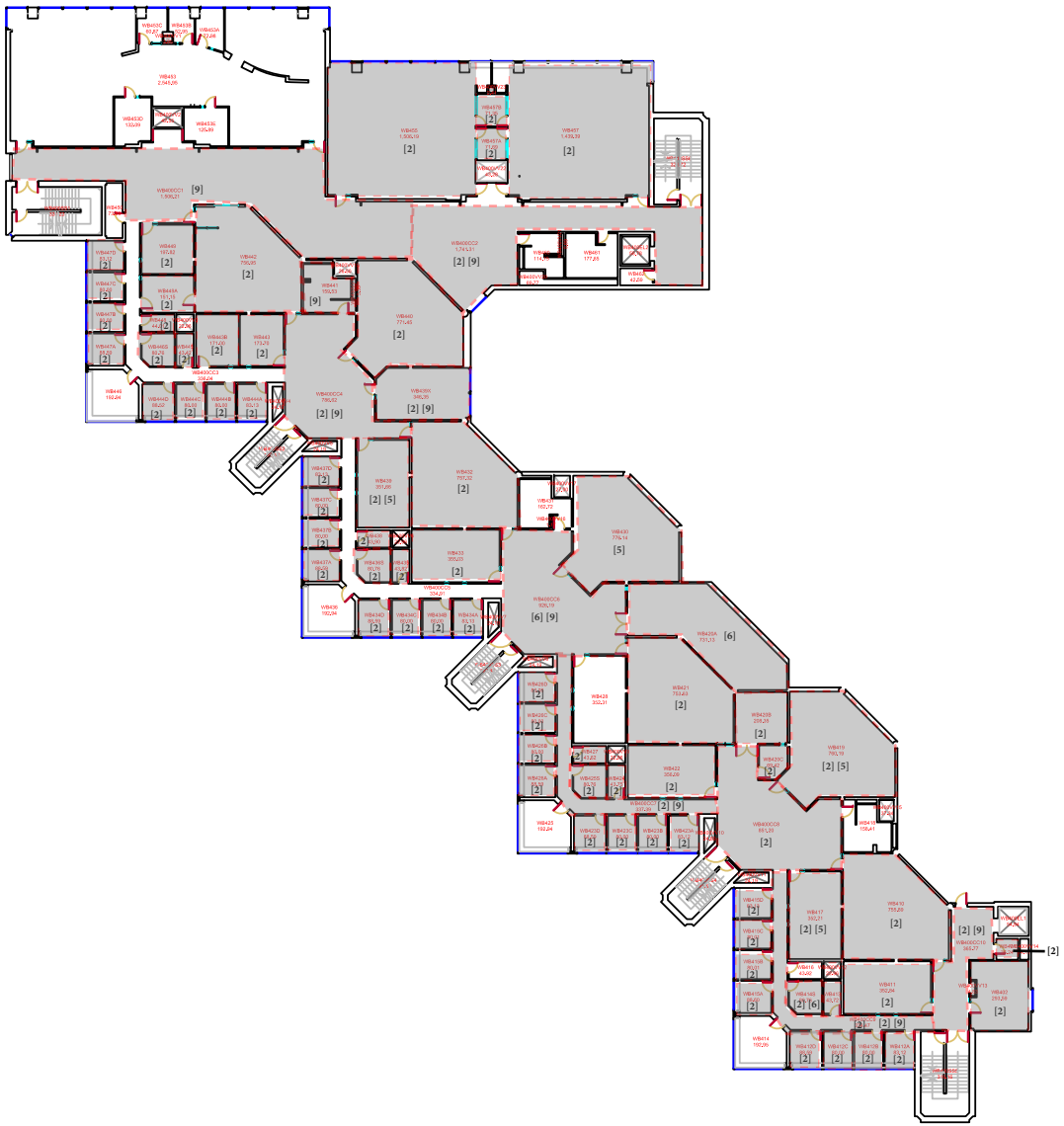
BUILDING B - 4th. FLOOR PLAN

NOT TO SCALE



Identified ACM Legend:

Positive for Asbestos (>0.5%)

VFT: Vinyle Floor Tile
DJC: Drywall Joint Compound

[1] Mastic
[2] VFT
[3] DWJC
[4] Pipe Insulation
[5] Pipe Elbow Insulation
[6] Tar
[7] Ceiling Tile
[8] Parging
[9] Stipple

InAIR Environmental Ltd.

Project No.: 17c059
Drawn: CA

Date: 22/08/2017
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Asbestos Condition Re-Assessment Report

October 2017

Algonquin College of Applied Arts and Technology
Building C
Woodroffe Campus
Nepean, Ontario

Prepared for:
Department of Physical Resources, Engineering Services
Algonquin College of Applied Arts and Technology
1385 Woodroffe Avenue
Nepean, Ontario
K2G 1V8

Table of Contents

1. Summary

InAIR Environmental Ltd. (InAIR) was retained by Department of Physical Resources, Engineering Services of Algonquin College to conduct an asbestos reassessment for Building C on the Woodroffe Campus of Algonquin College. This entailed a floor-by-floor and room-by-room survey, where accessible, of all areas in the building containing asbestos containing materials (ACM's) that were identified in a previous Asbestos Reassessment conducted in 2015 by InAIR. The survey also comprised of identifying and sampling suspect ACM that was not identified in the previous assessment by InAIR.

All ACM's found in the building were evaluated for their current condition. The findings of the evaluation are included in the Tables in this report.

2. Background

Building C on the Woodroffe Campus of Algonquin College consists of five (5) floors and a basement level.

InAIR conducted, where accessible, a floor-by-floor, room by room, survey of all areas in the building. The survey determined the condition of the existing ACM's, and verified all ACM that had been removed throughout the building since the 2015 InAIR reassessment survey. The 2015 survey also confirmed the accessibility of the ACM's by onsite personnel, including maintenance personnel, whom might come in contact with the materials.

3. Methodology

InAIR's Environmental Technician, Chantal Thompson, and Junior Environmental Technician, Cole Johnston, conducted the asbestos materials reassessment survey of Building C on the Woodroffe Campus of Algonquin College in June 2017 under the direction of InAIR Environmental's Certified Industrial Hygienist (CIH), Donald Weekes.

The initial asbestos survey for the Algonquin College Woodroffe campus under the new provincial regulations was conducted by InAIR in 2007. In order to continue to comply with the provisions of O. Reg 278/05 governing asbestos in buildings, Algonquin has requested that an update be performed with a reassessment of the ACM's' presence, condition and quantities.

3.1 Inspection

The survey was conducted floor-by-floor and room-by-room, where accessible, of all ACMs identified in the data of the previous Asbestos Survey (InAIR, 2015). The basement as well as floors one (1) and two (2) of Building C were not inspected due to ongoing construction on these floors. Detailed observations made during the current survey were recorded on a data table found in Appendix I. Locations of the ACM are identified in the attached floor plans, also found in Appendix I. The following observations were recorded at each existing ACM location:

- Presence of previously identified ACM
- Identification of suspect ACM
- Condition of ACM (good, fair or poor)
- Accessibility of ACM

Destructive testing was not included in the investigation. However, it is recommended prior to any major renovation or demolition that a Designated Substance Survey be performed to verify that the materials that are likely to be disturbed during the renovation or demolition are non-asbestos containing.

Due to the nature of building construction, some inherent limitations exist as to the possible thoroughness of the asbestos survey. The survey did not include the demolition of floors, floor finishes, plaster ceilings or walls or other areas to examine concealed conditions. No confined space was accessed for the purposes of this report.

It is possible that the ACM's mentioned in this report are also present in non-accessed areas and concealed spaces (i.e., wall and ceiling cavities), or confined spaces. No other areas outside the defined work boundaries have been assessed.

Finally, ACM's were ranked on a basis for the need of removal/repair/surveillance of the ACM's in accordance with the action levels established in Appendix A of the Asbestos Operations and Management Manual.

Protective measures were employed to minimize the potential for generating asbestos dust during inspection and sampling. When bulk sampling was necessary, all semi-destructive sampling locations were repaired as necessary and every attempt was made where possible to select locations in lower occupancy areas and after normal working hours.

3.2 Evaluation of ACM

This section summarizes the criteria utilized in evaluating the current ACM based on condition and accessibility.

3.2.1 Assessment of Condition

Spray Applied Fireproofing, Insulation and Texture Finishes

The following criteria are used to evaluate the condition of ACM spray applied as fireproofing, thermal insulation or texture, decorative or acoustic finishes.

GOOD — Surface of material shows no significant signs of damage, deterioration or delamination. Up to 1 percent visible damage to surface is allowed within range of **GOOD**. Evaluation of sprayed fireproofing requires the surveyor to be familiar with the irregular surface texture typical of sprayed asbestos products. **GOOD** condition includes unencapsulated or unpainted fireproofing or texture finishes, where no delamination or damage is observed, and encapsulated fireproofing or texture finishes where the encapsulation has been applied after the damage or fallout occurred.

POOR — Sprayed materials show signs of damage, delamination or deterioration. More than one percent damage to surface of ACM spray.

Fair condition is not utilized or considered as a valid criterion in the evaluation of sprayed fireproofing, sprayed insulation, or texture coat finishes.

The evaluation of ACM spray applied as fireproofing, non-mechanical thermal insulation, or texture, decorative or acoustic finishes which are present above ceilings, may be limited by the number of observations made, and by building components such as ducts or full height walls that obstruct the above ceiling observations. Persons entering the ceiling area are advised to be watchful for ACM DEBRIS prior to accessing or working above ceilings in areas of buildings with ACM, regardless of the reported condition.

Mechanical Insulation

The following criteria are used to evaluate the condition of mechanical insulation (on boilers, breeching ductwork, piping, tanks etc.)

GOOD — Insulation is completely covered in jacketing and exhibits no evidence of damage or deterioration. No insulation is exposed. Includes conditions where the jacketing has minor surface damage (i.e., scuffs or stains), but the jacketing is not penetrated.

FAIR — Minor penetrating damage to jacketed insulation (cuts, tears, nicks, deterioration or delamination) or undamaged insulation that has never been jacketed. Insulation is exposed but not showing surface disintegration. The extent of missing insulation ranges should be minor to none.

POOR — Original insulation jacket is missing, damaged, deteriorated or delaminated. Insulation is exposed and significant areas have been dislodged. Damage cannot be readily repaired.

The evaluation of mechanical insulation may be limited by the number of observations made and building components such as ducts or full height walls that obstruct observations. In these circumstances, it is not possible to observe each meter of mechanical insulation from all angles.

Non-Friable and Potentially Friable Materials

Non-friable materials generally have little potential to release airborne fibres, even when damaged by mechanical breakage. However, some non-friable materials (such as exterior asbestos cement products) may have deteriorated so that the binder no longer effectively contains the asbestos fibres. In such cases of significantly deteriorated non-friable material, the material will be treated as a friable product.

3.2.2 Evaluation of Accessibility

The following criteria are used to evaluate the accessibility of known or suspected ACM:

ACCESSIBLE — Areas of the building within reach from floor level of all building users. Includes areas such as gymnasiums, workshops and storage areas where activities of the building users may result in disturbance of ACM not normally within reach from floor level.

Frequently entered maintenance areas within reach of maintenance staff, without the need for a ladder. Includes pipes chases, tunnels and service areas or areas within reach from a fixed ladder or catwalk.

MODERATELY ACCESSIBLE

Areas of the building above 8 ft where the use of a ladder is required to reach ACM materials that are exposed to view from floor or ladder without removing or opening other building components such as ceiling tiles, or service access doors or hatches. Does not include infrequently accessed service areas of the building.

Areas of the building which require the removal of a building component, including lay-in ceilings and access panels into solid ceiling systems. Includes rarely entered crawlspaces, attic spaces etc. Observations are limited to the extent visible from the access points.

INACCESSIBLE

Areas of the building behind inaccessible solid ceiling systems, walls, or mechanical equipment, etc, where demolition of the ceiling, wall or equipment is required to reach the ACM. Evaluation of the condition and extent of ACM is limited or impossible, depending on the surveyor's ability to visually examine the materials which are inaccessible.

Debris from Damaged Non-Friable ACM

The presence of fallen ACM, from damaged non-friable ACM, is reported separately from the non-friable ACM source. Only fallen non-friable ACM that has become friable is reported as DEBRIS.

3.2.3 Action Matrix

Friable ACM

ACCESS	CONDITION			DEBRIS
	GOOD	FAIR	POOR	
ACCESSIBLE	ACTION 5/7[1]	ACTION 5/6[2]	ACTION 3	ACTION 1
	ACTION 7	ACTION 6/5[3]		
MODERATELY ACCESSIBLE	ACTION 7	ACTION 6	ACTION 4	ACTION 2
		ACTION 7		
INACCESSIBLE	ACTION 7	ACTION 7	ACTION 7	ACTION 7

[1] If material in **ACCESSIBLE/GOOD** condition is not removed **ACTION 7** is required.
[2] If material in **ACCESSIBLE/FAIR** condition is not removed **ACTION 6** is required.
[3] Remove ACM in **ACCESSIBLE/FAIR** condition if ACM is likely to be disturbed.

ACTION 1 - Immediate Clean-Up of DEBRIS that is Likely to Be Disturbed
Restrict access that is likely to cause a disturbance of the ACM **DEBRIS** and clean up ACM **DEBRIS** immediately. Utilize correct asbestos procedures. This action is required for compliance with regulatory requirements. The surveyor should immediately notify the Occupational Health and Safety Coordinator of this condition.

ACTION 2 - Type 2 Precautions for Entry into Areas with ACM DEBRIS
At locations where ACM **DEBRIS** can be isolated in lieu of removal or cleaned up, use appropriate means to limit entry to the area. Restrict access to the area to persons utilizing Type 2 asbestos precautions. The precautions will be required until the ACM **DEBRIS** has been cleaned up, and the source of the **DEBRIS** has been stabilized or removed.

ACTION 3 - ACM Removal Required for Compliance
Remove ACM for compliance with regulatory requirements. Utilize asbestos procedures appropriate to the scope of the removal work.

ACTION 4 - Type 2 Precautions for Access into Areas Where ACM is Present and Likely to be Disturbed by Access
Use Type 2 asbestos precautions when entry or access into an area is likely to disturb the ACM. **ACTION 4** must be used until the ACM is removed (Use ACTION 1 or 2 if **DEBRIS** is present).

ACTION 5 - Proactive ACM Removal
Remove ACM in lieu of repair, or at locations where the presence of asbestos in **GOOD** condition is not desirable.

ACTION 6 - ACM Repair
Repair ACM found in **FAIR** condition, and not likely to be damaged again or disturbed by normal use of the area or room. Upon completion of the repair work treat ACM as material in **GOOD** condition and implement **ACTION 7**. If ACM is likely to be damaged or disturbed, during normal use of the area or room, implement **ACTION 5**.

ACTION 7 - Routine Surveillance
Institute routine surveillance of the ACM. Trained workers or contractors must use appropriate asbestos precautions (Type 1, Type 2 or Type 3) during disturbance of the remaining ACM.

3.3 Bulk Sampling

No bulk sampling was completed as part of the asbestos reassessment of Building C. No suspect materials were identified that had not been previously sampled as part of InAIR's 2015 asbestos reassessment.

4. Results

The survey reassessed all the areas that included ACM's outlined in the previous asbestos InAIR reassessment survey. Any additional suspect asbestos containing materials not previously identified which were located during the survey were sampled and sent under a chain-of-custody form for laboratory analysis by Polarized Light Microscopy (PLM).

4.1 Survey Reassessment Results

All ACM locations, amounts and condition are outlined in Table 1 in Appendix I at the end of the survey report.

Basement Floor

The Basement floor of Building C on the Woodroffe Campus of Algonquin College has recently been demolished to base building as part of the major renovations project that is currently ongoing. All asbestos containing materials on

the basement floor of Building C on the Woodroffe Campus of Algonquin College have therefore been removed.

Floor One

The first floor of Building C on the Woodroffe Campus of Algonquin College mainly consists of offices, classrooms, medical clinic, and the registrar's office. A major portion of this floor has been limited for access due to the major renovations project. The first floor of this building was therefore not inspected as part of InAIR's 2017 re-assessment survey.

Floor Two

The second floor of Building C on the Woodroffe Campus of Algonquin College mainly consists of offices, classrooms and the library, and a mechanical room. The second floor of this building was not inspected as part of InAIR's 2017 re-assessment survey due to the ongoing major renovations project.

Floor Three

The third floor of Building C on the Woodroffe Campus of Algonquin College mainly consists of offices, computer labs, an auditorium and a mechanical room.

Suspect asbestos containing materials located on the third floor of Building B include: Ceiling Stipple, Floor Tile, and Brown, White, and Grey Vinyl Floor Tile.

Table 4 outlines the suspect asbestos containing materials that were located and found by laboratory analyses to be asbestos containing. Laboratory analyses of these building materials found asbestos content above the Ontario Ministry of Labour standard of 0.5% asbestos content by weight.

Table 4. Asbestos Containing Building Materials found on the Third Floor of Algonquin College Building C, Woodroffe Campus, Ottawa, Ontario. (August 2017)

Location ID	Location Description	Building Material	Condition	Accessibility
WC300CC3	Ramp at the side of the class	Stipple	Good	Moderately Accessible
WC300CC3	Ramp at the side of the class	Stipple	Good	Moderately Accessible
WC300CC3	Ramp at the side of the class	Floor Tile	Good	Accessible
WC311	Storage	Brown Vinyl Floor Tile	Good	Accessible
WC319	Break Room	White Vinyl Floor Tile	Good	Accessible
WC320SC	Storage Hallway	White Vinyl Floor Tile	Good	Accessible

Location ID	Location Description	Building Material	Condition	Accessibility
WC320A	Storage	White Vinyl Floor Tile	Good	Accessible
WC320B	Storage	White Vinyl Floor Tile	Good	Accessible
WC320C	Storage	White Vinyl Floor Tile	Good	Accessible
WC335	Office	Grey Vinyl Floor Tile	Good	Accessible
WC335A	Office	Grey Vinyl Floor Tile	Good	Accessible
WC340	Storage	Grey Vinyl Floor Tile	Good	Accessible
WC346	Classroom	Stipple	Good	Moderately Accessible

According to governmental regulation, the building materials outlined in Table 4 are considered asbestos containing. All applicable governmental regulations regarding the abatement and disposal of the asbestos containing materials should be followed.

Floor Four

The fourth floor of Building C on the Woodroffe Campus of Algonquin College mainly consists of offices and classrooms.

Suspect asbestos containing materials located on the fourth floor of Building C include: Floor Tile and Drywall Joint Compound.

Table 5 outlines the suspect asbestos containing materials that were located and found by laboratory analyses to be asbestos containing. Laboratory analyses of these building materials found asbestos content above the Ontario Ministry of Labour standard of 0.5% asbestos content by weight.

Table 5. Asbestos Containing Building Materials found on the Fourth Floor of Algonquin College Building C, Woodroffe Campus, Ottawa, Ontario. (August 2017)

Location ID	Location Description	Building Material	Condition	Accessibility
WC400CC1	Corridor	Floor Tile	Good	Accessible
WC400CC2	Corridor	Floor Tile	Good	Accessible
WC400CC3	Corridor	Floor Tile	Good	Accessible
WC400CC4	Corridor	Floor Tile	Good	Accessible
WC405	Men's Washroom	Drywall Joint Compound	Good	Accessible
WC406	Women's Washroom	Drywall Joint Compound	Good	Accessible

According to governmental regulation, the building materials outlined in Table 5 are considered asbestos containing. All applicable governmental

regulations regarding the abatement and disposal of the asbestos containing materials should be followed.

Floor Five

The fifth floor of Building C on the Woodroffe Campus of Algonquin College mainly consists of offices.

Suspect asbestos containing materials located on the fifth floor of Building C include: Ceiling Stipple and Drywall Joint Compound

Table 6 outlines the suspect asbestos containing materials that were located and found by laboratory analysis to be asbestos containing. Laboratory analyses of these building materials found asbestos content above the Ontario Ministry of Labour standard of 0.5% asbestos content by weight.

Table 6. Asbestos Containing Building Materials found on the Fifth Floor of Algonquin College Building C, Woodroffe Campus, Ottawa, Ontario. (August 2017)

Location ID	Location Description	Building Material	Condition	Accessibility
WC500CC4	Hallway	Drywall Joint Compound	Good	Accessible
WC502	Office	Drywall Joint Compound	Good	Accessible
WC502	Office	Drywall Joint Compound	Good	Accessible
WC503	Office	Drywall Joint Compound	Good	Accessible
WC503	Office	Drywall Joint Compound	Good	Accessible
WC504	Office	Drywall Joint Compound	Good	Accessible
WC504	Office	Drywall Joint Compound	Good	Accessible
WC505	Office	Drywall Joint Compound	Good	Accessible
WC505	Office	Drywall Joint Compound	Good	Accessible
WC505A	Office	Drywall Joint Compound	Good	Accessible
WC505A	Office	Drywall Joint Compound	Good	Accessible
WC505B	Office	Drywall Joint Compound	Good	Accessible
WC505B	Office	Drywall Joint Compound	Good	Accessible
WC507	Office	Drywall Joint Compound	Good	Accessible
WC507	Office	Drywall Joint Compound	Good	Accessible
WC507B	Office	Drywall Joint Compound	Good	Accessible
WC507B	Office	Drywall Joint Compound	Good	Accessible
WC507C	Office	Drywall Joint Compound	Good	Accessible
WC507C	Office	Drywall Joint Compound	Good	Accessible
WC513	Office	Drywall Joint Compound	Good	Accessible

Location ID	Location Description	Building Material	Condition	Accessibility
WC514	Office	Drywall Joint Compound	Good	Accessible
WC514A	Office	Drywall Joint Compound	Good	Accessible
WC514B	Storage	Drywall Joint Compound	Good	Accessible
WC514D	IT Closet	Drywall Joint Compound	Good	Accessible
WC515	Office	Drywall Joint Compound	Good	Accessible
WC515	Office	Drywall Joint Compound	Good	Accessible
WC516	Office	Drywall Joint Compound	Good	Accessible
WC516	Office	Drywall Joint Compound	Good	Accessible
WC517	Office	Drywall Joint Compound	Good	Accessible
WC517	Office	Drywall Joint Compound	Good	Accessible
WC521	Office	Ceiling Drywall Joint Compound	Good	Accessible
WC521	Office	Wall Drywall Joint Compound	Good	Accessible
WC521	Office	Ceiling Drywall Joint Compound	Good	Accessible
WC521	Office	Wall Drywall Joint Compound	Good	Accessible
WC521	Office	Ceiling Drywall Joint Compound	Good	Accessible
WC521	Office	Wall Drywall Joint Compound	Good	Accessible
WC521	Office	Ceiling Stipple	Good	Accessible
WC522	Office	Drywall Joint Compound	Good	Accessible
WC525	Men's Washroom	Drywall Joint Compound	Good	Accessible
WC525	Men's Washroom	Drywall Joint Compound	Good	Accessible
WC530	Office	Drywall Joint Compound	Good	Accessible
WC531	Office	Drywall Joint Compound	Good	Accessible
WC531	Office	Drywall Joint Compound	Good	Accessible
WC532	Office	Drywall Joint Compound	Good	Accessible
WC532	Office	Drywall Joint Compound	Good	Accessible
WC533	Office	Drywall Joint Compound	Good	Accessible
WC533	Office	Drywall Joint Compound	Good	Accessible
WC534	Boardroom	Drywall Joint Compound	Good	Accessible
WC534	Boardroom	Drywall Joint Compound	Good	Accessible
WC535	Office	Drywall Joint Compound	Good	Accessible
WC535	Office	Drywall Joint Compound	Good	Accessible
WC536	Office	Drywall Joint Compound	Good	Accessible
WC536	Office	Drywall Joint Compound	Good	Accessible
WC537	Lunch Room	Drywall Joint Compound	Good	Accessible
WC537	Lunch Room	Drywall Joint Compound	Good	Accessible
WC538	Office	Drywall Joint Compound	Good	Accessible
WC539	Boardroom	Drywall Joint Compound	Good	Accessible

Location ID	Location Description	Building Material	Condition	Accessibility
WC539	Boardroom	Drywall Joint Compound	Good	Accessible
WC542	Copy Room	Drywall Joint Compound	Good	Accessible
WC542	Copy Room	Drywall Joint Compound	Good	Accessible
WC543	Office	Drywall Joint Compound	Good	Accessible
WC543	Office	Drywall Joint Compound	Good	Accessible
WC544	Office	Drywall Joint Compound	Good	Accessible
WC544	Office	Drywall Joint Compound	Good	Accessible
WC545	Office	Drywall Joint Compound	Good	Accessible
WC545	Office	Drywall Joint Compound	Good	Accessible
WC545A	Office	Drywall Joint Compound	Good	Accessible
WC545A	Office	Drywall Joint Compound	Good	Accessible
WC546	Office	Drywall Joint Compound	Good	Accessible
WC546	Office	Drywall Joint Compound	Good	Accessible
WC547	Office	Drywall Joint Compound	Good	Accessible
WC547	Office	Drywall Joint Compound	Good	Accessible
WC548	Office	Drywall Joint Compound	Good	Accessible
WC548	Office	Drywall Joint Compound	Good	Accessible

According to governmental regulation, the building materials outlined in Table 6 are considered asbestos containing. All applicable governmental regulations regarding the abatement and disposal of the asbestos containing materials should be followed.

4.2 ACM's in FAIR and POOR Condition

In accordance with the Asbestos Operations and Management Plan, ACM's identified in the surveyed floors of Building C do not fall under the poor or fair condition. Therefore, no removal or repair is required at this time.

InAIR Environmental Ltd.
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Report Conditions and Limitations

The findings contained in this report rely on data and information collected during the limited asbestos reassessment conducted by InAIR Environmental Ltd. in the subject building, and are based solely on site conditions present at the time of our survey. The observations presented in this report are based on the specific areas assessed and hence the findings may not apply throughout the entire building.

Due to the nature of the survey and the limited data collected, the assessors cannot warrant against undiscovered environmental liabilities. Should additional information become available, InAIR Environmental Ltd. requests that this information be brought to our attention so that we may re-assess the conclusions and recommendations presented herein.

This report is intended for the sole use of Algonquin College and its authorized personnel. InAIR Environmental Ltd. accepts no responsibility for any unauthorized use of the information contained within this report by any third party.

We trust that the information presented in this report meets your current requirements. Should you have any questions or concerns regarding the report please do not hesitate to contact the undersigned.

InAIR Environmental Limited

Report prepared by:

Connor Algie, B.Eng., EIT
Junior Environmental Engineer

Report reviewed by:

Donald M. Weekes, CIH, CSP
Partner

Appendix I

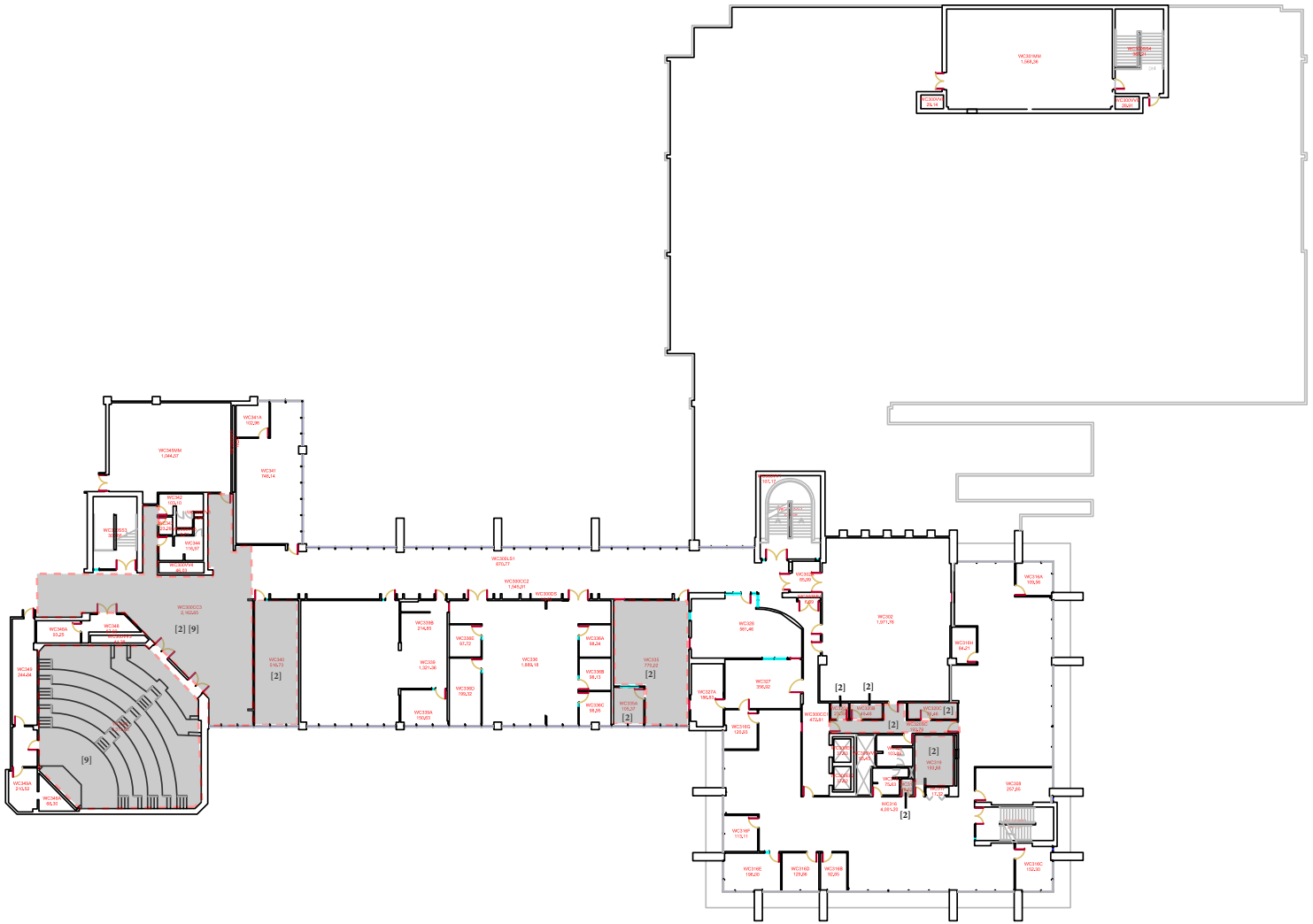
Floor Plans

ALGONQUIN COLLEGE

PHYSICAL RESOURCES DEPARTMENT
FACILITIES PLANNING & DEVELOPMENT
1385 WOODROFFE AVENUE | G-BUILDING | OTTAWA | ONTARIO | K2G | 1V8 TEL: 613-727-4728, EXT. 7710

BUILDING C - 3rd. FLOOR PLAN

NOT TO SCALE



Identified ACM Legend:

Positive for Asbestos (>0.5%)

VFT: Vinyle Floor Tile
DJC: Drywall Joint Compound

[1] Mastic
[2] VFT
[3] DWJC
[4] Pipe Insulation
[5] Pipe Elbow Insulation
[6] Tar
[7] Ceiling Tile
[8] Parging
[9] Stipple

InAIR Environmental Ltd.

Project No.: 17c059
Drawn: CA

Date: 22/08/2017
Reviewed: DW

ALGONQUIN COLLEGE

PHYSICAL RESOURCES DEPARTMENT

FACILITIES PLANNING & DEVELOPMENT

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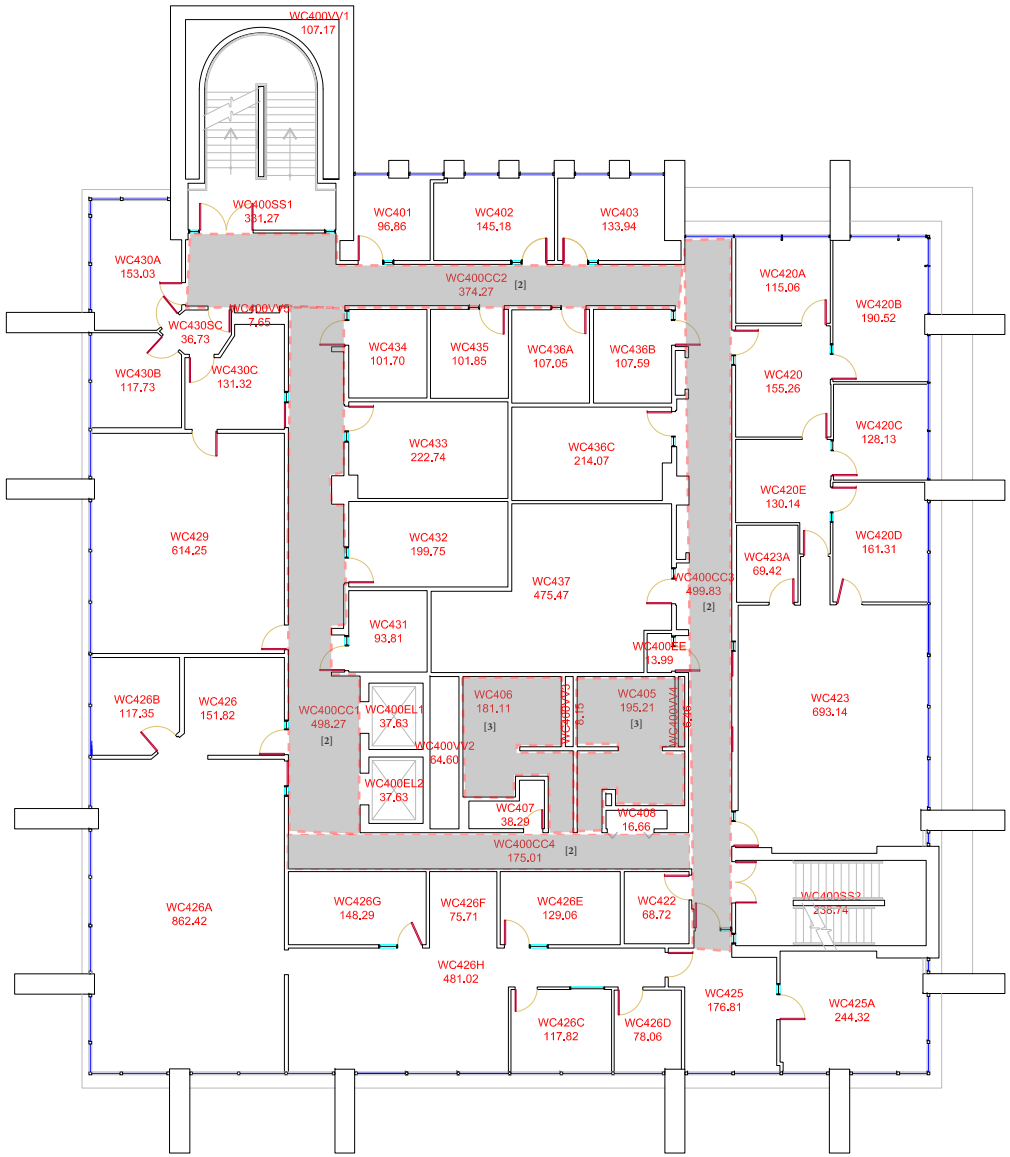
BUILDING C - 4th. FLOOR PLAN

Not to scale



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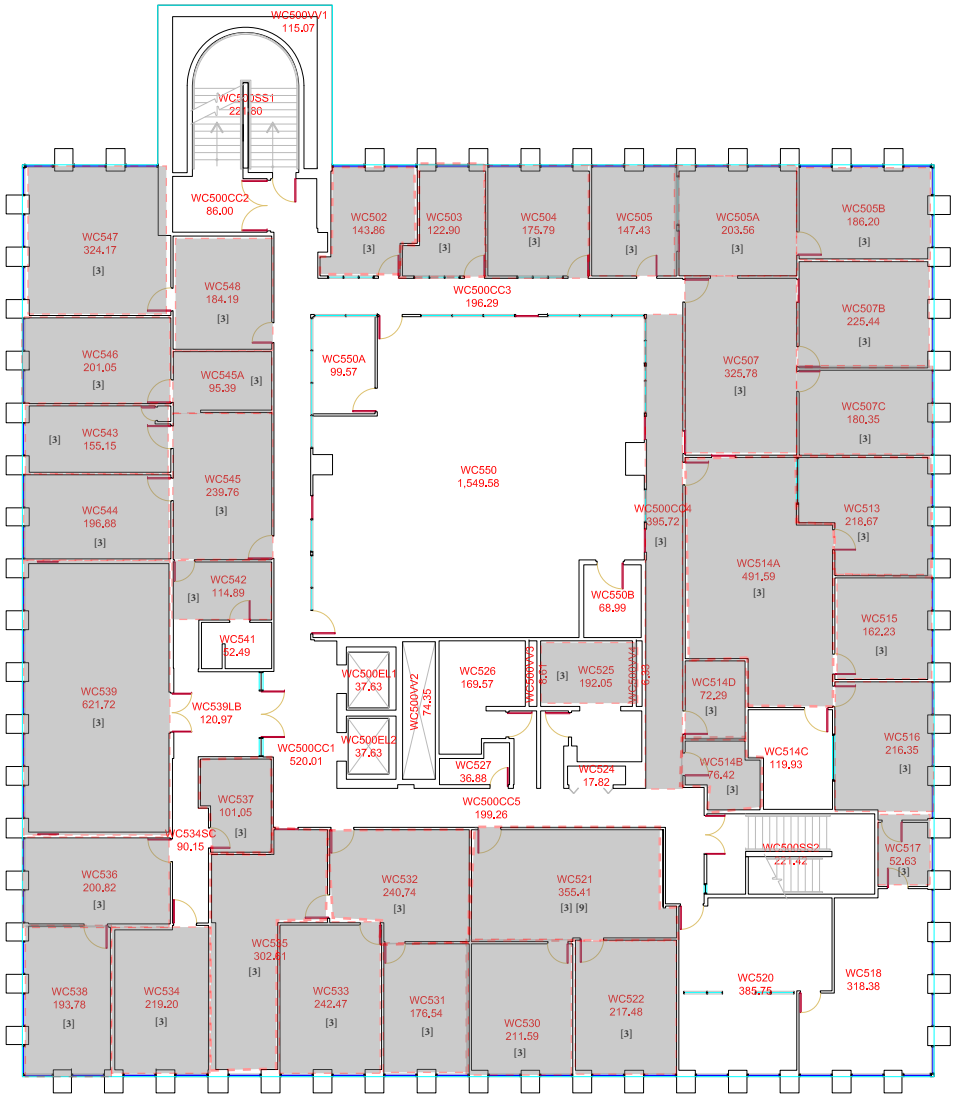
BUILDING C - 5th. FLOOR PLAN

NOT TO SCALE



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Asbestos Condition Re-Assessment Report

October 2017

Algonquin College of Applied Arts and Technology
Building D
Woodroffe Campus
Nepean, Ontario

Prepared for:
Department of Physical Resources, Engineering Services
Algonquin College of Applied Arts and Technology
1385 Woodroffe Avenue
Nepean, Ontario
K2G 1V8

Table of Contents

1. Summary

InAIR Environmental Ltd. (InAIR) was retained by Department of Physical Resources, Engineering Services of Algonquin College to conduct an asbestos reassessment for Building D on the Woodroffe Campus of Algonquin College. This entailed a floor-by-floor and room-by-room survey, where accessible, of all areas in the building containing asbestos containing materials (ACM's) that were identified in a previous Asbestos Reassessment conducted in 2015 by InAIR. The survey also comprised of identifying and sampling suspect ACM that was not identified in the previous assessment by InAIR.

All ACM's found in the building were evaluated for their current condition. The findings of the evaluation are included in the Tables in this report.

2. Background

Building D on the Woodroffe Campus of Algonquin College consists of two (2) floors.

InAIR conducted, where accessible, a floor-by-floor, room by room, survey of all areas in the building. The survey determined the condition of the existing ACMs, and verified all ACM that had been removed throughout the building since the 2015 InAIR survey. The 2017 survey also confirmed the accessibility of the ACM's by onsite personnel, including maintenance personnel, whom might come in contact with the materials.

3. Methodology

InAIR's Project Manager, Mark St. Pierre, Environmental Technician, Chantal Thompson, and Junior Environmental Technician, Cole Johnston, conducted the asbestos materials reassessment survey of Building D on the Woodroffe Campus of Algonquin College in June 2017 under the direction of InAIR Environmental's Certified Industrial Hygienist (CIH), Donald Weekes.

The initial asbestos survey for the Algonquin College Woodroffe campus under the new provincial regulations was conducted by InAIR in 2007. In order to continue to comply with the provisions of O. Reg 278/05 governing asbestos in buildings, Algonquin College has requested that an update be performed with a reassessment of the ACM's' presence, condition and quantities.

3.1 Inspection

The survey was conducted floor-by-floor and room-by-room, where accessible, of all ACM's identified in the data of the previous Asbestos Reassessment Survey (InAIR, 2015). Detailed observations made during the current survey were recorded on a data table found in Appendix I. Locations of the ACM are identified in the attached floor plans, also found in Appendix I. The following observations were recorded at each existing ACM location:

- Presence of previously identified ACM
- Identification of suspect ACM
- Condition of ACM (good, fair or poor)
- Accessibility of ACM

Destructive testing was not included in the investigation. However, it is recommended prior to any major renovation or demolition that a Designated Substance Survey be performed to verify that the materials that are likely to be disturbed during the renovation or demolition are non-asbestos containing.

Due to the nature of building construction, some inherent limitations exist as to the possible thoroughness of the asbestos survey. The survey did not include the demolition of floors, floor finishes, plaster ceilings or walls or other areas to examine concealed conditions. No confined space was accessed for the purposes of this report.

It is possible that the ACM's mentioned in this report are also present in non-accessed areas and concealed spaces (i.e., wall and ceiling cavities), or confined spaces. No other areas outside the defined work boundaries have been assessed.

Finally, ACM's were ranked on a basis for the need of removal/repair/surveillance of the ACM's in accordance with the action levels established in Appendix A of the Asbestos Operations and Management Manual.

Protective measures were employed to minimize the potential for generating asbestos dust during inspection and sampling. When bulk sampling was necessary, all semi-destructive sampling locations were repaired as necessary and every attempt was made where possible to select locations in lower occupancy areas and after normal working hours.

3.2 Evaluation of ACM

This section summarizes the criteria utilized in evaluating the current ACM based on condition and accessibility.

3.2.1 Assessment of Condition

Spray Applied Fireproofing, Insulation and Texture Finishes

The following criteria are used to evaluate the condition of ACM spray applied as fireproofing, thermal insulation or texture, decorative or acoustic finishes.

GOOD — Surface of material shows no significant signs of damage, deterioration or delamination. Up to 1 percent visible damage to surface is allowed within range of **GOOD**. Evaluation of sprayed fireproofing requires the surveyor to be familiar with the irregular surface texture typical of sprayed asbestos products. **GOOD** condition includes unencapsulated or unpainted fireproofing or texture finishes, where no delamination or damage is observed, and encapsulated fireproofing or texture finishes where the encapsulation has been applied after the damage or fallout occurred.

POOR — Sprayed materials show signs of damage, delamination or deterioration. More than one percent damage to surface of ACM spray.

Fair condition is not utilized or considered as a valid criterion in the evaluation of sprayed fireproofing, sprayed insulation, or texture coat finishes.

The evaluation of ACM spray applied as fireproofing, non-mechanical thermal insulation, or texture, decorative or acoustic finishes which are present above ceilings, may be limited by the number of observations made, and by building components such as ducts or full height walls that obstruct the above ceiling observations. Persons entering the ceiling area are advised to be watchful for ACM DEBRIS prior to accessing or working above ceilings in areas of buildings with ACM, regardless of the reported condition.

Mechanical Insulation

The following criteria are used to evaluate the condition of mechanical insulation (on boilers, breeching ductwork, piping, tanks etc.)

GOOD — Insulation is completely covered in jacketing and exhibits no evidence of damage or deterioration. No insulation is exposed. Includes conditions where the jacketing has minor surface damage (i.e., scuffs or stains), but the jacketing is not penetrated.

FAIR — Minor penetrating damage to jacketed insulation (cuts, tears, nicks, deterioration or delamination) or undamaged insulation that has never been jacketed. Insulation is exposed but not showing surface disintegration. The extent of missing insulation ranges should be minor to none.

POOR — Original insulation jacket is missing, damaged, deteriorated or delaminated. Insulation is exposed and significant areas have been dislodged. Damage cannot be readily repaired.

The evaluation of mechanical insulation may be limited by the number of observations made and building components such as ducts or full height walls that obstruct observations. In these circumstances, it is not possible to observe each meter of mechanical insulation from all angles.

Non-Friable and Potentially Friable Materials

Non-friable materials generally have little potential to release airborne fibres, even when damaged by mechanical breakage. However, some non-friable materials (such as exterior asbestos cement products) may have deteriorated so that the binder no longer effectively contains the asbestos fibres. In such cases of significantly deteriorated non-friable material, the material will be treated as a friable product.

3.2.2 Evaluation of Accessibility

The following criteria are used to evaluate the accessibility of known or suspected ACM:

ACCESSIBLE — Areas of the building within reach from floor level of all building users. Includes areas such as gymnasiums, workshops and storage areas where activities of the building users may result in disturbance of ACM not normally within reach from floor level.

Frequently entered maintenance areas within reach of maintenance staff, without the need for a ladder. Includes pipes chases, tunnels and service areas or areas within reach from a fixed ladder or catwalk.

MODERATELY ACCESSIBLE

Areas of the building above 8 ft where the use of a ladder is required to reach ACM materials that are exposed to view from floor or ladder without removing or opening other building components such as ceiling tiles, or service access doors or hatches. Does not include infrequently accessed service areas of the building.

Areas of the building which require the removal of a building component, including lay-in ceilings and access panels into solid ceiling systems. Includes rarely entered crawlspaces, attic spaces etc. Observations are limited to the extent visible from the access points.

INACCESSIBLE

Areas of the building behind inaccessible solid ceiling systems, walls, or mechanical equipment, etc, where demolition of the ceiling, wall or equipment is required to reach the ACM. Evaluation of the condition and extent of ACM is limited or impossible, depending on the surveyor's ability to visually examine the materials which are inaccessible.

Debris from Damaged Non-Friable ACM

The presence of fallen ACM, from damaged non-friable ACM, is reported separately from the non-friable ACM source. Only fallen non-friable ACM that has become friable is reported as DEBRIS.

3.2.3 Action Matrix

Friable ACM

ACCESS	CONDITION			DEBRIS
	GOOD	FAIR	POOR	
ACCESSIBLE	ACTION 5/7[1]	ACTION 5/6[2]	ACTION 3	ACTION 1
	ACTION 7	ACTION 6/5[3]		
MODERATELY ACCESSIBLE	ACTION 7	ACTION 6	ACTION 4	ACTION 2
		ACTION 7		
INACCESSIBLE	ACTION 7	ACTION 7	ACTION 7	ACTION 7

[1] If material in **ACCESSIBLE/GOOD** condition is not removed **ACTION 7** is required.
[2] If material in **ACCESSIBLE/FAIR** condition is not removed **ACTION 6** is required.
[3] Remove ACM in **ACCESSIBLE/FAIR** condition if ACM is likely to be disturbed.

ACTION 1 - Immediate Clean-Up of DEBRIS that is Likely to Be Disturbed
Restrict access that is likely to cause a disturbance of the ACM **DEBRIS** and clean up ACM **DEBRIS** immediately. Utilize correct asbestos procedures. This action is required for compliance with regulatory requirements. The surveyor should immediately notify the Occupational Health and Safety Coordinator of this condition.

ACTION 2 - Type 2 Precautions for Entry into Areas with ACM DEBRIS
At locations where ACM **DEBRIS** can be isolated in lieu of removal or cleaned up, use appropriate means to limit entry to the area. Restrict access to the area to persons utilizing Type 2 asbestos precautions. The precautions will be required until the ACM **DEBRIS** has been cleaned up, and the source of the **DEBRIS** has been stabilized or removed.

ACTION 3 - ACM Removal Required for Compliance
Remove ACM for compliance with regulatory requirements. Utilize asbestos procedures appropriate to the scope of the removal work.

ACTION 4 - Type 2 Precautions for Access into Areas Where ACM is Present and Likely to be Disturbed by Access
Use Type 2 asbestos precautions when entry or access into an area is likely to disturb the ACM. **ACTION 4** must be used until the ACM is removed (Use ACTION 1 or 2 if **DEBRIS** is present).

ACTION 5 - Proactive ACM Removal
Remove ACM in lieu of repair, or at locations where the presence of asbestos in **GOOD** condition is not desirable.

ACTION 6 - ACM Repair
Repair ACM found in **FAIR** condition, and not likely to be damaged again or disturbed by normal use of the area or room. Upon completion of the repair work treat ACM as material in **GOOD** condition and implement **ACTION 7**. If ACM is likely to be damaged or disturbed, during normal use of the area or room, implement **ACTION 5**.

ACTION 7 - Routine Surveillance
Institute routine surveillance of the ACM. Trained workers or contractors must use appropriate asbestos precautions (Type 1, Type 2 or Type 3) during disturbance of the remaining ACM.

3.3 Bulk Sampling

No bulk sampling was completed as part of the asbestos reassessment of Building D. No suspect materials were identified that had not been previously sampled as part of InAIR's 2015 asbestos reassessment.

4. Results

The survey reassessed all of the areas and the ACM's outlined in the previous asbestos reassessment (InAIR, 2015).

4.1 Survey Reassessment Results

All ACM locations, amounts and condition are outlined in the Summary of Materials table in Appendix I at the end of the survey report.

Floor One

The first floor of Building D on the Woodroffe Campus of Algonquin College mainly consists of the cafeteria, kitchen facilities, a computer store, and offices.

Samples of the suspect asbestos containing materials were found in some cases by laboratory analysis to contain less than (<) 0.5% asbestos. This amount of asbestos is below the Ontario Ministry of Labour standard for asbestos content of

0.5 % by weight. However, because the materials contain asbestos, it is recommended that the materials be handled with caution.

Table 1 outlines the suspect asbestos containing materials that were located and found by laboratory analysis to be asbestos containing. Laboratory analyses of these building materials found asbestos content above the Ontario Ministry of Labour standard of 0.5% asbestos content by weight.

Table 1. Asbestos Containing Building Materials Found on the First Floor of Algonquin College Building D, Woodroffe Campus, Ottawa, Ontario. (August 2017)

Location ID	Location Description	Building Material	Condition	Accessibility
WD102	Mechanical Room Above Cafeteria	Silver Pipe Elbows	Poor	Inaccessible
WD106	Women's Changeroom	Red/Orange Vinyl Floor Tile	Good	Accessible
WD106	Women's Changeroom	Grey Ceiling Plaster	Good	Moderately Accessible
WD106A	Women's Washroom	Red/Orange Vinyl Floor Tile	Good	Accessible
WD108	Staff Room	Red/Orange Vinyl Floor Tile	Good	Accessible
WD108A	Washroom	Red/Orange Vinyl Floor Tile	Fair	Accessible
WD108A	Washroom	Brown Mastic	Fair	Accessible
WD115	Storage	Ceiling Drywall Compound	Good	Accessible
WD115	Storage	Wall Drywall Compound	Good	Accessible
WD116	Janitor Closet	Ceiling Drywall Compound	Good	Accessible
WD116	Janitor Closet	Wall Drywall Compound	Good	Accessible
WD116	Janitor Closet	Ceiling Drywall Compound	Good	Accessible
WD116	Janitor Closet	Wall Drywall Compound	Good	Accessible
WD117	Janitor Closet	Ceiling Drywall Compound	Good	Accessible
WD117	Janitor Closet	Wall Drywall Compound	Good	Accessible
WD117	Janitor Closet	Floor Tile	Good	Accessible
WD117	Janitor Closet	Ceiling Pipe Insulation	Good	Inaccessible

According to governmental regulation, the building materials outlined in Table 1 are considered asbestos containing. All applicable governmental regulations regarding the abatement and disposal of the asbestos containing material should be followed.

4.2 ACMs in FAIR and POOR Condition

In accordance with the Asbestos Operations and Management Plan, ACMs in locations listed on Table 2 that have been assessed as being in poor condition should be removed, repaired or encapsulated. The removal shall be conducted in accordance with all applicable governmental regulations governing asbestos abatement. No ACMs were found in this building to be in “fair” condition.

Table 2. ACMs in POOR Condition – Building D, Woodroffe Campus (August 2017)

Floor	Location ID	Location Description	Material Qty @ Location	Building Material	Asbestos Type	Content %	Condition	Accessibility	Action
1	WD108A	Washroom	10 m^2	Red/Orange Vinyl Floor Tile	Chrysotile	2.00%	Poor	Accessible	ACTION 5
1	WD108A	Washroom	10 m^2	Brown Mastic	Chrysotile	0.60%	Fair	Accessible	ACTION 5
2	WD102	Mechanical Room Above Cafeteria	23	Pipe Elbows	N/A	N/A	Poor	Inaccessible	ACTION 7

5. Estimated Cost of Mitigation Measures

The following section describes materials, approximate quantity and associated estimated costs of removal for ACM locations assessed as poor. Estimated costs do not include labour and materials for reinstallation. Table 3 summarizes the estimated cost of abatement at each location.

Table 3. Estimated Cost of Removal of ACM in Poor Condition – Building D, Woodroffe Campus

Location		Bldg. Component	Approx. Quantity	Recommended Action	Estimated Cost**
Floor	Room/ Area				
1	WD108A	Red/Orange Vinyl Floor Tile	10 m^2	ACTION 5	$ 1,500.00
1	WD108A	Brown Mastic	10 m^2	ACTION 5	$1,500.00
2	WD102	Pipe Elbows	23 elbows	ACTION 7	$ 8,000.00
Total Estimated Cost**					**$ 11,000.00**

* Estimate in Canadian dollars as per October 2017
** These prices do not include re-insulation. The prices for the abatement monitoring and the air sampling during and following the abatement are also not included.

Report Conditions and Limitations

The findings contained in this report rely on data and information collected during the limited asbestos reassessment conducted by InAIR Environmental Ltd. in the subject building, and are based solely on site conditions present at the time of our survey. The observations presented in this report are based on the specific areas assessed and hence the findings may not apply throughout the entire building.

Due to the nature of the survey and the limited data collected, the assessors cannot warrant against undiscovered environmental liabilities. Should additional information become available, InAIR Environmental Ltd. requests that this information be brought to our attention so that we may re-assess the conclusions and recommendations presented herein.

This report is intended for the sole use of Algonquin College and its authorized personnel. InAIR Environmental Ltd. accepts no responsibility for any unauthorized use of the information contained within this report by any third party.

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InAIR Environmental Limited

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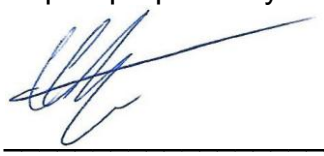

Connor Algie, B.Eng.
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Report reviewed by:

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Partner

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Appendix I

Floor Plans

ALGONQUIN COLLEGE

PHYSICAL RESOURCES DEPARTMENT
FACILITIES PLANNING & DEVELOPMENT

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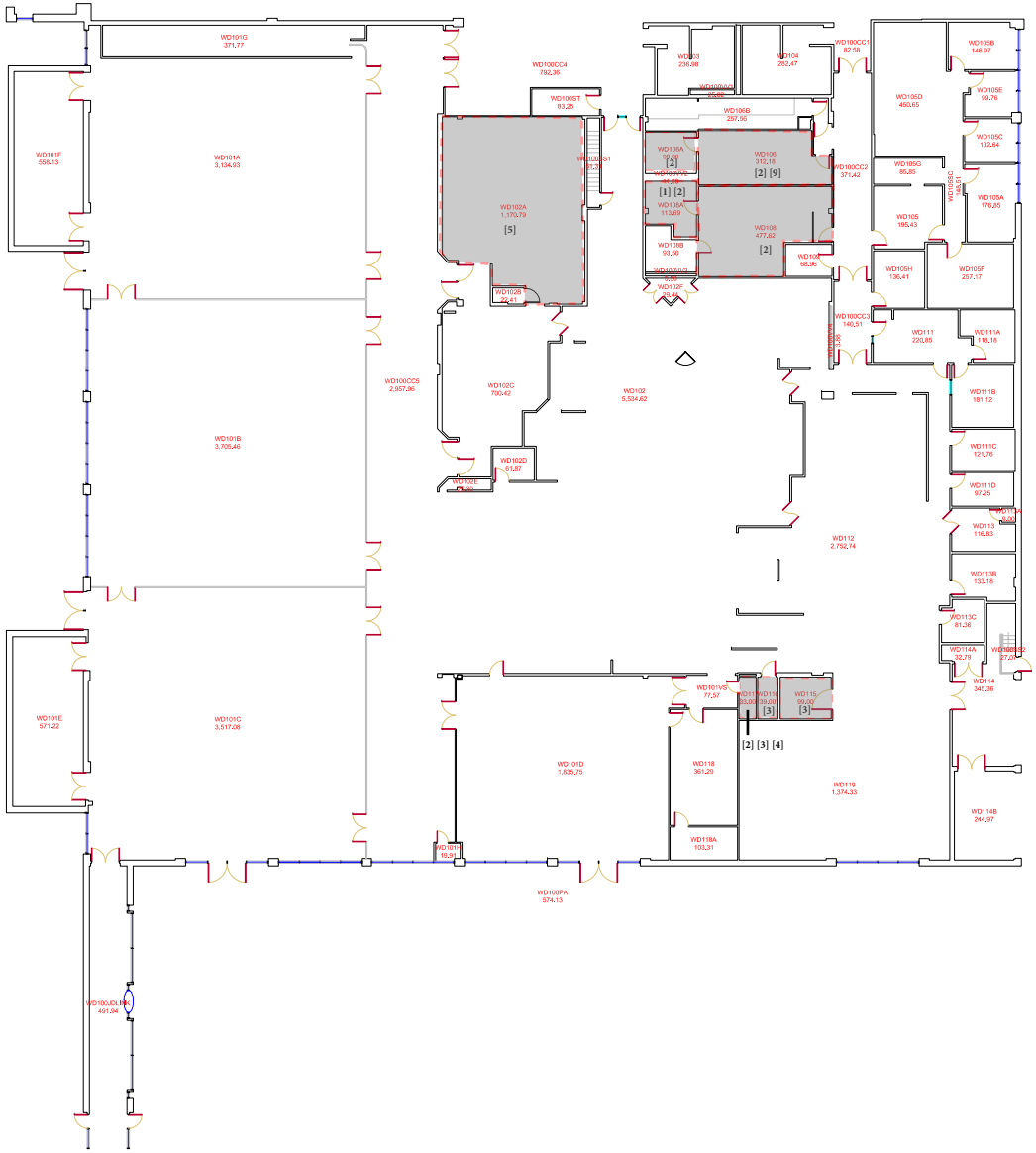
BUILDING D - 1st. FLOOR

NOT TO SCALE



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InAIR Environmental Ltd.

Project No.: 17c059
Drawn: CA
Date: 22/08/2017
Reviewed: DW

PART 3

ASBESTOS REMOVAL INVENTORY

PART 4

GENERAL INFORMATION AND REQUIREMENTS

ASBESTOS MANAGEMENT PLAN

1 INTRODUCTION TO THE PLAN

1.1 Objectives

The Asbestos Management Plan is formulated to meet the following objectives:

- To identify all asbestos containing materials (ACM). Asbestos containing materials are defined in the Plan.
- To maintain all accessible ACM in good condition.
- To prevent unintended asbestos exposures to client staff and visitors, contractors, and Algonquin College staff.
- To manage all construction and maintenance activities that might disturb asbestos materials.
- To comply with all federal, provincial, territorial, and municipal requirements for occupational health and safety, and environmental control.

1.2 Regulatory Requirements

Algonquin College has responsibilities as the building owner, tenant, landlord, and employer, under the following regulations and statutes:

- Canada Labour Code, Part II
- Canadian Environmental Protection Act
- Provincial and territorial occupational health and safety legislation
- Provincial and territorial environmental protection legislation

2 DEFINITIONS/DETECTION LIMITS

2.1 Definition of Friable Asbestos Products

A friable asbestos material is a material that when dry can be crumbled, pulverized or powdered by hand pressure, and includes dust or debris arising from non-friable materials that is or will become crumbled, pulverized or powdered (such as asbestos-containing plaster disturbed by demolition). Friable suspect asbestos products include, but are not limited to:

- Sprayed asbestos products (fireproofing, thermal insulation, acoustic insulation, or decorative products).
- Acoustic or texture plaster.
- Mechanical insulation installed in whether or not jacketed.
- Compressed mineral fibre ceiling tiles.

Note: any material installed prior to 2007 is suspect for asbestos containing materials.

2.2 Detection Limit of Bulk Analysis

Asbestos-containing material is defined as any material found to contain asbestos at or above the detection limit of asbestos fibres set provincially, as determined by the standard Polarized Light Microscopy method for the analysis of bulk samples. The provincial detection limits are as follows:

RECOGNIZED LIMITS FOR PLM METHOD

Province (Region)	Detection Limit
Newfoundland Nova Scotia Prince Edward Island New Brunswick Alberta British Columbia	1.0%
Ontario (includes part of National Capital Area) Saskatchewan	0.5%
Quebec (includes part of National Capital Area) Manitoba	0.1%

Algonquin College will adopt the above Provincial regulated limits in Ontario for the buildings located at 1385 Woodroffe Avenue, Ottawa, ON.

3 ASBESTOS INVENTORY AND ASSESSMENT AND RE-ASSESSMENT

Algonquin College arranged for an initial asbestos survey conducted in 2007. This survey was performed by InAIR Environmental Ltd. (InAIR). Additionally, a re-assessment was performed by InAIR in 2015.

The 2017 asbestos reassessment survey was performed on a room-by-room basis, where accessible. The 2007 and 2015 Asbestos Surveys were utilized to aid with inspection of current conditions, and quantities of previously identified asbestos containing materials. However, it is recommended prior to any major renovation or demolition that a Designated Substance Survey (DSS) be performed to verify that the materials that are likely to be disturbed during the renovation or demolition are not hazardous materials. To maintain compliance with the provisions of O. Reg, 278/05 governing asbestos in buildings, Algonquin has requested a re-assessment be conducted to evaluate the condition of ACM's and the quantities.

ASBESTOS MANAGEMENT PLAN

Due to the nature of building construction, some inherent limitations exist as to the possible thoroughness of the asbestos survey. The survey did not include the demolition of floors, floor finishes, plaster ceilings or walls or other areas to examine concealed conditions. No confined space was accessed for the purposes of the survey.

In June 2007 and June 2015, InAIR provided Algonquin College with a complete asbestos survey report. It is possible that the ACM's mentioned in this report are also present in non-accessed areas and concealed spaces (i.e., wall and ceiling cavities), or confined spaces. No other areas outside the defined work boundaries have been assessed.

The asbestos containing materials previously include the following: vinyl floor tile and mastic, parging, drywall joint compound, stipple paint on ceilings, ceiling tiles, tank and pipe insulation, and tar duct wrapping. The laboratory report of analysis for each of the various materials identified were above the regulatory limit of 0.5% for asbestos content (O. Reg 278/05, s. 1 (1)).

The initial inventory information can be found in Part 3 of this document. This inventory allows for easy retrieval for reports to be submitted as and when required. Part 2 of this document provides information on previously identified ACM's that have been observed to be removed, according to the 2017 re-assessment.

The 2017 reassessment survey addressed all of the friable and non-friable asbestos materials, as defined in this Asbestos Management Plan (AMP), plus applications of floor finishes and asbestos-reinforced cement products (i.e., asbestos cement sheeting and piping).

The evaluation of friable and non-friable asbestos materials follows the criteria given in Appendix A.

The analysis of bulk samples was performed to the detection limits given in Section 2.2, by a laboratory accredited by either the Canadian Association for Laboratory Accreditation Inc. (CALA) or the National Voluntary Laboratory Accreditation Program (NVLAP) of the U.S. National Institute of Science and Technology (NIST) for Polarized Light Microscopy analysis of asbestos materials.

Algonquin College will arrange for copies of the completed limited asbestos survey report and re-assessments to be held by the following persons and locations:

- Property Manager
- A location in the building accessible to maintenance staff and contractors.

4 RE-ASSESSMENT

The current re-assessment survey was conducted in August, 2017. The re-assessment included the use of the previous 2007 and 2015 Asbestos Surveys to verify and visually inspect the current conditions and quantities of previously identified ACM's. In addition, the re-assessment also incorporated the collection of bulk samples of suspect ACM's not previously identified in the 2007 or 2015 inventories. It is expected that Algonquin College will arrange for a subsequent re-assessment of all asbestos containing materials in exposed accessible locations. It is recommended that a re-assessment be performed at a minimum of once every three (3) years. The next re-assessment is due in August, 2020.

5 NOTIFICATION

5.1 General Notification

Under the Canada Labour Code, employees have to be informed of any asbestos in the buildings/facilities they work in. To comply with this requirement, Algonquin College will provide a written notice of the presence of asbestos containing materials to all employees in all buildings where asbestos is known to be present. Algonquin College must ensure that a written notice is provided to the following groups:

- The building's Health and Safety Committees representatives;
- Maintenance employees; and
- Contractors who may enter parts of the building where asbestos containing materials may be present, i.e., telecommunications firms, boiler maintenance contractors. Refer to Appendix I for a contractor notification and acknowledgement form.

Client Notification

The clients should be informed by the Property Manager or his/her representative.

Notification of Authorities

The following authorities should be contacted:

(a) Labour Canada
Regional Office of Labour Canada, Ottawa District Manager
Mayfair Building, 6th Floor 1355 Bank Street,
Ottawa, ON K1H 8K7
Phone: (613) 998-6842
Fax: (613) 998-9083

(b) Occupational and Environmental Health Services (Health Canada)
Workplace Health and Public Safety Programme
171 Slater Street, 12th Floor
Ottawa, ON K1A 0L3
Phone: (613) 954-6541
Fax: (613) 954-6311

(c) Local Provincial Ministry of Labour office

6 TRAINING

All personnel, who have responsibilities under the Asbestos Management Plan, must be trained on asbestos awareness as well as any requirements for Type 1 or 2 asbestos abatement. Records of such training will be kept on file.

6.1 Asbestos Procedures Training

Proof of asbestos awareness training will be provided to Algonquin College by asbestos abatement contractors for their workers who will perform Type 1 or Type 2 disturbance of asbestos products. The training should include an introduction to asbestos containing materials, health hazards of asbestos exposure, regulations, Asbestos Management Plan, Type 1 and Type 2 work practices, and disposal procedures.

Proof of respirator training will be provided to Algonquin College by asbestos abatement contractors for their workers who will perform Type 2 work, and all those who will perform Type 1 work and request a respirator. The training must cover limitations of use, facial hair, fitting, and maintenance of respirators. Persons provided with a respirator will be fit-tested with the assigned respirator, using the CSA irritant smoke method. Appendix E gives notes on respirator fitting and maintenance. Persons who will wear tight-fitting respirators will be required to be clean-shaven where the respirator seals to the face. Reference should be made to the CSA Z94.4, Selection, Care and Use of Respirators.

6.2 Site Specific Asbestos Awareness

Site specific briefing(s) will introduce the Asbestos Assessment Report, health hazards of asbestos exposure, the Asbestos Management Plan, and emergency procedures.

7 CLASSIFICATION OF ASBESTOS WORK

Asbestos work will be classified as Type 1, 2 or 3 according to the following criteria based on the Occupational Health and Safety Act – Ontario Regulation 278/05 Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations. Type 3 asbestos operations must be carried out by a person, firm, or company that is qualified to perform Type 3 operations. Type 1, 2, and Glove Bag operations can be performed by building owner's own workers, with respect to work being supervised by persons who are suitably trained as noted in section 6.1.

TYPE 1 WORK

- Installing or removing ceiling tiles that are ACM, if tiles cover an area less than 7.5 square metres and are installed or removed without being broken, cut, drilled, abraded, ground, sanded or vibrated.
- Installing or removing non-friable ACM (other than tiles), if material is removed without being broken, cut, drilled, abraded, ground, sanded or vibrated.
- Breaking, cutting, drilling abrading, grinding, sanding, or vibrating non-friable ACM if, material is wetted to control the spread of dust and fibres and the work is done by non-powered hand tools.
- Removing less than one square metre of drywall in which joint-filling compounds are ACM.
- Collecting samples of suspect friable ACM.

TYPE 2 WORK

- Removing all or part of a false ceiling to obtain access to a work area, if ACM is likely to be lying on the surface of the false ceiling.
- Removal or disturbance of one square metre or less of friable ACM during the repair, alteration, maintenance or demolition of all or part of machinery or equipment or a building, aircraft, locomotive, railway car, vehicle or ship.
- Enclosing friable ACM.
- Applying tape or sealant or other covering to pipe or boiler insulation that is ACM
- Installing or removing ceiling tiles that are ACM, if tiles cover an area 7.5 square metres or more and are installed or removed without being broken, cut, drilled, abraded, ground, sanded or vibrated.
- Breaking, cutting, drilling abrading, grinding, sanding, or vibrating non-friable ACM if, material is not wetted to control the spread of dust and fibres and the work is done by non-powered hand tools.
- Removing one square metre or more of drywall in which joint-filling compounds are ACM.
- Breaking, cutting, drilling abrading, grinding, sanding, or vibrating non-friable ACM if, material if the work is done by means of power tools that are attached to dust-collecting devices equipped with HEPA filters.
- Removing insulation that is ACM from a pipe, duct or similar structure using a glove bag (Type 2 Glove Bag operation).
- Cleaning or removing filters used in air handling unit equipment in a building that has sprayed fireproofing that is ACM.
- An operation that may expose a worker to asbestos and is not classified as Type 1 or Type 3 operation.

TYPE 3 WORK

- Type 3 work is work that is not permitted under Type 1 or Type 2 work.
- Removing of more than one square meter of friable ACMs throughout the repair, alteration, maintenance or demolition of a section or all of an aircraft, ship, building, locomotive, railway car, vehicle, or equipment.
- The cleaning or removal of air handling equipment, including duct work, but not including filter, in a building that is sprayed with fireproofing material that is considered asbestos-containing.
- Spraying sealant to friable ACMs.
- Demolishing, repairing, or altering a kiln, metallurgical furnace or similar structure made up of material that is considered asbestos containing.
- Breaking, cutting, drilling abrading, grinding, sanding, or vibrating non-friable ACM, if the work is done by means of power tools that are not attached to dust-collecting devices equipped with HEPA filters.
- Repairing, altering, or demolishing all or part of any building in which asbestos is or was used in the manufacture of products, unless the asbestos was cleaned up and removed before March 16, 1986.
- Work conducted on ceiling tiles, drywall or friable ACM is classified based on the total area of work done consecutively in a room or enclosed space.
- Provisions can be applied if a dispute arises as to the classification of an operation under this section:
    - Notify inspector at the Ministry of Labour office nearest to the workplace of dispute.
    - Notifying party must inform all other parties that inspector has been notified.
    - Work being conducted on the asbestos abatement operation shall cease until the inspector provides a decision based on paragraph 4.
    - The inspector will investigate the matter and provide a decision to all parties in writing.

8 IDENTIFICATION AND CONTROL OF ASBESTOS-RELATED WORK

8.1 Maintenance Work

The Property Manager or a designate is responsible to review all maintenance work for the possibility of disturbance of asbestos materials.

If there are asbestos containing materials in the area of maintenance, and this will be disturbed by the intended work, the Property Manager, under the direction of a qualified consultant, will classify the work as Type 1, Type 2, or Type 3.

At the completion of any maintenance work that involves asbestos removal or repair, a report will be provided to the Property Manager or the designate of the Property Manager.

8.2 Asbestos-Related Work Record

The asbestos abatement contractors performing Type 2 work will be responsible to ensure that a record is completed for each period of work. These records shall be provided to the Property Manager or designate. Appendix G gives an example of an Asbestos-Related Work Record.

8.3 Renovations and Construction Work

Algonquin College representatives will review all asbestos survey reports prior to all renovation and construction work for the possible impact on asbestos materials.

Algonquin College representatives will provide a Designated Substance report (a prescribed listing of asbestos, lead, silica, and other hazardous materials) prior to tendering the work.

Algonquin College, under the direction of a qualified consultant, will classify the disturbance of asbestos materials as Type 1 or Type 2.

Algonquin College representatives will arrange for specifications to be prepared for asbestos work following the National Master Specification of Canada for asbestos abatement, with alterations for special provincial requirements, where needed. The preparation of the specifications can be prepared by a qualified consultant on behalf of Algonquin College.

At the completion of project work that alters the amount or condition of asbestos containing materials, Algonquin College will review the Asbestos Assessment Report to reflect the changes. This alteration will be noted in the building survey and distributed to holders of the Asbestos Assessment Report. The completion of a project should necessitate the implementation of an asbestos survey re-assessment.

8.4 Type 1 and Type 2 Procedures

Appendices B and C provide standard work practices for performing Type 1 and Type 2 asbestos work, respectively.

8.5 Project Inspection and Air Monitoring

Type 1 and Type 2 work will be subject to the normal maintenance or project inspection provided to non-asbestos work by Algonquin College. Asbestos specific air monitoring or inspection will not be mandatory.

9 AIR MONITORING AND BULK ANALYSIS

9.1 Air Monitoring for Hazard Assessment

Air monitoring will not be used as the primary resource for the assessment of hazard from asbestos containing materials. At the request of the building tenant, Algonquin College may be requested to perform air monitoring under normal conditions of various building use (i.e., away from asbestos work). The air sample analyses will be completed by the Phase Contrast Microscope (PCM) NIOSH 7400 analytical method.

9.2 Air Monitoring during Asbestos Work Procedures

At the request of the building tenant, Algonquin College may arrange for air monitoring to confirm the safety of work practices and the effectiveness of work area isolation. The air sample analyses will be completed by the Phase Contrast Microscope (PCM) NIOSH 7400 analytical method.

Analysis of air samples by PCM methods will be performed by individuals or organizations successfully participating in a recognized external quality control program.

9.3 Bulk Sample Collection and Analysis

Appendix J gives procedures for collection and labelling of bulk samples for asbestos analysis.

Analyses of materials to determine asbestos content will be performed by laboratories accredited by the National Voluntary Laboratory Accreditation Program of the U.S. National Institute of Science and Technology. The laboratories shall report to the limits of detection given in Section 2.2.

10 FACILITIES AND WASTE DISPOSAL

10.1 Waste Disposal

Where asbestos abatement contractors perform asbestos work, asbestos debris will be packaged in double-bagged containers or other suitable airtight containers. These containers can be held at a secure location in the building until asbestos abatement work is completed. Alternatively, the waste containers can be removed from the building and placed in a secure dumpster outdoors. It is the responsibility of the asbestos abatement contractors to arrange for asbestos waste transportation and disposal.

APPENDIX A

EVALUATION AND RECOMMENDATION CRITERIA FOR CONTROL OF ASBESTOS CONTAINING MATERIALS (ACM's)

1 ASSESSMENT OF CONDITION

1.1 Spray Applied Fireproofing, Insulation and Texture Finishes

To evaluate the condition of ACM spray applied as fireproofing, thermal insulation, or texture, decorative or acoustic finishes, the following criteria are applied:

GOOD
Surface of material shows no significant signs of damage, deterioration or delamination. Up to 1 percent visible damage to surface is allowed within range of **GOOD**. Evaluation of sprayed fireproofing requires the surveyor to be familiar with the irregular surface texture typical of sprayed asbestos products. **GOOD** condition includes un-encapsulated or unpainted fireproofing or texture finishes, where no delamination or damage is observed, and encapsulated fireproofing or texture finishes where the encapsulation has been applied after the damage or fallout occurred.

POOR
Sprayed materials show signs of damage, delamination or deterioration. More than 1 percent damage to surface of ACM spray.

In observation areas where damage exists in isolated locations, both **GOOD** and **POOR** condition may be reported. The extent or percentage of each condition will be recorded on the survey or reassessment form. **FAIR** condition is not utilized in the evaluation of the sprayed fireproofing, sprayed insulation, or texture coat finishes.

The evaluation of ACM spray applied as fireproofing, non-mechanical thermal insulation, or texture, decorative or acoustic finishes which are present above ceilings, may be limited by the number of observations made, and by building components such as ducts or full height walls that obstruct the above ceiling observations. Persons entering the ceiling are advised to be watchful for ACM **DEBRIS** prior to accessing or working above ceilings in areas of buildings with ACM regardless of the reported condition.

1.2 Mechanical Insulation

The evaluation of the condition of mechanical insulation (on boilers, breaching, ductwork, piping, tanks, equipment etc.) utilizes the following criteria:

GOOD
Surface of material shows no significant signs of damage, delamination, or deterioration. No insulation is exposed. Includes conditions where jacketing has minor surface damage (i.e., scuffs or stains), but the jacketing is not penetrated. ACM determined to be in **GOOD** condition does not require any action unless the ACM is at risk of being disturbed or removed due to construction or renovations.
FAIR

Minor penetrating damage to jacketed insulation (cuts, tears, nicks, deterioration or delamination) or undamaged insulation that has never been jacketed. Insulation is exposed but not showing surface disintegration. The extent of missing insulation ranges should be minor to none. ACM determined to be in **FAIR** condition shall be repaired to **GOOD** condition and monitored for any future disturbance and/or deterioration.

POOR
Original insulation jacket is missing, damaged, deteriorated or delaminated. Insulation is exposed and significant areas have been dislodged. Damage is visible for more than 1 percent of the surface area and cannot be readily repaired. ACM determined to be in POOR condition shall be abated immediately to eliminate the risk of exposure to airborne asbestos fibres.

1.3 Non-friable and Potentially Friable Materials

Non-friable materials generally have little potential to release airborne fibres, even when damaged by mechanical breakage. However, some non-friable materials, i.e., exterior asbestos cement products, may have deteriorated so that the binder no longer effectively contains the asbestos fibres. In such cases of significantly deteriorated non-friable material, the material should be treated as a friable product.

2 EVALUATION OF ACCESSIBILITY

The accessibility of building materials known or suspected of being ACM is rated according to the following criteria:

ACCESSIBLE

Areas of the building within reach from floor level of all building users. Includes areas such as gymnasiums, workshops and storage areas where activities of the building users may result in disturbance of ACM not normally within reach from floor level.

Frequently entered maintenance areas within reach of maintenance staff, without the need for a ladder. Includes pipe chases, tunnels and service areas or areas within reach from a fixed ladder or catwalk.

MODERATELY ACCESSIBLE

Areas of the building above eight (8) feet where the use of a ladder is required to reach ACM materials that are exposed to view from floor or which require the removal of a building component, including lay-in ceilings and access panels into solid ceiling systems. This includes infrequently accessed service areas of the building, rarely entered crawlspaces, attic spaces etc. Observations are limited to the extent visible from the access points.

INACCESSIBLE

Areas of the building behind inaccessible solid ceiling systems, walls, or mechanical equipment, etc., where demolition of the ceiling, wall or equipment is required to reach the ACM. Evaluation of the condition and extent of ACM is limited or impossible, depending on the surveyor's ability to visually examine the materials which are inaccessible.

3 ACM DEBRIS

3.1 DEBRIS from Friable ACM

The presence of fallen ACM is noted separately from the presumed friable ACM source (sprayed fireproofing, thermal insulation, texture, decorative or acoustic finishes or mechanical insulation) and is referred to as **DEBRIS**.

3.2 DEBRIS from Damaged Non-Friable ACM

The presence of fallen ACM from damaged non-friable ACM is also reported separately from the non-friable ACM source. Only fallen non-friable ACM that has become friable is reported as **DEBRIS**.

The identification of the exact location or presence of **DEBRIS** on the top of ceiling tiles is limited by the number of observations made and the presence of building components such as ducts or full height walls that obstruct observations. Workers are advised to be watchful for the presence of **DEBRIS** prior to accessing or working in proximity to mechanical insulation or above ceilings in areas of buildings with ACM regardless of the reported presence or absence of **DEBRIS**.

4 ACTION MATRIX AND DEFINITIONS

The Asbestos Condition Assessment requires the following responses:

- Immediately clean-up **DEBRIS** that is likely to be disturbed.
- Remove, repair or enclose friable ACM in **POOR** or **FAIR** condition whose continued deterioration will result in **DEBRIS** that is likely to be disturbed.

The following factors are also considered in making site-specific recommendations for compliance with the regulation and the practical implementation of the Asbestos Operations and Management Plan:

i) ACM in **POOR** condition is not routinely repairable.

If an abatement action is necessary, removal is the recommended action (enclosure is a viable option in unusual circumstances).

ii) Mechanical insulation in **FAIR** condition can be repaired or removed based on the following general recommendations applied on a case by case basis (Note: Either repair or removal are legally acceptable options for the treatment of ACM found in **FAIR** condition):

- Repair ACM mechanical insulation found in **FAIR** condition in **ACCESSIBLE** or **MODERATELY ACCESSIBLE** areas.
- Remove ACM mechanical insulation found in **FAIR** condition in **ACCESSIBLE** and **MODERATELY ACCESSIBLE** areas, where future damage to the ACM is likely to occur.
- Remove ACM mechanical insulation found in **FAIR** condition which are **ACCESSIBLE** to eliminate the potential for re-damaging ACM by all building users.

iii) ACM in **GOOD** condition present in **ACCESSIBLE** areas can be managed by surveillance, as long as it is not disturbed by future renovation, maintenance or demolition. However, pro-active removal of the ACM in **ACCESSIBLE** areas should be considered where damage is possible by ongoing occupant activity (accidental or intentional).

iv) Non-friable or manufactured products are considered in the action matrix as follows:

Non-friable or manufactured products reported in **POOR** condition or friable **DEBRIS** resulting from the deterioration of non-friable ACM are treated as friable materials and the appropriate Action, depending on accessibility, is determined from the Action Matrix for friable ACM.

For non-friable or manufactured products reported in **GOOD** condition, Action 7 (surveillance) is recommended regardless of Accessibility.

v) Remove all ACM from a particular area where small quantities of asbestos are present and removal will negate the need for the use of the Asbestos Operations and Management Plan in that area.

With these principles in mind the following Action Matrix Tables establish the recommended asbestos control action. Note that factors not included in the above discussion, such as an owner's policy decision to remove material, knowledge of upcoming maintenance, etc., may result in a recommendation that differs from this table. The **ACTIONS** are described in full following the tables.

4.1 Action Matrix Tables

FRIABLE ACM

<table>
<tr><th rowspan="2">ACCESS</th><th colspan="3">CONDITION</th><th rowspan="2">DEBRIS</th></tr>
<tr><th>GOOD</th><th>FAIR</th><th>POOR</th></tr>
<tr><td rowspan="2">ACCESSIBLE</td><td>ACTION 5/7[1]</td><td>ACTION 5/6[2]</td><td rowspan="2">ACTION 3</td><td rowspan="2">ACTION 1</td></tr>
<tr><td>ACTION 7</td><td>ACTION 6/5[3]</td></tr>
<tr><td rowspan="2">MODERATELY ACCESSIBLE</td><td rowspan="2">ACTION 7</td><td>ACTION 6</td><td rowspan="2">ACTION 4</td><td rowspan="2">ACTION 2</td></tr>
<tr><td>ACTION 7</td></tr>
<tr><td>INACCESSIBLE</td><td>ACTION 7</td><td>ACTION 7</td><td>ACTION 7</td><td>ACTION 7</td></tr>
</table>

[1] If material in **ACCESSIBLE**/**GOOD** condition is not removed **ACTION 7** is required.
[2] If material in **ACCESSIBLE**/**FAIR** condition is not removed **ACTION 6** is required.
[3] Remove ACM in **ACCESSIBLE**/**FAIR** condition if ACM is likely to be disturbed.

4.2 Action Definitions

ACTION 1 - Immediate Clean-Up of DEBRIS that is Likely to Be Disturbed

Restrict access that is likely to cause a disturbance of the ACM **DEBRIS** and clean up ACM **DEBRIS** immediately. Utilize correct asbestos procedures. This action is required for compliance with regulatory requirements. The surveyor should immediately notify the Occupational Health and Safety Coordinator of this condition.

ACTION 2 - Type 2 Precautions for Entry into Areas with ACM DEBRIS

At locations where ACM **DEBRIS** can be isolated in lieu of removal or cleaned up, use appropriate means to limit entry to the area. Restrict access to the area to persons utilizing Type 2 asbestos precautions. The precautions will be required until the ACM **DEBRIS** has been cleaned up, and the source of the **DEBRIS** has been stabilized or removed.

ACTION 3 - ACM Removal Required for Compliance

Remove ACM for compliance with regulatory requirements. Utilize asbestos procedures appropriate to the scope of the removal work.

ACTION 4 - Type 2 Precautions for Access into Areas Where ACM is Present and Likely to be Disturbed by Access

Use Type 2 asbestos precautions when entry or access into an area is likely to disturb the ACM. **ACTION 4** must be used until the ACM is removed (Use ACTION 1 or 2 if **DEBRIS** is present).

ACTION 5 - Proactive ACM Removal

Remove ACM in lieu of repair, or at locations where the presence of asbestos in **GOOD** condition is not desirable.

ACTION 6 - ACM Repair

Repair ACM found in **FAIR** condition, and not likely to be damaged again or disturbed by normal use of the area or room. Upon completion of the repair work treat ACM as material in **GOOD** condition and implement **ACTION 7**. If ACM is likely to be damaged or disturbed, during normal use of the area or room, implement **ACTION 5**.

ACTION 7 - Routine Surveillance

Institute routine surveillance of the ACM. Trained workers or contractors must use appropriate asbestos precautions (Type 1, Type 2 or Type 3) during disturbance of the remaining ACM.

APPENDIX B

TYPE 1 WORK PROCEDURES

ASBESTOS MANAGEMENT PLAN

For locations of non-friable asbestos, refer to the current version of the Asbestos Assessment or Re-assessment Report. **NOTE: This section is for information purposes for Algonquin College to ensure that all procedures are in place in accordance with O. Reg 278/05. Algonquin College's maintenance staff will not be performing the asbestos abatement operations.**

NOTE: These Type 1 procedures assume the non-friable material can be removed with relatively little loose dry dust released. Generation of debris is permissible as long as the debris can be well wetted before being removed. If the work will release more than a trivial amount of dry loose dust, do not proceed. Algonquin College, with the assistance of a qualified consultant, will determine which of Type 1 or Type 2 procedures are appropriate.

1. EQUIPMENT

All equipment must be on site before proceeding.

1.1 Vacuum

Use of a vacuum is optional. Wet cleaning methods may be used in place of a vacuum. If a vacuum is used it must be equipped with a high efficiency particulate (HEPA) filter and all brushes, fittings, etc. The vacuum must only be opened in an enclosure following Type 2 procedures, or in a laboratory exhaust hood. The vacuum exterior should be carefully wet cleaned after emptying.

1.2 Respirators

Use of a respirator is optional. However, a respirator is strongly advised for work on sheet flooring, any type of ceiling tile, any other work performed overhead. Respirator must be used according to written use procedures provided to worker as per training procedures. Filters must be changed after 24 hours of wear or sooner if breathing resistance increases. No person using a respirator shall wear facial hair that affects the seal between respirator and face.

1.3 Protective Clothing

Reusable or disposable clothing may be used. Non-disposable clothing with visible asbestos contamination shall be cleaned with a HEPA vacuum and laundered as asbestos contaminated. Disposable clothing and respirator filters to be disposed of as asbestos waste.

1.4 Other Equipment

- plastic sheet (6 mil polyethylene) - to serve as a drop sheet.
- pump sprayer with mister nozzle or alternative method to wet material.
- labelled yellow asbestos waste bags (6 mil) - for all asbestos waste, disposable equipment, plastic, etc.
- small tools and cleaning supplies - e.g., scouring pads, sponges, brushes, buckets, etc.

2. OTHER PROTECTIVE MEASURES

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

On leaving work area, proceed to washroom and wash all exposed skin on hands and face.

3. PREPARATION

Before disturbing non-friable asbestos materials, wherever practical cover floor and surfaces below work with polyethylene sheeting to catch debris.

Wherever dust on a surface is likely to be disturbed remove with HEPA vacuum or damp cloth.

4.1 Installing, Cutting or Drilling Non-friable Asbestos Materials

Only non-powered hand-held tools are permitted for Type 1 work.

Where possible wet all materials to be disturbed.

Immediately place waste in asbestos waste receptor. Clean area frequently during work with HEPA vacuum or by wet methods.

At completion of work, clean drop sheets to be reused with HEPA vacuum or by wet methods.

Drop sheets shall be disposed of as asbestos waste.

4.2 Removal of Other Non-friable Asbestos Materials

The Type 1 procedures apply only to materials that can be removed intact, or in sections, without producing a pulverized or powdered waste. This method is most applicable to asbestos-cement board products, acoustic ceiling tiles, gaskets, etc.

Where possible wet all material to be disturbed.

Undo fasteners necessary to remove material. Whenever possible remove asbestos cement panels intact. Break only if unavoidable. If broken, wet freshly exposed edges.

Where sections are adhered to the substrate, wet material and use hand scraping to remove adhering material.

Place removed material into asbestos waste receptor. Clean surrounding surfaces and asbestos work area frequently with HEPA vacuum or with wet methods. Damp cloth disposed of as asbestos waste after cleaning.

Drop sheets shall be disposed of as asbestos waste.

5.0 WASTE TRANSPORT AND DISPOSAL

Place waste into asbestos labelled disposal bag, seal with tape, clean the exterior of the bag with a clean cloth, and place into a second clean bag, also to be sealed with tape. Use a barrel, fibre drum, or cardboard or wooden box in place of the second bag when the asbestos waste material is likely to tear the inner bag. Seal the outer container.

Provide storage area for holding minor amounts of asbestos waste in sealed containers. Garbage containers shall be labelled and assigned exclusively for asbestos waste.

Dispose of the waste in compliance with provincial regulations. The asbestos abatement contractor will arrange for disposal.

APPENDIX C

TYPE 2 WORK PROCEDURES

TYPE 2 WORK PROCEDURES

For locations of asbestos materials, refer to the current version of the limited Designated Substances Report.

NOTE: This section is for information purposes only to enable Algonquin College to ensure that all procedures are in place in accordance with O. Reg 278/05. Algonquin College's maintenance staff will not be performing the asbestos abatement operation.

1 EQUIPMENT

Equipment required for the work must be on-site before proceeding.

1.1 Vacuum

An asbestos-approved vacuum (HEPA filtered), equipped with brushes, fittings, etc. Vacuum must not be opened except by a fully protected worker within a Type 2 enclosure.

1.2 Respirators

Workers within the work area shall wear NIOSH approved respirators. Respirators and filters will be provided by the employer, and individually assigned to workers. Respirator shall be a minimum half-face piece respirator with high efficiency filters. Respirators must be kept in position throughout the entire time the worker is in the area of the work from first disturbance of the ceiling tile or asbestos material until the final cleaning of the area and bagging of waste is complete. Change filters after 24 hours of wear or sooner if breathing resistance increases. No person using a respirator shall wear facial hair that affects seal between respirator and face.

1.3 Protective Clothing

All workers shall wear disposable coveralls with attached elasticized hood. Coveralls should be worn with the hood in place at all times. Coveralls may be vacuumed or wet wiped clean for re-use, for a maximum of 8 hours cumulative wear. Suit and head cover shall remain in place until worker leaves work area or the enclosure is dismantled. Boot covers or dedicated boots are recommended.

1.4 Other Equipment

- plastic sheet (6 mil polyethylene) - to erect a total enclosure or to serve as drop sheet
- wood framing or clips to support polyethylene sheeting, as appropriate to work area
- tape - to fasten plastic enclosure to ceiling or to tape drop sheet to floor; 3/4" double-sided tape recommended for attaching polyethylene to T-bar ceiling

- labelled asbestos waste bag (6 mil) - for all asbestos waste, disposable suit, plastic for disposal, etc.
- pump sprayer containing water with wetting agent to wet asbestos as necessary; dilute wetting agent 2 oz. per gallon of water
- asbestos warning signs
- cleaning supplies - e.g., scouring pads, sponges, brushes, buckets, etc. insulation repair supplies (lagging compound, cloth, PVC covers)
- encapsulating sealer, for brush or airless spray application

1. OTHER PROTECTIVE MEASURES

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

On completing clean-up of work area, use vacuum or wet cloth to clean hands, face, respirator and boots. Remove protective equipment and proceed to nearest washroom to wash exposed skin on hands and face.

2. SCHEDULING OF WORK

Schedule work when occupants are absent. If persons are present, do not start work.

If work above ceiling is required on an emergency basis when area is occupied, advise occupants to vacate area until work is complete and clearance is given to return.

3. PREPARATION

Shut down ventilation systems to and from the work area. Seal over all ventilation openings, diffusers, grilles, etc., with plastic and tape.

Before beginning work, visible dust shall be removed with damp wiping or HEPA vacuuming. Where practical, clear areas of movable furnishings or equipment. This should include anything that occupants may wish to use during work period. Any furnishings or equipment not removed shall be adequately covered and sealed using 6 mil polyethylene and tape. The intent of the protection is to provide an airtight envelope to protect the articles from airborne dust or splashed debris.

Post signs or barrier tape to indicate asbestos hazard and requirement for protective clothing for anyone entering the space.

For small rooms, cover walls with plastic such that the complete room becomes the work area. For larger rooms, erect enclosure of 6-mil polyethylene of suitable dimensions to enclose the work area and scaffolds and ladders required to gain access. If a suspended ceiling is present, the enclosure shall extend to the ceiling line. The enclosure shall be as airtight as conditions permit including the provision of a double overlapping flap at the entrance. The floor of the work area shall be a layer of 6-mil polyethylene sealed to the plastic walls of the enclosure.

Don protective clothing and respirator prior to removing ceiling tile or disturbing pipe jacketing or sprayed fireproofing.

4. EXECUTION

To remove asbestos containing materials, saturate using amended water solution, by use of a pump sprayer. Do not remove the asbestos material until the material is thoroughly wetted to the substrate. **Do not use water where electrical hazard exists.**

To remove pipe insulation, first wet any area of damage, then carefully cut jacket. Keep insulation surface wetted by mist of water with wetting agent. Remove insulation in large sections and place immediately in disposal bag. After large pieces have been removed, saturate debris on mechanical equipment and clean all exposed surfaces with abrasive pads, sponges, cloths, etc.

To repair pipe insulation, use drop sheet under area of work to aid clean-up of any dislodged material. **Plastic enclosure is not required.** Mist any exposed insulation to wet surface and apply lagging paint and canvas or PVC jacketing as required.

For removal of suspended ceiling tiles (where asbestos debris is present on top of tiles or equipment to be accessed), remove the first tile carefully and vacuum all surfaces. Vacuum the upper surface of each subsequent tile prior to removal. Store tiles in the work area.

Remove dust and loose friable material likely to be disturbed in the process of doing the work, with a HEPA vacuum or by damp wiping.

When asbestos material is removed, all pieces should be placed directly into 6 mil polyethylene bags as they are removed. Avoid dropping material to floor wherever possible. After bulk removal is complete, wet wash the exposed surface.

Frequently, and at regular intervals during the work, clean up dust and waste in the work area by wet mopping, placing in disposal bags, or by HEPA vacuuming.

After completion of removal, seal exposed ends of fireproofing, texture plaster, or mechanical insulation with heavy layer of encapsulating sealer. Apply sealer coat to surfaces from which asbestos material was removed.

At completion of work, decontaminate equipment, tools and materials used in the work area by wet cleaning or HEPA vacuum.

Dispose of drop sheets and enclosures by wetting the polyethylene, then folding into disposal bags. Do not reuse drop sheets or enclosures.

Before leaving work area, decontaminate shoes and protective clothing by using HEPA vacuum or damp wiping. When protective clothing is to be disposed of, it shall be decontaminated as above and placed in labelled disposal bags. Workers shall vacuum all exposed skin, suit and respirator, and proceed to nearest washroom to wash hands and face.

5. WASTE TRANSPORT AND DISPOSAL

Place waste into asbestos-labelled disposal bag, seal with tape, clean the bag, and place into a second clean bag, also to be sealed with tape. Use a barrel, fibre drum, or cardboard or wooden box in place of the second bag when the asbestos waste material is likely to tear the inner bag. Seal the rigid outer container.

Provide storage area for holding minor amounts of asbestos waste in sealed containers. Containers shall be labelled and assigned exclusively for asbestos waste.

Dispose of waste in compliance with provincial regulations. The asbestos abatement contractor will arrange for disposal.

APPENDIX D

TYPE 2
GLOVE BAG WORK PROCEDURES

NOTE Asbestos containing pipe infrastructure may be present in wall or ceiling cavities. If encountered, these suspect asbestos containing pipe elbows should be sampled by a qualified consultant. If it is found that the material is asbestos containing, this Type 2 Glove Bag Procedure must be followed by an asbestos abatement contractor.

1. EQUIPMENT

All equipment must be on site before proceeding with the work. Note that these procedures are primarily based on the use of Safe-T-Strip polyvinyl chloride movable glove bags. Only the Safe-T-Strip glove bag is allowed in Ontario. If the single use polyethylene glove bags permitted in some other jurisdictions are used, it should be understood that they are for use at one location only, and cannot be moved or used elsewhere.

1.1 Glove Bag

Prefabricated, 0.25 mm (10 mil) minimum thickness polyvinyl-chloride bag with integral 0.25 mm (10 mil) thick polyvinyl-chloride gloves and elasticized port. Bag shall be equipped with reversible double-pull double throw zipper on top. Bag must incorporate internal closure strip if it is to be removed from pipe for re-use elsewhere.

Prefabricated polyethylene glove bag, single use, not movable.

Provide size and configuration appropriate for insulation to be removed. Once filled, bag must be disposed of. Bag shall not be emptied and reused.

1.2 Securing Straps

Reusable nylon straps at least 1" wide with metal buckle for sealing ends of bags around pipe and/or insulation.

1.3 Water Sprayer

Garden reservoir type, low velocity, capable of producing mist or fine spray with water containing wetting agent. Wetting agent shall be diluted 2 oz. per gallon of water.

1.4 Respirators

Workers using glove bag must wear approved respiratory protection. Respiratory protection must be equal to or exceed protection of half-face respirator with high efficiency filters. Respirators must be kept in position from the time the worker attaches the glove bag to the pipe until final cleaning of the pipe and bagging of waste is completed. Filters shall be changed after 24 hours of wear or sooner if breathing resistance increases. No person using a respirator shall wear facial hair that affects the seal between respirator and face.

1.5 Other Equipment

- labelled asbestos waste bags (6 mil) - for all asbestos waste in glove bag, disposable suit, cleaning materials, etc.
- asbestos warning signs
- wire saw - saw with flexible serrated wire blade and handles to allow use inside glove bag
- knife with fully retractable blade for use inside glove bag
- plastic sheet (4 mil polyethylene) to cover exposed or damaged section of pipe prior to attaching glove bag
- tape - to fasten plastic to pipe if required
- cleaning supplies, e.g., scouring pads, sponges, brushes, buckets, etc.
- HEPA vacuum, for evacuating air from bag prior to removing bag from pipe

1.6 Protective Clothing

Workers shall wear disposable suit with attached head cover. Suit and head cover shall remain in place until worker completes cleaning of pipe. Suit may be cleaned for re-use or disposed of as asbestos waste.

2. OTHER PROTECTIVE MEASURES

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

On completing clean-up of work area, use HEPA vacuum or wet cloth to clean hands, face, respirator and boots. Remove protective equipment and proceed to nearest washroom to wash all exposed skin on hands and face.

3. SCHEDULING OF WORK

Schedule work when occupants are absent. If persons are present, do not start work.

4. PREPARATION

Where practical, clear area below pipe of moveable furnishing or equipment. Provide scaffold as required to reach pipe.

Post an asbestos warning sign at all entrances to room in which the procedure is being used. Use rope or tape barriers to separate work area.

Segregate the area of asbestos work from other parts of the building required to remain in use using polyethylene walls or barrier tape.

Shut off and seal all diffusers, vents and other openings to ventilation and exhaust systems in the room with polyethylene secured with tape.

Cover all items or equipment located in the designated work area with polyethylene if the items or equipment cannot be cleaned in the case of a spill. Tape the polyethylene in place. The polyethylene should cover a width equal to the height of the pipe from the floor, with a minimum width of 12 feet, where required.

Seal all openings or voids near the glove bag operation with one layer of polyethylene secured with tape.

Pre-clean with HEPA vacuum or wet methods any loose material on surface of pipe or any material on the floor. Follow type 2 procedures for clean-up.

Place necessary tools in bottom of glove bag.

5. EXECUTION

Zip the bag onto the pipe and seal each end to the pipe with the securing straps. Do not pull the bag tightly to the ends - a small amount of slack allows better room to work within the bag. If a vertical bag is in use, ensure lower strap passes through plastic grommet and cloth tab on zipper.

Place hands into gloves and use necessary tools (wire saw, utility knife, and wire cutters) to remove insulation from pipe. Arrange insulation in bottom of bag to obtain full capacity of bag. Roll jacketing carefully to minimize the possibility of ripping or puncturing the bag.

Insert nozzle of spray pump into bag through valve and wash pipe and interior of upper section of bag thoroughly. Use one hand to aid washing process. Wet surface of insulation in lower section of bag and any exposed ends of asbestos insulation remaining on pipe.

Prior to removing the bag from the pipe, wash the top section of the bag and tools thoroughly. Insert nozzle of HEPA filtered vacuum into bag through elasticized valve and evacuate air from bag. Seal the closure strip, remove the vacuum nozzle and straps, and remove the bag. Re-install and seal in new location before reopening closure.

If bag is to be moved along the same pipe, loosen securing straps, move bag, re-seal to pipe using double-pull zipper to pass hangers. Repeat insulation removal operation.

If during use the glove bag is ripped, cut or opened in any way, cease work and repair opening before continuing work. All spilled material must be cleaned up and removed with a HEPA vacuum or wet cleaning.

To remove tools after completion of insulation removal, thoroughly wash top section of bag and tools. Place tools in one glove, pull hand out inverted, twist to create a separate pouch, tape inside-out glove at two separate locations 1" apart to seal pouch. Remove inside-out glove and tools by cutting between the tape seals.

Place glove pouch and tools into the next clean glove bag to be used. Alternately, place the tool pouch into water bucket, open pouch underwater and clean tools, and then allow area to dry.

Prior to disposal of bag, evacuate the bag with a HEPA vacuum. Pull a 6-mil polyethylene bag over glove bag before removing from pipe. Remove securing straps. Unfasten zipper. Seal glove bag and seal 6-mil polyethylene bag.

After removal of bag ensure pipe is clean of all residue. If necessary, after removal of each section of asbestos, vacuum all surfaces of pipe, using HEPA filtered vacuum equipment or wipe with wet cloth.

Seal all surfaces of freshly exposed pipe with encapsulating sealer to tack-down any residual dust. Cover exposed ends of any remaining asbestos insulation with lagging cloth or tape.

Before leaving work area, decontaminate shoes and protective clothing by using HEPA vacuum or damp wiping. When protective clothing is to be disposed of, it shall be decontaminated as above and placed in labelled disposal bags. Workers shall vacuum all exposed skin, suit, respirator and hair (after removing hood) and proceed to nearest washroom to wash hands and face.

6. WASTE TRANSPORT AND DISPOSAL

Provide storage area for holding minor amounts of asbestos waste in sealed containers. Containers shall be labelled and assigned exclusively for asbestos waste.

Dispose of waste in compliance with provincial regulations. The asbestos abatement contractor will arrange for disposal.

APPENDIX E

RESPIRATOR FITTING, INSPECTION, CLEANING AND DISINFECTION

ASBESTOS MANAGEMENT PLAN

NOTE: This section is for information purposes only to enable Algonquin College to ensure that all procedures are in place in accordance with O. Reg 278/05. Algonquin College's maintenance staff will not be performing the asbestos abatement operation. Therefore, they do not require fit tested respirators.

NOTES FOR AIR PURIFYING HALF FACEPIECE AND FULL-FACE RESPIRATORS

WARNING: This respirator does not supply oxygen. It must not be used in oxygen deficient atmospheres (less than 19.5%); in poorly ventilated areas or enclosed spaces such as tanks or small rooms; for abrasive blasting or firefighting; or for protection against contaminants excluded or not covered by the applicable Approval Label.

Respirators must be approved for protection against asbestos. Check for NIOSH certification. Please refer to the new CSA Z94.4, Selection, Care and Use of Respirators. Federal employees must comply with Z94.4.

NOTE: for Type 3 Asbestos Operations a Full-Face Respirator must be worn.

RESPIRATOR FITTING

1. Persons required to wear respirators must first pass a qualitative fit-test administered according to the current version of CSA standard Z-94.4. The fit-test should be repeated yearly.

2. The respirator wearer must be clean-shaven along all the seal points for proper protection. Even stubble growth may be sufficient to reduce the seal of the face piece, and therefore the protection. The respirator approval is voided for users with facial hair which interferes with the seal.

INSPECTION ITEMS PRIOR TO EACH USE:

1. Examine face piece for:
- dirt
- cracks, tears or holes
- distortion and inflexibility
- crack or breaks in filter holders, worn threads and missing gaskets

2. Examine head straps for:
- breaks or tears
- loss of elasticity
- broken or malfunctioning buckles and attachments

3. Examine valves for:
- detergent residue, dust or other material on valves or valve seats
- cracks, tears or distortion in the valve material

- missing or defective valves or valve covers

4. Examine filter for:
- proper filter for protection against asbestos (High Efficiency Particulate)
- incorrect installation, loose connections, missing or worn gaskets or cross threading
- cracks or dents in filter housing

5. Leak-checks:

Perform the following tests on each donning:
- negative pressure test: cover inlets to filters, breathe in and hold breath; respirator should be drawn to face for minimum of 10 seconds (if not, check exhalation valve and fit)
- positive pressure test: cover exhalation valve cover and puff out slightly and hold breath; respirator should slightly pressurize and still hold seal (if not, check inhalation valves and fit)

RESPIRATOR CLEANING AND DISINFECTION

1. Remove filters and disassemble face piece. Discard or repair defective parts.

2. Wash components in warm water (50°C - 60°C) with mild detergent, using a brush. Cleaning and disinfectant solutions are available from respirator manufacturers.

3. Thoroughly rinse components in clean, warm water.

4. Air dry or hand dry components with a clean, lint-free cloth.

5. Reassemble respirator and test to ensure that all components are working properly (see above). Be careful to check that valves are not lost in the cleaning.

FILTER CARTRIDGE HANDLING AND REPLACEMENT

1. Filter cartridges should be sealed on the inlet side with tape once used.
2. Filters can be re-used until an increase in breathing resistance is noted. Under typical Type 2 conditions, filter cartridges should last a minimum of 24 hours.

APPENDIX F

PROCEDURES FOR EMERGENCY ASBESTOS WORK

ASBESTOS MANAGEMENT PLAN

If Type 1 or 2 procedures cannot be strictly observed due to the urgency of the need to remove asbestos containing materials, judgement will be required of the person responsible for the work, and other staff or contractors responding to the emergency. The general principle of emergency response work is to protect the workers performing the repair and to minimize the exposure of others to airborne asbestos. The procedures given below should be followed to the extent possible in the circumstances of the emergency.

1. Clear area of all occupants.

2. Construct enclosure around area if time permits.

3. Shut down ventilation system serving area.

4. Worker performing repair shall wear protective respirator and disposable suit. If normal work clothes are worn, they must be disposed of if visibly contaminated.

5. Use drop sheet under work to minimize clean-up if possible.

6. Perform emergency repair with minimum disturbance of asbestos.

7. Obtain asbestos equipment and perform clean-up of visible material before allowing unprotected personnel to enter area. Use HEPA filtered vacuum or wet cleaning. Dispose of all cleaning supplies as contaminated waste.

8. The worker should wipe off or vacuum disposable clothing and footwear. Proceed to washroom to wash face and hands.

9. Notify the Property Manager regarding the asbestos disturbance. The Property Manager will arrange for removal, clean-up or repair of the asbestos material.

APPENDIX G

ASBESTOS-RELATED WORK RECORD

APPENDIX H

CERTIFICATE OF CONTRACTOR TRAINING FOR ASBESTOS-RELATED WORK

APPENDIX I

CONTRACTOR NOTIFICATION AND ACKNOWLEDGEMENT

APPENDIX J

ROLES AND RESPONSIBILITIES

ASBESTOS MANAGEMENT PLAN

SAMPLE

ROLES AND RESPONSIBILITIES

Property Manager (Mandatory)

The site-specific Property Manager`s roles and responsibilities are:

A. To develop and maintain a liaison with internal Algonquin College for day-to-day reporting, communication and support.
B. To arrange for a complete survey and assessment of asbestos materials.
C. Will decide the degree/detail of surveys required to meet jurisdictional requirements.
D. Will decide the degree/detail of re-assessment of all friable asbestos materials in exposed locations.
E. To maintain and manage an inventory of asbestos. Inventory to include all test results, positive and negative.
F. To establish a system of keeping the reports to ensure ready access to maintenance staff.
G. To establish an acceptable paper trail to deal with removal and repair of asbestos.
H. To establish an acceptable system of notifying all stakeholders (e.g., Algonquin College, building tenants, etc.) of new findings of asbestos.
I. To maintain an inventory of trained personnel and the level of training given.
J. To provide communication on management issues.
K. To develop a standard reporting form to be used to report on maintenance repair and removal work.

ASBESTOS MANAGEMENT PLAN

All contractors

This includes anyone or any contractor that will be performing work on the interior or exterior of Algonquin College owned buildings.

Their responsibilities are:

A. To review the asbestos survey reports prior to all renovation and construction work for the possible impact on asbestos.
B. Not to disturb asbestos materials as part of their doing their work. The disturbance of asbestos building materials may only be undertaken by contractors who have received training in asbestos-related precautions.
C. As a condition of their contract to provide services and materials to Algonquin College, their company will not disturb asbestos-containing materials without prior notification to Algonquin College. This firm and its workers, while working in this "location of work", will follow all procedures specified by this Asbestos Management Plan.

All Contractors, doing work involving Asbestos

This includes any work on the interior or exterior of Algonquin College owned buildings involving asbestos.

Their responsibilities are:

A. To ensure they follow all procedures specified by the Asbestos Management Plan.
B. To ensure that they complete all the required documentation required by the Asbestos Management Plan.

APPENDIX K

LOG BOOK

ASBESTOS MANAGEMENT PLAN

Algonquin College **1385 Woodroffe Avenue** **Ottawa, ON**			
Location / Item Worked On	**Performed By**	**Type of Operation**	**Date**
Example: Building A *Floor 2 – Mechanical Room – Pipe Elbow*	*Example:* *Joe Smith*	*Example:* *Glove Bag*	*Example:* *Jan. 1, 2015*