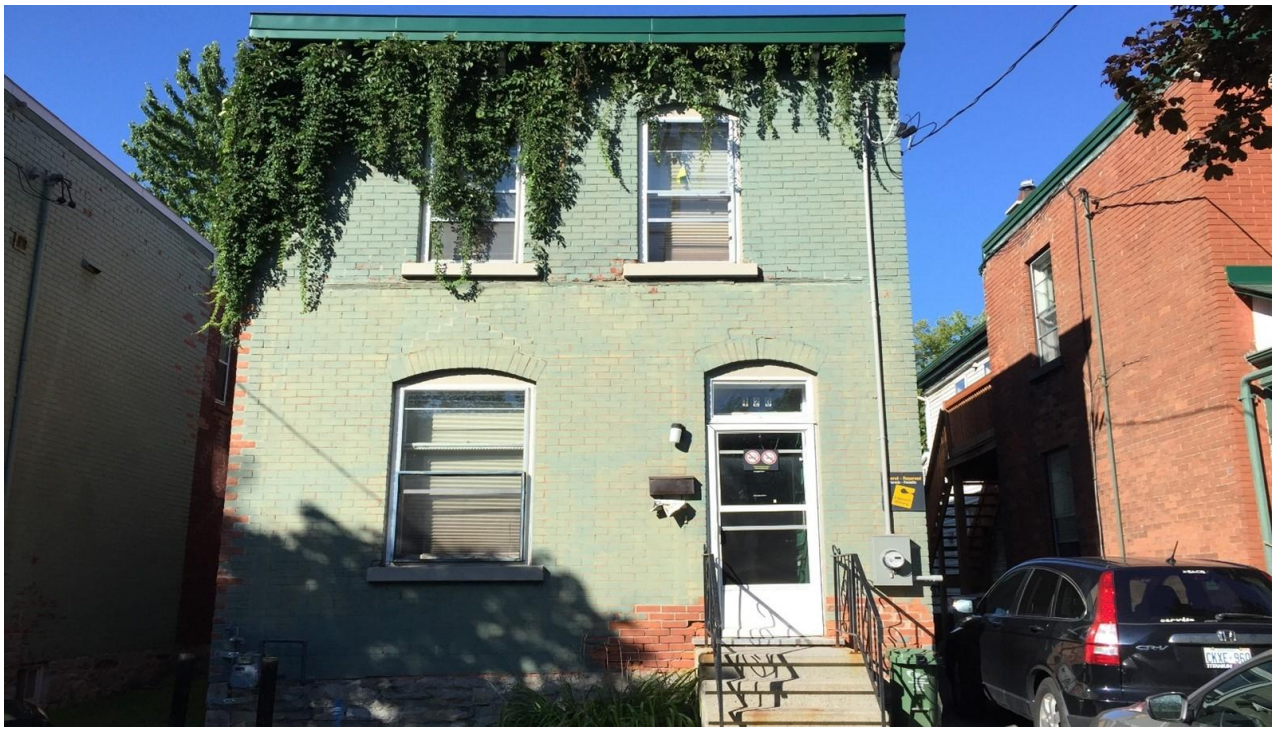
HAZARDOUS MATERIALS SURVEY AND 2025 REASSESSMENT
120 HENDERSON AVENUE, OTTAWA, ON



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Prepared for:
University of Ottawa

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Date:

February 16, 2026

egis

Table of Content

2025 REASSESSMENT SURVEY ..... **I**

EXECUTIVE SUMMARY ..... **II**

1.0 INTRODUCTION **1**

2.0 PROPERTY DESCRIPTION **2**

3.0 FINDINGS & RECOMMENDATIONS **2**

Designated Substances ***2***

3.1 Asbestos ***2***

3.1.1 Fireproofing 3

3.1.2 Mechanical Pipe Insulation 3

3.1.3 Flexible Duct Connector 4

3.1.4 Heat Shield or Heat Shield Insulation 4

3.1.5 Texture Finishes 4

3.1.6 Plaster 4

3.1.7 Drywall Joint Compound 4

3.1.8 Ceiling Tiles 4

3.1.9 Vinyl Floor Tiles 5

3.1.10 Vinyl Sheet Floor 5

3.1.11 Brick Mortar 5

3.1.12 Concrete Block Mortar 5

3.1.13 Ceramic Wall / Floor Tile Grout 5

3.1.14 Transite (Asbestos Cement) 5

3.1.15 Caulking and Glazing 5

3.1.16 Mastic 5

3.1.17 Cementitious Coating 5

3.1.18 Concrete 6

3.1.19 Exterior Stucco 6

3.1.20 Loose-fill Insulation 6
3.1.21 Tar 6
3.1.22 Fire Doors 6
3.1.23 Roofing Material 6
3.2 Lead 7
3.2.1 Paint Finishes 7
3.2.2 Battery Packs 8
3.3 Mercury 10
3.3.1 Thermostat Switches 10
3.3.2 Fluorescent Light Tubes 10
3.3.3 Pressure Gauges and Float Switches 10
3.4 Silica 10
Other Hazardous Materials 11
3.5 Polychlorinated Biphenyls (PCBs) 11
3.5.1 Light Ballasts 11
3.5.2 HID Light Ballasts 11
3.5.3 Transformers 11
3.6 Ozone Depleting Substances (ODSs) and Other Halocarbon 12
3.7 Radioactive Materials 12
3.8 Underground and Above Ground Storage Tanks (USTs and ASTs) 13
3.9 Mould 13
3.9.1 Mould 13
3.9.2 Water Damage 13
4.0 GENERAL CONSIDERATIONS AND LIMITATIONS 15

Appendix A – Regulatory Requirements
Appendix B – Survey Methodology & Background Information
Appendix C – Laboratory Certificate of Analysis
Appendix D – Site Photographs
Appendix E – Asbestos Containing Materials Inventory
Appendix F – Hazardous Containing Materials Inventory
Appendix G – Site Sampling & Location Plans

2025 REASSESSMENT SURVEY

Egis Canada Limited **(Egis)** was retained by the University of Ottawa to complete a Hazardous Materials Survey for the building located at 120 Henderson Avenue, Ottawa, Ontario. Egis was also retained to reassess the condition of hazardous building materials found. The survey was conducted on August 19th, 2020. The reassessment was completed on October 30th, 2024.

The purpose of the reassessment was to evaluate the condition and quantity of previously reported asbestos-containing materials (ACM) and develop corrective action plans as required for the purposes of long-term management.

The assessment and reassessment determined the following findings and recommendations.

Summary of the Reassessment Findings:

- Suspected ceramic wall/floor tile grout were observed to be in good condition throughout the subject building.
- ACM plaster were observed to be in good condition throughout the subject building.
- No mould was observed during the site survey.
- No water damaged material was observed during the site survey.

Summary of Recommendations:

- Perform a reassessment of asbestos materials on an annual basis.
- Sample any presumed ACM prior to alteration or maintained work if presumed ACM may be disturbed by the work.
- Perform a pre-construction assessment and remove all asbestos-containing materials (ACM) prior to alterations or maintenance work if ACM may be disturbed by the work.
- Follow appropriate safe work procedures when handling or disturbing asbestos.
- Any suspect building materials encountered that were not assessed as part of this survey, should be assumed to contain asbestos until proven otherwise by analytical testing.
- Follow appropriate safe work procedures when conducting work activities that involve disturbance of hazardous materials identified
- Prior to any renovations or demolition activities within the building, designated substances and hazardous materials must be decommissioned by a licensed contractor such that they are contained and not released to the environment during decommissioning as per O. Reg. 347/09- made under the Environmental Protection Act.

EXECUTIVE SUMMARY

Egis Canada Limited **(Egis)** was retained by the University of Ottawa, to complete a hazardous materials survey for the building located at 120 Henderson Avenue, Ottawa, Ontario. The survey was conducted on August 19th, 2020. The reassessment was completed on October 30th, 2024.

The purpose of the survey was to determine the presence of building materials containing Designated Substances and other hazardous materials, as defined under the Ontario Occupational Health and Safety Act. Designated Substances are eleven chemical agents prescribed under Ontario Regulation 490/09. In addition, a visual assessment was conducted for the presence of polychlorinated biphenyls (PCBs), radioactive materials, ozone depleting substances (ODSs), other halocarbons and mould.

Based on the assessment conducted by Egis, the following ACMs were previously identified or suspected to be present in the building:

Table A: Summary of Asbestos-Containing Materials Identified

Material Description	Friable?	Location	Type of Asbestos
Plaster	Friable	Throughout Building	Chrysotile
Ceramic Wall/ Floor Tile Grout	-	Throughout Building	Suspected

Note: Please refer to the complete report below for specific details and recommendations.

All repairs or removal of asbestos-containing materials must be conducted according to Ontario Regulation 278/05, Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations - made under the Occupational Health and Safety Act. Asbestos containing waste must also be handled and disposed of according to Ontario Regulation 347/90 as amended – made under the Environmental Protection Act. Any suspect building materials encountered that were not assessed as part of this survey, should be assumed to contain asbestos until proven otherwise by analytical testing;

Sub-trades working with or in close proximity to asbestos-containing material should be informed of its presence;

Given that asbestos containing materials (ACMs) have been identified and will likely remain in place, an Asbestos Management Plan (AMP) is therefore required and an inventory of ACMs must be kept on site. All ACMs must be routinely inspected to ensure no damage has occurred, and the inventory must be updated once in each 12 month period and as may be required based on expected changing site conditions, abatement and/or renovation activities.

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Based on the assessment conducted by Egis, the following Designated Substances and Hazardous Materials were identified or suspected to be present in the building:

Table B: Summary of Designated Substances & Hazardous Materials Identified

Material Description	Location
Lead Paint	Throughout Building
Mercury Vapour	Specific Equipment
Silica	Throughout Building
PCBs	Specific Equipment
Ozone Depleting Substances	Specific Equipment
Radioactive Materials	Specific Equipment

Note: Please refer to the complete report below for specific details and recommendations.

Designated Substances area regulated under Ontario Regulation 490/09 — Designated Substances, made under the Ontario Health and Safety Act, which applies to controlling designated substances in the workplace.

In addition to Ontario Regulation 490/09, the following guidelines must also be adhered to when conducting work activities that that involve disturbance of the above-mentioned materials:

- Guideline: Lead on Construction Projects, issued April 2011 by the Occupational Health and Safety branch of the Ministry of Labour
- Guideline: Silica on Construction Projects issued April 2011 by the Occupational Health and Safety branch of the Ministry of Labour.
- Environmental Abatement Council of Canada (EACC) Mould Abatement Guidelines.

Prior to any renovations or demolition activities within building, designated substances and hazardous materials must be decommissioned by a licensed contractor such that they are contained and not released to the environment during decommissioning as per O. Reg. 347/09- made under the Environmental Protection Act.

Any suspect building materials encountered that were not assessed as part of this survey, should be assumed to contain designated substances or hazardous materials until proven otherwise by analytical testing.

This report should be made available to contractors tendering on any renovation or demolition work. In turn, all contractors requesting tenders from subcontractors shall furnish this report to subcontractors.

<u>This executive summary is not to be used alone. This report should be reviewed in its entirety.</u>

February 16, 2026

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via email: martine.bergeron@uottawa.ca

Attention: Martine Bergeron, Senior Specialist, Occupational Health and Safety

Re: 120 Henderson Avenue, Ottawa, Ontario
Hazardous Materials Survey and 2025 Reassessment
Egis Canada Limited Reference No. CCO-252985-00

1.0 INTRODUCTION

In accordance with your instructions, Egis Canada Limited (Egis) carried out a Hazardous Materials Survey and 2025 Reassessment of the building located at 120 Henderson Avenue, Ottawa, Ontario. The survey was conducted on August 19th, 2020. The reassessment was completed on October 30th, 2024.

The purpose of the survey was to determine the presence of building materials containing Designated Substances and other hazardous materials, as defined under the Ontario Occupational Health and Safety Act. Designated Substances are eleven chemical agents prescribed under Ontario Regulation 490/09. In addition, a visual assessment was conducted for the presence of polychlorinated biphenyls (PCBs), radioactive materials, ozone depleting substances (ODSs), other halocarbons and mould.

Egis completed the following,

- Visual review of the building to identify materials which could contain Designated Substances and hazardous materials;
- Review of previously completed Hazardous Materials Survey(s), Project-Specific Designated Substance Survey, historical building record(s), meeting with facility managers to review construction, abatement and renovations completed and,
- Recommendations for appropriate action where required.

2.0 PROPERTY DESCRIPTION

The subject building is a two-storey residential building. The building was constructed in 1900 and covered approximately 2,271 square feet. The subject building was observed to be constructed with a concrete and stone masonry foundation, wood frame construction with siding and brick cladding and a flat roof. The interior walls were observed to be plaster, drywall, or brick-and-mortar. In the subject building, ceilings were observed to be plaster or suspended ceiling tiles. The floors were generally a combination of hardwood, laminate, vinyl floor tiles, concrete, carpet or ceramic floor tiles.

3.0 FINDINGS & RECOMMENDATIONS

Designated Substances

3.1 Asbestos

Previous Findings

A total of (131) bulk samples were collected during the survey and sent to an accredited laboratory for analysis. A summary of potential asbestos-containing samples collected along with the sample location, type and friability are presented in Table 1.

Laboratory certificates of analysis for asbestos are included in **Appendix C.**

Table 1:

Asbestos Laboratory Results

Sample ID	Location	Material	Type and Content	Friability
BS 1.1	B1	Mortar (Grey)	None Detected	N/A
BS 1.2	B1	Mortar (Grey)	None Detected	N/A
BS 1.3	B1	Mortar (Grey)	None Detected	N/A
BS 2.1	103	VFT (12”x12” – Grey w/Black Marks)	None Detected	N/A
		Mastic (White)	None Detected	
BS 2.2	103	VFT (12”x12” – Grey w/Black Marks)	None Detected	N/A
BS 2.3	103	VFT (12”x12” – Grey w/Black Marks)	None Detected	N/A
BS 3.1	103	Drywall Joint Compound	None Detected	N/A
BS 3.2	205	Drywall Joint Compound	None Detected	N/A
BS 3.3	103	Drywall Joint Compound	None Detected	N/A
BS 3.4	204	Drywall Joint Compound	None Detected	N/A
BS 3.5	204	Drywall Joint Compound	None Detected	N/A
BS 4.1	103	SCT (2’x4’- Pinholes with Large Fissures)	None Detected	N/A

Sample ID	Location	Material	Type and Content	Friability
BS 4.2	103	SCT (2'x4'- Pinholes with Large Fissures)	None Detected	N/A
BS 4.3	103	SCT (2'x4'- Pinholes with Large Fissures)	None Detected	N/A
BS 5.1	103	SCT (2'x4'- Pinholes with Small Fissures)	None Detected	N/A
BS 5.2	103	SCT (2'x4'- Pinholes with Small Fissures)	None Detected	N/A
BS 5.3	103	SCT (2'x4'- Pinholes with Small Fissures)	None Detected	N/A
BS 6.1	100	Mastic (Yellow)	None Detected	N/A
BS 6.2	100	Mastic (Yellow)	None Detected	N/A
BS 6.3	100	Mastic (Yellow)	None Detected	N/A
BS 7.1	Top of Basement Stairs	Wallpaper	None Detected	N/A
		Mastic (Clear)	None Detected	
BS 7.2	Top of Basement Stairs	Wallpaper	None Detected	N/A
		Mastic (Clear)	None Detected	
BS 7.3	Top of Basement Stairs	Wallpaper	None Detected	N/A
		Mastic (Clear)	None Detected	

N/A – Not Applicable
VFT – Vinyl Floor Tiles
Stop Positive – Material considered being asbestos-containing as per O. Reg. 278/05.

Please refer to **Appendix E** – Asbestos-Containing Materials Checklist for material conditions, quantities (where applicable), and recommended actions.

The following building materials (if present) were investigated for asbestos content,

3.1.1 Fireproofing

No fireproofing was observed in the subject building.

3.1.2 Mechanical Pipe Insulation

3.1.2.1 Mechanical Pipe Straight Insulation

No mechanical pipe straight insulation was observed in the subject building.

3.1.2.2 Mechanical Piping Elbows/Fittings Insulation

No mechanical pipe elbows/fittings insulation was observed in the subject building.

3.1.2.3 Mechanical Piping Hangers Insulation

No mechanical pipe hanger insulation was observed in the subject building.

3.1.2.4 HVAC Duct Insulation

No HVAC duct insulation was not observed in the subject building.

3.1.2.5 Other Mechanical Insulation

No other mechanical insulation was observed in the subject building.

3.1.3 Flexible Duct Connector

No flexible duct connectors were observed in the subject building.

3.1.4 Heat Shield or Heat Shield Insulation

No potential asbestos-containing heat shield insulation were observed in the subject building.

3.1.5 Texture Finishes

No texture coat finishes were observed in the subject building.

3.1.6 Plaster

Previously identified ceiling/Wall plaster was observed throughout the subject building. The laboratory analytical results of plaster samples collected indicate that this material **contains 0.5% Chrysotile asbestos.** Since plaster is a homogeneous material, all areas must be treated as asbestos-containing unless additional bulk sampling and analysis until proven otherwise. This material is considered to be friable and was observed to be in good condition.

3.1.7 Drywall Joint Compound

Drywall joint compounds were observed throughout the subject building. The laboratory analytical results of drywall joint compound samples collected indicate that this material does not contain asbestos.

3.1.8 Ceiling Tiles

Several different types of ceiling tiles were observed and sampled throughout the subject building as follows:

- Suspended ceiling tiles (2'x4' - Pinholes with Large Fissures) were observed throughout the kitchen (Room 103) on the first floor of the subject building. The laboratory analytical results of ceiling tile samples collected indicate that this material does not contain asbestos.
- Suspended ceiling tiles (2'x4' - Pinholes with Small Fissures) were observed throughout the kitchen (Room 103) on the 1st floor of the subject building. The laboratory analytical results of ceiling tile samples collected indicate that this material does not contain asbestos.

3.1.9 Vinyl Floor Tiles

Vinyl floor tiles were observed and sampled throughout the subject building as follows:

- Vinyl floor tiles (12"x12" – Grey w/Black Marks) were observed throughout the kitchen (Room 103) on the 1st floor of the subject building. The laboratory analytical results of the vinyl floor tile samples collected indicate that this material does not contain asbestos. The associated mastic (white) does not contain asbestos.

3.1.10 Vinyl Sheet Floor

No vinyl sheet flooring was observed in the subject building.

3.1.11 Brick Mortar

Brick mortar was observed throughout the basement of the subject building. The laboratory analytical results of the brick mortar samples collected indicate that this material does not contain asbestos.

3.1.12 Concrete Block Mortar

No concrete block mortar was observed subject building.

3.1.13 Ceramic Wall / Floor Tile Grout

No bulk samples of the ceramic wall/floor tile grout were collected to avoid damage and compromise the structure's integrity. Prior to any renovation or demolition, ceramic wall/floor tile grout should be examined and tested for asbestos content. Ceramic wall/floor tile grout should therefore be considered to contain asbestos until bulk samples and analysis until proven otherwise.

3.1.14 Transite (Asbestos Cement)

No transite materials were observed in the subject building.

3.1.15 Caulking and Glazing

No potential asbestos-containing caulking was observed in the subject building.

3.1.16 Mastic

No potential asbestos-containing mastic was observed in the subject building.

3.1.17 Cementitious Coating

No potential asbestos-containing cementitious coating finishes were observed in the subject building.

3.1.18 Concrete

No potential asbestos-containing concrete finishes were observed in the subject building.

3.1.19 Exterior Stucco

No potential asbestos-containing stucco was observed on the building exterior.

3.1.20 Loose-fill Insulation

No potential asbestos-containing loose-fill insulation were not observed in the subject building.

3.1.21 Tar

No tar was observed in the subject building.

3.1.22 Fire Doors

No wood/asbestos containing material fire doors were observed in the subject building.

3.1.23 Roofing Material

To avoid damage and compromising the integrity of roofing material, no bulk samples of the roofing materials were collected. Prior to removal and/or replacement, roofing materials should be examined and tested for asbestos content. Roofing materials should be considered to contain asbestos until bulk samples and analysis proves otherwise.

Recommendations

- Asbestos-containing materials identified to be in poor condition must be repaired/removed immediately, following Type 1/2/3 asbestos abatement work procedures as detailed in O. Reg. 278/05 and disposed of as asbestos waste under O. Reg. 347;
- Asbestos-containing materials that have been identified to be in fair condition should be either repaired (where possible) and/or closely monitored for signs of further deterioration. Depending on type of material and location, these materials should be scheduled for removal if there is potential risk of exposure to worker and/or occupants;
- Materials identified to contain asbestos that are in good condition and do not pose a risk to workers or occupants can be managed in place. Prior to renovation/demolition activities that may disturb the ACMs, these materials must be removed following appropriate Type 1/2/3 asbestos abatement work procedures as detailed in O. Reg. 278/05 and disposed of as asbestos waste under O. Reg. 347;
- Please refer to **Appendix E** – Asbestos-Containing Materials Checklist for material conditions, quantities (where applicable), and recommended actions;

- Entry into ceiling spaces where asbestos-containing ceiling tiles are present will require Type 1/2 asbestos abatement procedures.

- Sampling was conducted using non-destructive methods, focusing solely on visible and accessible areas unless a project-specific site assessment was completed and incorporated. Consequently, any renovations or construction activities that may disturb building materials must involve destructive sampling to analyze all relevant layers of the building materials.

- Prior to renovation/demolition of materials which are assumed to be asbestos containing (suspect materials which were not sampled, i.e., roofing materials and fire doors), these materials must either be tested for asbestos content or removed following appropriate asbestos abatement work procedures (Type 1/2/3) as detailed in O. Reg. 278/05 and disposed of as asbestos waste under O. Reg. 347;

- All repairs or removal of asbestos-containing materials must be conducted according to Ontario Regulation 278/05, Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations - made under the Occupational Health and Safety Act. Asbestos containing waste must also be handled and disposed of according to Ontario Regulation 347/90 as amended – made under the Environmental Protection Act. Any suspect building materials encountered that were not assessed as part of this survey, should be assumed to contain asbestos until proven otherwise by analytical testing;

- Sub-trades working with or in close proximity to asbestos-containing material should be informed of its presence; and

- Given that asbestos containing materials (ACMs) have been identified and will likely remain in place, an Asbestos Management Plan (AMP) is therefore required and an inventory of ACMs must be kept on site. All ACMs must be routinely inspected to ensure no damage has occurred, and the inventory must be updated once in each 12-month period and as may be required based on expected changing site conditions, abatement and/or renovation activities.

3.2 Lead

Previous Findings

3.2.1 Paint Finishes

A total of eight (8) paint samples from the subject building were previously collected and analyzed for lead content. Results of bulk sampling testing are summarized in Table 2 and the laboratory certificate of analysis can be found in **Appendix C.**

Table 2:

Lead Sampling Locations and Laboratory Results

Sample I.D.	Location	Material	Colour	Lead Concentration Weight by Conc. (%)
PB1	102	Wall Paint	Blue	<0.0082
PB2	Top of Basement Stairs	Wall Paint	Brown	0.066
PB3	204	Wall Paint	White	0.0086
PB4	Exterior	Wall Paint	Green	<0.0081
PB5	103	Window Frame Paint	White	2.2
119-1-LBP-050107-01	1st Floor	Wall Paint	White	3.4
119-1-LBP-050107-02	Back of House	Stair Paint	White	0.33
119-1-LBP-050107-03	Front of House	Stair Paint	Grey	0.89

The paint finishes highlighted in blue in the above table were determined to contain low concentrations of lead which are less than or equal to 0.1%. These paint finishes were observed to be in good condition with the exception of select areas that were observed in poor condition.

The paint finishes highlighted in pink in the above table are considered lead-containing paints or surface coatings with concentrations greater than 0.1% lead by weight. These paint finishes were observed to be in good condition with the exception of select areas that were observed in poor condition.

All remaining paints tested were below the laboratory limit of detection for lead. However, all other paints throughout the subject building that are not mentioned in this report must be considered to be lead-containing unless sampling and analysis proves otherwise.

Laboratory certificate of analysis for the paint sample is also included in **Appendix C.**

3.2.2 Battery Packs

Egis did not identify any lead-containing acid battery packs throughout the subject building.

Lead may be present in the following materials in the building:

- Solder used on copper domestic water lines;
- Solder used in bell fittings for cast iron pipes;

- Solder used in electrical equipment;
- Ceramic tile glaze; and
- Concrete and mortar products, etc.

Recommendations

Paints identified to contain lead that are in poor condition must be immediately repaired and/or stabilized following a minimum Type 1/2 lead abatement procedures as per OMOL "Lead on Construction Project" dated April 2011.

Paints identified to contain lead that are in fair condition should be either repaired (where possible) and/or closely monitored for signs of further deterioration.

Paints identified to contain lead that are in good condition and do not pose a risk to workers or occupants can be managed in place.

Detailed worker protection protocols are outlined in the OMOL Guideline "Lead on Construction Projects" dated April 2011. Generally, the removal of the lead-based paint with the use of a chemical gel or paste, or a power tool equipped with a HEPA filter is considered a Type 1 operation. The removal of lead-based paint by scraping or sanding using non-powered hand tools is considered a Type 2 operation. The removal of lead-based paint using abrasive blasting, or power tools without a HEPA filter, is considered a Type 3 operation, and requires the most stringent worker protection protocols (similar to asbestos). Furthermore, high temperature cutting or welding would also require Type 3 Operations under the Guideline for Lead on Construction Projects. If this type of work is required, it may be prudent to chemically remove the lead paint in selected locations prior to performing any high temperature cutting or welding.

All lead materials that are removed must follow the Ministry of Labour and Environmental Abatement Council of Canada Lead Guidelines.

Please refer to **Appendix F** – Hazardous Materials Checklist for material conditions, quantities (where applicable), and recommended actions.

Precautions should be taken as required during major renovations and demolition projects to ensure that workers' exposure levels to airborne lead does not exceed 0.05 mg/m3. This can be achieved by:

- providing workers with proper training;
- providing the workers with respiratory protection;
- wetting the surface of the materials to prevent dust emissions; and,
- providing workers with hygiene facilities to properly wash prior to exiting the work area.

Sub-trades working with or in close proximity to lead based paint should be informed of its presence.

All waste material must be handled and disposed of according to the Revised Regulation of Ontario 347/90 as amended – made under the Environmental Protection Act. Lead waste generated may also be subject to Leachate Criteria (Schedule 4) of this regulation.

3.3 Mercury

Findings

3.3.1 Thermostat Switches

Egis did not observe thermostats containing liquid mercury within the subject building.

3.3.2 Fluorescent Light Tubes

Egis identified fluorescent light fixtures throughout the surveyed area containing 2 to 4 fluorescent light tubes per fixture. Mercury is likely to be present in vapor form in the fluorescent light tubes.

3.3.3 Pressure Gauges and Float Switches

Egis did not identify any pressure gauges containing liquid mercury throughout the subject building. Egis also did not identify any suspected float switches that may contain liquid mercury within the subject building.

Recommendations

Please refer to **Appendix F** – Hazardous Materials Checklist for equipment conditions, quantities (where applicable), and recommended actions.

Precautions must be taken to prevent mercury liquid/vapours from becoming airborne during building demolition. Exposure to mercury is regulated under Ontario Regulation 490/09, Designated Substances - made under the Occupational Health and Safety Act." Prior to renovations to the building, all mercury containing fluorescent light tubes, thermostats, and equipment must be removed and stored in a safe, secure location and/or properly disposed of in accordance with R.R.O. 1990, Regulation 347 General – Waste Management, made under the Environmental Protection Act.

3.4 Silica

Findings

Silica is expected to be present in building materials such as concrete, brick, mortar and ceramic tiles located throughout the structures. Free crystalline silica (α-Quartz) may be a component in ceiling tiles and gypsum board. Silica (including free crystalline silica) may also be a component of concrete and brick surfaces noted in the building.

Recommendations

Please refer to **Appendix F** – Hazardous Materials Checklist for equipment conditions, quantities (where applicable), and recommended actions.

Precautions should be taken as required during major renovations and demolition projects on concrete (i.e. coring through concrete slabs, demolition of masonry, etc.) to ensure that workers' exposure levels to airborne silica does not exceed 0.05 mg/m^3.

This can be achieved by:

- providing workers with proper training;
- providing the workers with respiratory protection;
- wetting the surface of the materials to prevent dust emissions; and,
- providing workers with facilities to properly wash prior to exiting the work area.

Demolition work that is likely to impact silica-containing materials should be carried out in accordance with the requirement detailed in the Ontario Ministry of Labour document entitled "Guideline: Silica on Construction Projects", dated April 2011 and in accordance with the University of Ottawa's **Silica Exposure Control Program**, November 2020.

Other Hazardous Materials

3.5 Polychlorinated Biphenyls (PCBs)

Findings

3.5.1 Light Ballasts

The subject building is illuminated by LED and fluorescent lights. Egis assessed representative ballasts in the building, and these ballasts were identified as non-PCBs content.

3.5.2 HID Light Ballasts

Egis observed HID Lamps at the interior of the buildings. These lamps may contain PCB-containing light ballasts. These ballasts were not investigated during the survey as they could not be readily or safely disassembled.

3.5.3 Transformers

Egis did not observe any PCBs containing electrical transformers within the subject building.

Recommendations

Please refer to **Appendix F** – Hazardous Materials Checklist for equipment conditions, quantities (where applicable), and recommended actions.

No further action required at this time, identification and sorting of suspect PCB equipment would be the responsibility of any contractor performing work on electrical equipment.

Prior to any renovations, all light ballasts and HID lamps containing or suspected of containing PCBs that will be affected by the work, must be decommissioned by a licensed contractor such that PCBs are contained and not released to the environment during decommissioning and properly disposed of.

3.6 Ozone Depleting Substances (ODSs) and Other Halocarbon

Findings

A visual assessment for equipment potentially containing ODSs and other halocarbons was conducted. Egis observed equipment such as refrigerators, water fountains, water coolers, freezers, etc. which contain or are suspected of containing ODSs or other halocarbons.

No other equipment containing ODSs or other halocarbons was observed in the subject building.

Recommendations

Please refer to **Appendix F** – Hazardous Materials Checklist for equipment conditions, quantities (where applicable), and recommended actions.

Under the management of a licensed contractor, equipment containing R-22 and R-134a does not represent a significant threat to human health or the environment however, a licensed contractor must decommission equipment such that CFCs are contained and not released to the environment during servicing or operation.

3.7 Radioactive Materials

Findings

A visual assessment of the subject building was conducted to determine if any electrical components containing radioactive materials were present. Smoke detectors were observed throughout the subject building, which contained small quantities of radioactive material.

Recommendations

Please refer to **Appendix F** – Hazardous Materials Checklist for equipment conditions, quantities (where applicable), and recommended actions.

The radioactive sources in smoke alarms are sealed and contained within a metal case inside the smoke detector and must not be damaged or tampered with. These materials do not pose a hazard as long as they remain contained and properly disposed at the time of removal or replacement.

Prior to any renovations or demolition of the building, all equipment containing radioactive materials must be decommissioned by a licensed contractor such that radioactive materials are contained and not released to the environment during decommissioning as per O.Reg. 347/09.

Since no radioactive materials were observed or suspected to be present during the site survey, no further action is required.

3.8 Underground and Above Ground Storage Tanks (USTs and ASTs)

Findings

A visual survey of the subject building was conducted to determine if any USTs and ASTs were present.

No USTs and ASTs were present within the surveyed area.

Recommendations

Please refer to **Appendix F** – Hazardous Materials Checklist for equipment conditions, quantities (where applicable), and recommended actions.

Prior to any demolition in the buildings within the facility, all USTs and ASTs equipment must be decommissioned by a licensed contractor such that substances are contained and not released to the environment during decommissioning.

Since no underground and/or above ground storage tanks (USTs and ASTs) were observed or suspected to be present during the site survey, no further action is required.

3.9 Mould

Findings

3.9.1 Mould

A visual survey of the subject building was conducted to determine if any mould was present. Egis did not observe any areas with obvious signs of visible mould growth.

3.9.2 Water Damage

A visual survey of the subject building was conducted to determine if any water damaged was present. Egis did not observe any areas with obvious signs of water damages.

Recommendations

Please refer to **Appendix F** – Hazardous Materials Checklist for equipment conditions, quantities (where applicable), and recommended actions.

Water stained/damaged ceiling tiles observed throughout the subject building should be replaced as part of regular maintenance and the underlying cause of the water leakage should be identified and repaired following the university of Ottawa **Mould Control and Water Damage Restoration Program**, March 2023.

Water stained/damaged ceiling tiles that are also determined to contain asbestos must be replaced following appropriate asbestos abatement procedures as outlined in O.Reg. 278/05.

This report should be made available to contractors tendering on any renovation or demolition work. In turn, all contractors requesting tenders from subcontractors shall furnish this report to subcontractors.

4.0 GENERAL CONSIDERATIONS AND LIMITATIONS

The information presented in this report is based on information provided by others, direct visual observation made by personnel with **Egis Canada Limited (Egis)**, and the results of laboratory testing as identified herein.

It should be noted that there might be hazardous materials in locations not visible during our investigation. In the event such material is encountered during demolition operations in the building, this material should be tested and dealt with accordingly.

The findings detailed in this report are based upon the information available at the time of preparation of the report. No investigative method eliminates the possibility of obtaining imprecise or incomplete information. Professional judgement was exercised in gathering and analyzing the information obtained and in the formulation of our conclusions and recommendations.

Egis does not certify or warrant the environmental status of the property nor the building on the property.

Please note that the passage of time affects the information provided in the report. Environmental conditions of a site can change. Opinions relating to the site conditions are based upon information that existed at the time that the conclusions were formulated.

The client expressly agrees that it has entered into this agreement with Egis, both on its own behalf and as agent on behalf of its employees and principals.

The client expressly agrees that Egis' employees and principals shall have no personal liability to the client in respect of a claim, whether in contract, tort and/or any other cause of action in law. Accordingly, the client expressly agrees that it will bring no proceedings and take no action in any court of law against any of Egis employees or principals in their personal capacity.

We trust that we have detailed our findings clearly and that we have satisfactorily addressed the scope of work you require at this time. In the event you wish us to review our findings with you, or require our services further in this regard, please do not hesitate to contact our office.

Yours truly,

Egis Canada Limited

Pegah Parichehreh, M.Sc.
Project Technician
Hazardous Materials/ Environmental Health & Safety

John Tufts, B.Sc.
Project Manager
Hazardous Materials/ Environmental Health & Safety

APPENDIX A

Regulatory Requirements

REGULATORY REQUIREMENTS

In Ontario, there is a total of eleven Designated Substances. These substances have been regulated under Ontario Regulation 490/09 — *Designated Substances*, made under the Ontario Health and Safety Act, which applies to controlling designated substances in the workplace.

In addition to the Ontario Regulation 490/09 noted above, the following were observed for this survey:

Guideline: Lead on Construction Projects, issued April 2011 by the Occupational Health and Safety branch of the Ministry of Labour

Guideline: Silica on Construction Projects issued April 2011 by the Occupational Health and Safety branch of the Ministry of Labour.

The Occupational Health and Safety Act (OHSA), R.S.O. 1990, c.0.1, s.30 (1) specifies that: "Before beginning a project, the owner shall determine whether any Designated Substances are present at the project site and shall prepare a list of all Designated Substances that are present at the site.

Section 30 of The Act requires that the list of Designated Substances be provided to prospective contractors and subcontractors who may do work on a site and come into contact at the site with Designated Substances.

The Ministry of Labour has designated the following substances:

- Acrylonitrile
- Arsenic
- Asbestos
- Benzene
- Coke Oven Emissions
- Ethylene Oxide
- Isocyanates
- Lead
- Mercury
- Silica
- Vinyl Chloride

Ontario Regulation 278/05 (O. Reg. 278/05), the Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations, made under the Occupational Health and Safety Act (OHSA), requires owners of a building to identify Asbestos-containing Materials (ACMs) prior to potential disturbance of the materials.

In addition, an owner of a building is required to have an Asbestos Management Plan (AMP) if ACMs (friable or non-friable) are present in the building and are to remain in place. An inventory of ACMs must be kept on site. All ACMs must be routinely inspected to ensure no damage has occurred, and the inventory must be updated once in each 12-month period and as may be required based on expected changing site conditions, abatement and/or renovation activities. Removal of all asbestos containing materials is required prior to building demolition.

In addition to the Designated Substances, the building was also surveyed for the presence of polychlorinated biphenyls (PCBs),

We understand that this survey has been conducted to comply with the regulatory requirements of Ontario Regulations 278/05 and 490/09.

APPENDIX B

Survey Methodology & Background Information

SURVEY METHODOLOGY

For the purpose of this survey, not all Designated Substances or suspect hazardous material were sampled. Selective sampling was carried out only for substances that were suspected to be present or those deemed to have a likely source of origin in the survey areas.

Materials that were homogeneous in nature and/or similar in appearance to other materials tested were considered to be of similar composition. The likelihood of ACMs being present in inaccessible areas such as above gypsum board ceilings or behind gypsum wallboards was determined by assessing the presence of asbestos-containing systems in adjacent areas. Equipment such as boilers, motors, blowers, electrical panels, fire doors etc., were not de-energized or disassembled to examine internal components or materials. These items should be considered to contain hazardous materials until proven otherwise.

During the survey, representative samples of suspect building materials were collected and sent to an AIHA/NVLAP accredited independent laboratory for analysis. Laboratory Certificates of Analysis are attached in Appendix C.

Other potential hazardous materials were identified by visual observation and/or by reviewing Material Safety Data Sheets (MSDS) and/or safety labels where available.

Investigated Areas

The survey included all accessible areas and ceiling space as required under our scope of work. No destructive investigations were performed as part of this survey. Photographs of the areas investigated can be found in Appendix D.

The assessment was directed on the interior structure and finishes of the building. It did not consider current or past owner or occupant articles within the building (i.e. contents, furniture, etc.) and does not report on possible contaminants in the soil under and surrounding the building, or contents of vessels, drums, etc. that may be concealed.

Sampling and Assessment Methodologies

Sampling was conducted as part of this assessment. Results for asbestos and lead samples can be found in the Findings & Recommendation Section 3.0.

A historical review of previous designated substance survey reports and abatement reports was examined as part of this survey. Due to concerns regarding certain historical analytical results, mainly in 2008 and prior years, confirmatory re-sampling was conducted for selected materials previously identified not to contain asbestos. However, building materials previously identified to be asbestos-containing were not re-sampled. The reports are listed as follows,

- Designated Substance Survey by Conestoga-Rovers & Associates (dated April 2008, reference # 045870(24));

- Hazardous Materials Survey – 21 Residential Rooftops and Attics by CM3 Environmental (dated April 2019, reference # TLW2500)
- Hazardous Materials Survey and 2023 Reassessment by McIntosh Perry (dated 2023, reference #Z2021102HZ / CCC-230252-00)

Asbestos

Background Information on Asbestos

Asbestos is a generic name that has been given to a group of naturally occurring fibrous minerals. In the past, asbestos was commonly used as a component in building materials such as insulation, fireproofing and acoustic or decorative panels. Although there are many types of asbestos, the three main forms of commercial importance in Ontario are chrysotile, amosite and crocidolite.

An Asbestos-Containing Material (ACM) is defined by O. Reg. 278/05 as a material that contains 0.5% or more asbestos by dry weight. ACMs are placed into two general classes, "friable" and "non-friable" ACMs. Friable ACMs are those materials that when dry can be crumbled, pulverized and reduced to powder by hand pressure. Typical friable ACMs include acoustical or decorative texture coats, fireproofing and thermal insulation. Non-friable ACMs are much more durable as they are held together by a binder such as cement, vinyl or asphalt. Typical non-friable ACMs include floor tiles, fire blankets, roofing materials and cementitious products such as wallboards, pipes or siding.

It has been recognized that hazardous situations may exist in buildings where asbestos-containing materials are found. This is especially true where asbestos fibres may become airborne as a result of material ageing, physical damage, and water damage or air movement.

In contrast, there is little reason for concern if the asbestos is in good condition, has not been damaged and is not in a location where it is likely to be disturbed.

Asbestos Survey Methodology

The asbestos survey included the identification of potential friable and non-friable asbestos-containing materials within the surveyed areas of the subject building.

The likelihood of ACMs being present in inaccessible areas such as above gypsum wallboard ceilings and walls was determined by assessing the presence of asbestos-containing materials in adjacent areas.

Fiberglass insulation was not submitted for analysis as it can be identified visually as non-asbestos material.

Building materials suspected of containing asbestos were identified and representative sampling and laboratory testing of these materials was conducted. The number of bulk material samples collected from a homogeneous area was in accordance with Table 1. O. Reg. 278/05 s. 3 (3) below. Building

materials suspected of containing asbestos were collected using wetting techniques and hand sampling tools.

Table 1 - O. Reg. 278/05 s. 3(3): Minimum Asbestos Bulk Material Sample Requirements

Item	Type of material	Size of area of homogeneous material	Minimum number of bulk material samples to be collected
1.	Surfacing material, including without limitation, material that is applied to surfaces by spraying, by troweling or otherwise, such as acoustical plaster on ceilings and fireproofing materials on structural members	Less than 90 square metres	3
		90 or more square metres, but less than 450 square metres	5
		450 or more square metres	7
2.	Thermal insulation, except as described in item 3	any size	3
3.	Thermal insulation patch	Less than 2 linear metres or 0.5 square metres	1
4.	Other material	Any size	3

Preliminary identification of the samples was made using polarized light microscopy (PLM), with confirmation of presence and type of asbestos made by dispersion staining optical microscopy. This analytical procedure follows the U.S. Environmental Protection Agency Test Method EPA/600/R-93/116 Method for the Determination of Asbestos in Bulk Building Materials, June 1993.

All bulk samples were analysed for asbestos content by Paracel Laboratories Ltd., an independent laboratory. Paracel is a fully accredited facility for asbestos analysis and is accredited under National Voluntary Laboratory Accreditation (NVLAP Lab Codes 200812-0 and 200863-0). Paracel is accredited for asbestos bulk analysis in PLM in Ottawa and Mississauga, respectively. For the Scope of Accreditation under the (CALA) Membership Number 1262, Paracel is accredited for asbestos in air samples by PCM.

Vinyl floors tiles were analyzed using the phase light microscopy (PLM) method of analysis. However, given the composition of vinyl floor products, the PLM analysis method may be prone to yielding false negative analytical results. Therefore, prior to removal or replacement, vinyl floor products previously identified to be negative, should undergo additional analysis by Transmission Electron Microscopy (TEM) to confirm asbestos content, if any.

Materials identified to contain asbestos were assessed on the relative possibility of fibre release into the air due to a combination of their condition and accessibility.

Evaluation of ACMs Based on Condition

In evaluating an ACM's condition, the following criteria was applied:

- **Good** – Material shows no signs of damage and/or is encapsulated. Asbestos-containing material could remain in place until eventual building demolition or major renovation.
- **Fair** – Material shows signs of minor damage (<5% damage) or otherwise near the end of useful life. This includes minor shrinking, cracking, delamination and/ or other damage. Material should be monitored closely and scheduled to be repaired, encapsulated or removed.
- **Poor** – Damage is greater than 5% to any ACM material and is highly recommended to be removed, repaired or encapsulated.

Note: The above evaluation criteria was also applied to other hazardous materials where applicable. Please refer to the Asbestos and Hazardous Materials Checklist in Appendix E & F for further details.

Lead

Background Information on Lead

Lead was a common additive in exterior and hard-wearing paint applications. Lead was used to prolong shelf life of paint and to increase its flexibility and durability to wear and weather. Acute exposure to lead by inhalation or ingestion may cause headaches, fatigue, nausea, abdominal cramps and joint pain. Chronic exposures can cause reduced haemoglobin production and reduced lifespan. It has also been known to impact the body's central and peripheral nervous systems and brain function and has been linked to learning disabilities in children.

Currently in Ontario, there is no regulatory limit that determines what concentration of lead constitutes a "lead containing material". On October 21, 2010, Health Canada, under the *Hazardous Products Act*, stated that the lead content in surface-coating materials, furniture, toys and other articles for children, should not exceed 90 mg/kg (0.009%, 90 ppm). However, this is intended for the importation or sale of products within Canada. Therefore, this is not to be misconstrued as a limit established to define a lead-containing material or a limit with respect to lead on construction projects.

The Environmental Abatement Council of Canada (EACC) has also developed the "*Lead Guideline for Construction, Renovation, Maintenance or Repair*" dated October 2014, which discusses the classification, handling, disturbance and removal of lead-containing materials. For the purpose of this guideline, paints or surface coatings containing less than or equal to 0.1% lead by weight (1000 mg/kg or 1000 ppm) are considered low-level lead paints or surface coatings. If these materials (and their respective surfaces) are disturbed in a non-aggressive manner and performed using adequate dust control procedures, then worker protection from the inhalation of lead is not required.

Furthermore, paints or surface coatings containing greater than 0.1% lead by weight are considered lead-containing paints or surface coatings. If these materials (and their respective surfaces) are disturbed, appropriate lead abatement procedures must always be followed.

Exposure to lead-containing materials is regulated under Ontario Regulation 490/09, *Designated Substances* - made under the Occupational Health and Safety Act. Care must be taken to prevent lead-containing particles from becoming airborne during the disturbance of lead-containing surfaces (i.e., during renovation or demolition projects). All lead abatement work must follow procedures outlined in the Guideline Lead on Construction Projects, issued in September 2004 (amended in April 2011) by the Occupational Health and Safety branch of the Ministry of Labour (Type 1-3). Similarly, the lead abatement work procedures outlined in the EACC Lead Guideline for Construction, Renovation, Maintenance or Repair (October 2014) may also be implemented (Class 1-3).

Lead is known to have been used in solder on copper plumbing fixtures, in lead conduit pipes, in lead-calcium battery plates, ammunition, and in nuclear and X-ray shielding devices. However, these materials were not sampled during this investigation, but were noted where applicable.

To verify lead content in paints, representative bulk samples of paint and finishes suspected of containing lead were collected. Bulk samples were scraped down to the building base structure, with all possible layer's present, placed in sealed plastic bags and labeled; and then submitted to an independent laboratory for analysis. Samples were treated with a dilute nitric acid sample digestion prior to filtration. Analysis utilized for lead detection in filtered samples was inductively coupled plasma optical emission spectrometry (ICP-OES).

Mercury

Background Information on Mercury

Mercury is known to cause poisoning in humans through the inhalation of vapours, ingestion of contaminated materials or skin absorption through direct contact with the liquid.

Precautions must be taken to prevent mercury vapours from becoming airborne during renovations or demolition of the building. Exposure to airborne mercury is regulated under the Revised O. Reg. 490/09 as amended – Regulation respecting Mercury – made under the Occupational Health and Safety Act; and under O. Reg. 558, which amended O. Reg. 347/90 (General - Waste Management), mercury is classified as a Schedule 2(b) Hazardous Waste Chemical. Its hazardous waste number is U151.

Mercury is found in products such as thermostats, temperature and pressure gauges, fluorescent lamps and batteries. Mercury in products can be released to the environment through breakage, or disposal at the end of a product's useful life. Improper disposal of these mercury products poses a health and environmental risk to everyone. In addition, the disposal of mercury-containing products can create wastes that are often classified as hazardous. Wastes that leach mercury in concentrations exceeding Ontario Regulation 347/90 (General - Waste Management) limits are also considered hazardous.

The mercury in thermostats switch contains approximately 3-4 grams of mercury in a glass ampoule, typically attached to a metal coil. Mercury-containing switches have been used in thermostats for over 40 years.

Mercury is an essential component in fluorescent lamps and HID lamps. The mercury is in a vapour form and in the phosphor coating on the lamp tube. Estimates of the mercury content contained in compact, 4 foot, and 8-foot lamps are 10 mg, 23 mg, and 46 mg respectively.

Most fluorescent lamps qualify as hazardous waste when removed from service and are therefore prohibited from disposal in the solid waste stream. Fluorescent lamps would be classified as 146T on your facility Generator Registration Report under O. Reg. 347/90 - General Waste Management, as amended by O. Reg. 558/00. Under this regulation, if the leachate results exceed 0.1 milligrams of mercury per litre for a given waste, then the facility must treat the waste as hazardous waste. Most fluorescent and HID lamps will exceed the leachate toxicity limit; therefore, these wastes must be registered and treated as hazardous waste or sent for recycling.

Silica

Background Information on Silica

Silica is expected to be present in building materials such as concrete, brick, mortar and ceramic tiles located throughout the structures. Free crystalline silica (▪ -Quartz) may be a component in ceiling tiles and gypsum board. Silica (including free crystalline silica) may also be a component of concrete and brick surfaces noted in the building.

Exposure to airborne silica is regulated under Ontario Regulation 490/09, *Designated Substances* - made under the Occupational Health and Safety Act.

Polychlorinated Biphenyls (PCBs)

Background Information on PCBs

Polychlorinated Biphenyls (PCBs) were commonly used as dielectric insulating fluid in electrical equipment such as transformers and capacitors, and in the fluorescent and HID lamp ballasts. The production of PCBs in the North America started in 1929 and was banned at the beginning of 1979. After 1981, no manufacturers produced fluorescent and HID lamps with PCB-containing ballasts.

PCBs are not a designated substance under the Occupational Health and Safety Act.

PCB Regulations (SOR/2008-273)

The *PCB Regulations* (the Regulations) set specific deadlines for ending the use of PCBs in concentrations at or above 50 mg/kg, eliminating all PCBs and equipment containing PCBs currently in storage and limiting the period of time PCBs can be stored before being destroyed. The Regulations also establish sound practices for the better management of the remaining PCBs in use (i.e. those with content of less than 50 mg/kg), until their eventual elimination, to prevent contamination of dielectric fluids and dispersion of PCBs in small quantities into other liquids.

Ozone Depleting Substances (ODSs) and Other Halocarbons

Background Information on ODSs

Within Ontario, the general use of ozone depleting substances (ODSs) and other halocarbons is controlled through Regulation 463/10 of the Environmental Protection Act. Production of ODSs in the form of hydro chlorofluorocarbons (HCFCs) and chlorofluorocarbons (CFCs) ceased in Canada in 1993 as a result of their ozone-depleting characteristics. Importation of CFCs into Canada ceased in 1997 and total ban was placed on their use since 2010. The use of these materials is still permitted in existing equipment, but equipment must be serviced by a licensed contractor such that CFCs are contained and not released to the environment during servicing or operation.

Radioactive Materials

There are two types of smoke detectors commonly found in building (residential, institutional, commercial, industrial, etc). Photoelectric-type smoke detectors detect smoke using an optical sensor, whereas ionization-type smoke detectors use an ionization chamber containing radioactive material. The ionization type is cheaper and is particularly common in older buildings. A typical modern detector contains about 1.0 microcurie of the radioactive element americium, a decrease from 3 microcurie in 1978. The use of sealed radioactive material sources in fire detection systems is still permitted and regulated by the Canadian Nuclear Safety Commission (CNSC) and the Canadian Nuclear Safety Act. The radioactive sources in smoke alarms are sealed and contained within a metal case inside the smoke detector and must not be damaged or tampered with.

Mould & Water Damage

Mould growth inside buildings is due to excess moisture caused by leakages, condensation or capillary movement of water into the building. Toxic moulds such as *Stachybotrys chartarum* and some species of *Aspergillus* spp. are greenish-black, wet and slimy moulds that grow on soaking wet cellulose-based materials. They are often found near water leaks or where drying is very slow and can form after flooding if insufficient cleanup and drying occurred. They will generally not occur if materials are kept dry.

Egis conducted a general visual assessment for any obvious signs of visible mould and/or water damage. Based on our visual observations, the following guidelines were used in providing our recommendations for remedial action where required:

- Institute of Inspection Cleaning and Restoration Certification (IICRC) S520 Standard and Reference for Professional Mould Remediation,
- The Canadian Construction Association (CCA) Mould Guidelines for the Canadian construction industry (CCA document 82-2004)
- Environmental Abatement Council of Canada (EACC) Mould Abatement Guidelines.

Other Designated Substances

Select Designated Substances (acrylonitrile, arsenic, coke oven emissions, ethylene oxide, isocyanates, benzene, or vinyl chloride) are not expected to be present in the building in matrix or sufficient quantities to cause an exceedance of Ministry of Labour exposure guidelines. As such, no sampling was conducted for these materials.

Vinyl Chloride

Vinyl chloride (monomer) is likely to be present in stable form within poly vinyl-chloride (PVC) piping and conduits and as a component of interior finishes. Such building materials are not considered to be hazardous in their current matrix/composition.

Acrylonitrile

Acrylonitrile or ACN (also known as vinyl cyanide) is an explosive, flammable liquid used in the manufacture of acrylic fibres, rubber-like materials and pesticide fumigants. Acrylonitrile was not noted and would not be expected to be present in the project specific area/surveyed area/subject building.

Arsenic

Arsenic is used in metallurgy for hardening copper, lead and alloys, in pigment production, in the manufacture of certain types of glass, in insecticides, fungicides and rodenticides, as a by-product in the smelting of copper ores, and as a dopant material in semiconductor manufacturing. Arsenic or arsenic compounds were not noted and are not expected to be present in the project specific area/surveyed area/subject building.

Benzene

Benzene or benzol is a colourless liquid. It is used as an intermediate in the production of styrene, phenol, cyclohexane, and other organic chemicals, and in the manufacture of detergents, pesticides, solvents, and paint removers. It is also found in gasoline. Benzene may be present in stable form in roofing materials, paints and adhesives located throughout the subject building. Such building materials are not considered to be hazardous in their current matrix/composition.

Coke Oven Emissions

Coke oven emission is benzene soluble fraction of total particulate matter of the substances emitted into the atmosphere from metallurgical coke ovens.

Ethylene Oxides

Ethylene oxide is a colourless gas liquefying below 12°C. It is used generally as a fumigant and sterilizing agent for medical equipment. It is used generally as a fumigant and sterilizing agent for medical equipment.

Isocyanates

Isocyanates compounds may be present in stable form in paint finishes, varnishes, and polyurethane plastics, synthetic rubbers, foams and adhesives. Such building materials are not considered to be hazardous in their current matrix/composition.

In order to reduce the potential for exposure to workers or occupants, any suspect hazardous building material(s) that are not detailed within this survey due to inaccessibility and/or are discovered during renovation/demolition activities, must be properly assessed and/or tested prior to their disturbance.

APPENDIX C

Laboratory Analytical Reports

EMSL Canada Inc.
22 Antares Drive Suite 102 Ottawa, ON K2E 7Z6
Phone/Fax: (343) 882-6076 / (343) 882-6077
http://www.EMSL.com / ottawalab@EMSL.com

EMSL Canada Order 672001448
Customer ID: 55CTCS25B
Customer PO: 0Z2-021101
Project ID: Ottawa DSS

Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

Client Sample ID: 5.1 ***Lab Sample ID:*** **672001448-0015**
Sample Description: 120 Henderson/Ceiling tile - 2'x4' - pinholes with small fissures

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Gray	85.0%	15.0%	None Detected	

Client Sample ID: 5.2 ***Lab Sample ID:*** **672001448-0016**
Sample Description: 120 Henderson/Ceiling tile - 2'x4' - pinholes with small fissures

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Gray	85.0%	15.0%	None Detected	

Client Sample ID: 5.3 ***Lab Sample ID:*** **672001448-0017**
Sample Description: 120 Henderson/Ceiling tile - 2'x4' - pinholes with small fissures

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Gray	85.0%	15.0%	None Detected	

Client Sample ID: 6.1 ***Lab Sample ID:*** **672001448-0018**
Sample Description: 120 Henderson/Yellow mastic - first floor stairs

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 6.2 ***Lab Sample ID:*** **672001448-0019**
Sample Description: 120 Henderson/Yellow mastic - first floor stairs

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 6.3 ***Lab Sample ID:*** **672001448-0020**
Sample Description: 120 Henderson/Yellow mastic - first floor stairs

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 7.1-Wallpaper ***Lab Sample ID:*** **672001448-0021**
Sample Description: 120 Henderson/Wallpaper - top of basement stairs

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Various	5.0%	95.0%	None Detected	

Client Sample ID: 7.1-Mastic ***Lab Sample ID:*** **672001448-0021A**
Sample Description: 120 Henderson/Wallpaper - top of basement stairs

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Clear	0.0%	100.0%	None Detected	

EMSL Canada Inc.

22 Antares Drive Suite 102 Ottawa, ON K2E 7Z6
Phone/Fax: (343) 882-6076 / (343) 882-6077
http://www.EMSL.com / ottawalab@EMSL.com

EMSL Canada Order 672001448
Customer ID: 55CTCS25B
Customer PO: 0Z2-021101
Project ID: Ottawa DSS

Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

Client Sample ID: 7.2-Wallpaper ***Lab Sample ID:*** **672001448-0022**

Sample Description: 120 Henderson/Wallpaper - top of basement stairs

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Various	5.0%	95.0%	None Detected	

Client Sample ID: 7.2-Mastic ***Lab Sample ID:*** **672001448-0022A**

Sample Description: 120 Henderson/Wallpaper - top of basement stairs

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Clear	0.0%	100.0%	None Detected	

Client Sample ID: 7.3-Wallpaper ***Lab Sample ID:*** **672001448-0023**

Sample Description: 120 Henderson/Wallpaper - top of basement stairs

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Various	5.0%	95.0%	None Detected	

Client Sample ID: 7.3-Mastic ***Lab Sample ID:*** **672001448-0023A**

Sample Description: 120 Henderson/Wallpaper - top of basement stairs

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Clear	0.0%	100.0%	None Detected	

Analyst(s):

Ewa Krupinska PLM (8)
Simon Parent PLM (19)

Reviewed and approved by:

Simon Parent, Laboratory Manager
or Other Approved Signatory

None Detected = <0.1%. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. This report must not be used to claim product endorsement by NVLAP of any agency or the U.S. Government

Samples analyzed by EMSL Canada Inc. Ottawa, ON

Report amended: 09/01/202015:51:07 Replaces initial report from: 09/01/202015:46:21 Reason Code: DataEntry-Other (see report comment)

EMSL Canada Inc.
2756 Slough Street, Mississauga, ON L4T 1G3
Phone/Fax: (289) 997-4602 / (289) 997-4607
http://www.EMSL.com torontolab@emsl.com

EMSL Canada Or	552010427
CustomerID:	55CTCS25B
CustomerPO:	0Z2-021101
ProjectID:	Ottawa DSS

Attn: **Stefan Holik**
McIntosh Perry Consulting Engineers Ltd
115 Walgreen Rd RR 3
Carp, ON K0A 1L0

Phone: (613) 836-2184
Fax:
Received: 8/26/2020 11:08 AM
Collected:

Project: **University of Ottawa 0Z2-021101 "Ottawa DSS - 120 Henderson**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*Weight*	*RDL*	*Lead* ***Concentration***
PB1		8/27/2020	0.2426 g	0.0082 % wt	<0.0082 % wt
552010427-0001	Site: 120 Henderson - blue wall - living room				
PB2		8/27/2020	0.2485 g	0.0080 % wt	0.066 % wt
552010427-0002	Site: 120 Henderson - brown wall - top of basement stairs				
PB3		8/27/2020	0.2466 g	0.0081 % wt	0.0086 % wt
552010427-0003	Site: 120 Henderson - white wall - bathroom - second floor				
PB4		8/27/2020	0.2474 g	0.0081 % wt	<0.0081 % wt
552010427-0004	Site: 120 Henderson - green wall - exterior				
PB5		8/27/2020	0.2440 g	0.082 % wt	2.2 % wt
552010427-0005	Site: 120 Henderson - white window frame - kitchen				

Rowena Fanto, Lead Supervisor
or other approved signatory

Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008% wt based on the minimum sample weight per our SOP. "<" (less than) result signifies the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. Definitions of modifications are available upon request.
Samples analyzed by EMSL Canada Inc. Mississauga, ON AIHA-LAP, LLC - ELLAP #196142

Initial report from 09/02/2020 09:21:37

APPENDIX D

Site Photographs

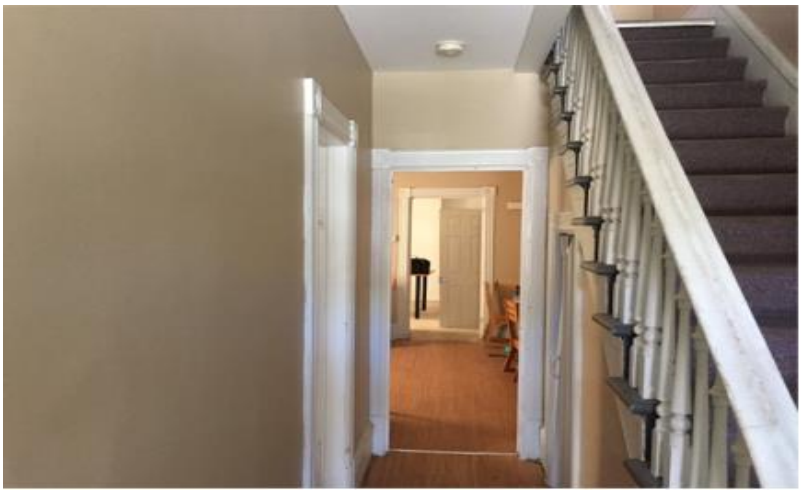


Photo 1: View of typical finishes observed at the building located at 120 Henderson Avenue.

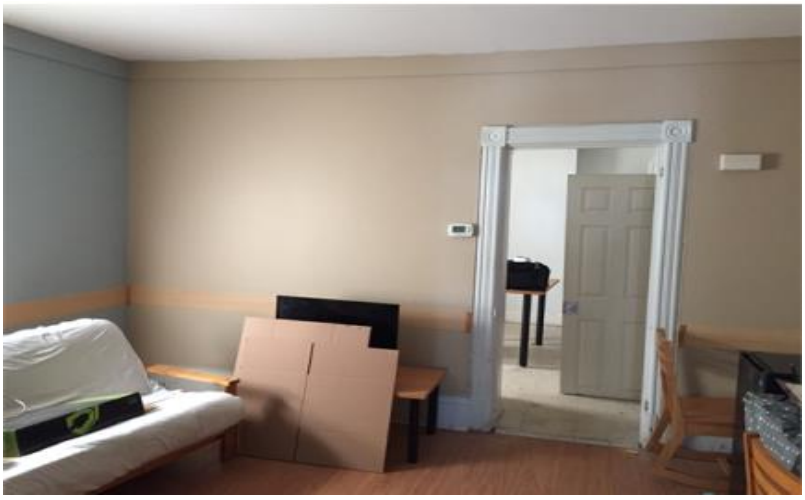


Photo 2: View of typical finishes observed at the building located at 120 Henderson Avenue.

Photo 3: View of typical finishes observed at the building located at 120 Henderson Avenue.

Photo 4: View of asbestos-containing wall plaster observed to be in poor condition at the top of the basement stairs.

Photo 5: View of lead-containing white paint observed to be in poor condition in the bathroom on the 2nd floor.

Photo 6: View of lead-containing white paint observed to be in poor condition in Room E on the 2nd floor.

Photo 7: View of water-damaged wood stairs in the basement.

Photo 8: Typical view of smoke detectors containing radioactive materials.

APPENDIX E

Asbestos Containing Materials Inventory

Floor/Level	Room	Type of ACM	Description	Asbestos Prescence	Friable/Non-Friable	Condition	Accessibility	Level of Work Near Material	Approx. Quantity	Unit	Recommended Action	Comments
0	Throughout Subject Floor	Drywall Joint Compound	White	Confirmed	- *	Good	Easy	Moderate	-	-	Manage in Place	
1	Throughout Subject Floor	Drywall Joint Compound	White	Confirmed	-	Good	Easy	Moderate	-	-	Manage in Place	
2	Throughout Subject Floor	Drywall Joint Compound	White	Suspected	-	Good	Easy	Moderate	-	-	Manage in Place	
3	Throughout Subject Floor	Drywall Joint Compound	White	Suspected	-	Good	Easy	Moderate	-	-	Manage in Place	
All	Throughout Subject Building	Ceramic Floor Tile Grout	Grey	Suspected	Friable	Good	Easy	Low	-	-	Manage in Place	

* As per O. Reg. 278/05, an asbestos record must indicate whether asbestos-containing materials (ACMs) are friable or non-friable, as friability influences the required work procedures for their disturbance or removal. However, for specific materials such as asbestos-containing drywall joint compound (DJC) and ceiling tiles (CT), the regulation provides prescriptive requirements regardless of friability. Consequently, this summary uses a dash (–) to indicate that friability is not applicable to DJC and CT.

Unit Legend

Unit Abbreviation	Description
SF	Square Feet
LF	Long Feet
N/A	Not Applicable
SM	Square Meter
LM	Long Meter
C	Count (quantity)

APPENDIX F

Designated Substances Area Inventory

Floor/Level	Location	DS Type	Component	Colour	Condition	Manufacturer	Quantity #	Unit	Suspected/ Confirmed	Recommended Action	Comments
0	Basement	Lead	Wall Paint	White	Good	-	-	-	Confirmed	Manage in Place	
1	Basement Stairs	Lead	Pipe Paint	White	Good	-	-	-	Confirmed	Manage in Place	
1	100	Lead	Handrail Paint	Orange	Good	-	-	-	Confirmed	Manage in Place	
1	Front Entrance	Lead	Hand Railing, Stairs and Baseboard Paint	Orange	Good	-	-	-	Confirmed	Manage in Place	
1	Back Entrance	Lead	Door Frame Paint	Brown	Good	-	-	-	Confirmed	Manage in Place	
1	Kitchen	Lead	Wall Paint	Brown	Fair	-	-	SF	Confirmed	Manage in Place. If affected by renovation/demolition, must be removed and disposed of as per EACC Guidelines.	
1	105	Ozone Depleting Substances (ODS)	Refrigerator	N/A	Good	Frigidaire	1	C	Confirmed	Manage in Place	
1	Kitchen	Lead	Wall Paint	White	Good	-	-	-	Confirmed	Manage in Place	
2	Bedroom	Lead	Window Frame Paint	White	Good	-	-	-	Confirmed	Manage in Place	
2	Washroom	Lead	Window Frame Paint	White	Fair	-	-	-	Confirmed	Manage in Place. If affected by renovation/demolition, must be removed and disposed of as per EACC Guidelines.	

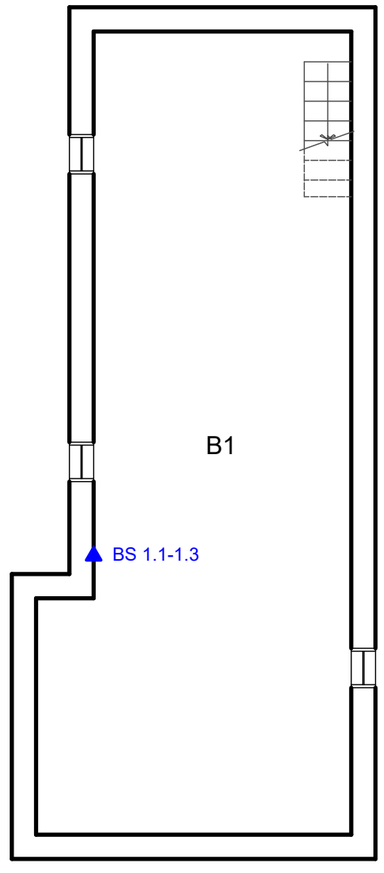
Floor/Level	Location	DS Type	Component	Colour	Condition	Manufacturer	Quantity #	Unit	Suspected/ Confirmed	Recommended Action	Comments
3	303	Lead	Wall Paint	Grey	Good	-	-	-	Confirmed	Manage in Place	
3	Bedroom	Lead	Ceiling Paint	White	Good	-	-	-	Confirmed	Manage in Place	
3	303	Lead	Window Frame Paint	Brown	Good	-	-	-	Confirmed	Manage in Place	
3	303	Lead	Trim Paint	Green	Good	-	-	-	Confirmed	Manage in Place	
All	Throughout Subject Building	Polychlorinated Biphenyls (PCBs)	Light Ballast	N/A	Good	N/A	-	-	Confirmed	Manage in Place	
All	Throughout Subject Building	Radioactive Material	Smoke Detector	N/A	Good	N/A	-	-	Confirmed	Manage in Place	Refrigerant R134A
All	Throughout Subject Building	Silica	Concrete, Mortar, Etc.	N/A	Good	N/A	-	-	Confirmed	Manage in Place	

Unit Legend

Unit Abbreviation	Description
SF	Square Feet
LF	Long Feet
N/A	Not Applicable
SM	Square Meter
LM	Long Meter
C	Count (quantity)

APPENDIX G

Site Sampling & Location Plans



egis
750 Palladium Road, Suite 310, Kanata, ON K2V 1C7
Tel: 613-836-2184 Fax: 613-836-3742
Toll Free: 1.888.348.8991 www.egis-group.com

Legend:

▲Asbestos Bulk Sample
□Lead Paint Sample <LOD
■Lead Paint Sample >LOD

NOTES: ACM ceiling and wall plaster is present throughout the building.

CLIENT: UNIVERSITY OF OTTAWA

PROJECT: 120 HENDERSON
DESIGNATED SUBSTANCE SURVEY

TITLE: SAMPLE LOCATIONS
BASEMENT

SCALE: 1:100

DATE: JANUARY 18, 2021

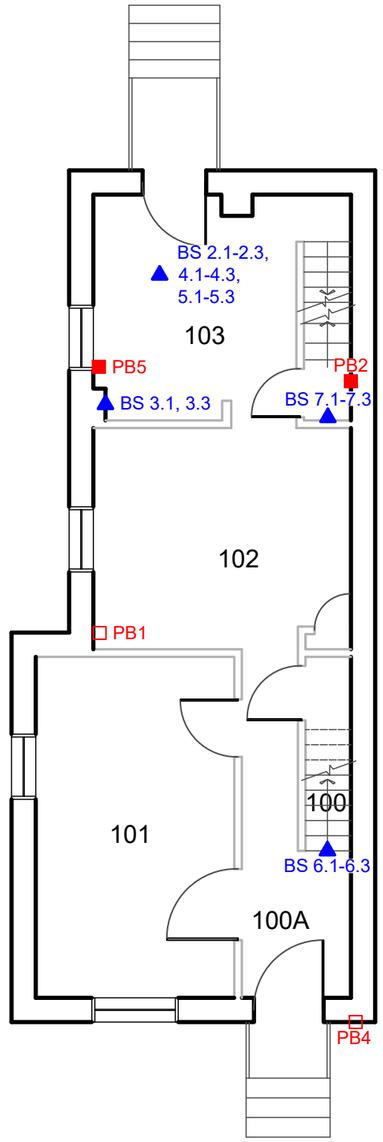
DRAWN: K.B.

CHECKED: J.T.

REV. NO.	DESCRIPTION	DATE	BY	APPD.

DRAWING NUMBER: A0

REV.:



egis
750 Palladium Road, Suite 310, Kanata, ON K2V 1C7
Tel: 613-836-2184 Fax: 613-836-3742
Toll Free: 1.888.348.8991 www.egis-group.com

THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS, REPORT ALL ERRORS AND OMISSIONS TO THE CONSULTANTS, PRIOR TO PROCEEDING WITH ANY WORKS.

Legend:

▲Asbestos Bulk Sample
□Lead Paint Sample <LOD
■Lead Paint Sample >LOD

NOTES: ACM ceiling and wall plaster is present throughout the building.

CLIENT: UNIVERSITY OF OTTAWA

PROJECT: 120 HENDERSON
DESIGNATED SUBSTANCE SURVEY

TITLE: SAMPLE LOCATIONS
GROUND FLOOR

SCALE: 1:100

DATE: JANUARY 18, 2021

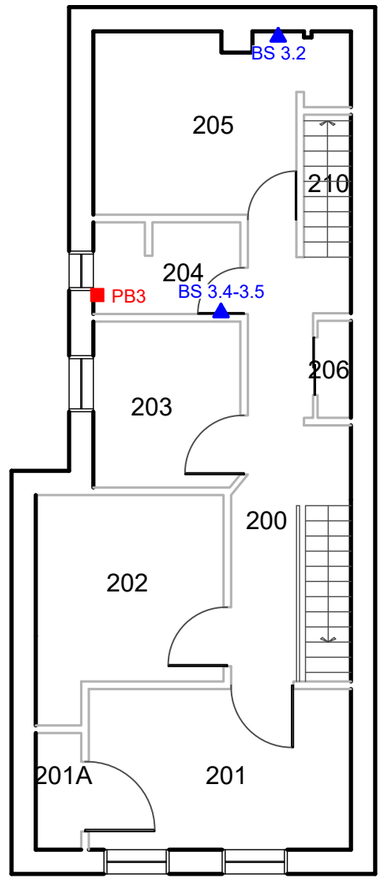
DRAWN: K.B.

CHECKED: J.T.

REV. NO.	DESCRIPTION	DATE	BY	APPD.

DRAWING NUMBER: A1

REV.:



egis
750 Palladium Road, Suite 310, Kanata, ON K2V 1C7
Tel: 613-836-2184 Fax: 613-836-3742
Toll Free: 1.888.348.8991 www.egis-group.com

Legend:

▲Asbestos Bulk Sample
□Lead Paint Sample <LOD
■Lead Paint Sample >LOD

NOTES: ACM ceiling and wall plaster is present throughout the building.

CLIENT: UNIVERSITY OF OTTAWA

PROJECT: 120 HENDERSON
DESIGNATED SUBSTANCE SURVEY

TITLE: SAMPLE LOCATIONS
SECOND FLOOR

SCALE: 1:100

DATE: JANUARY 18, 2021

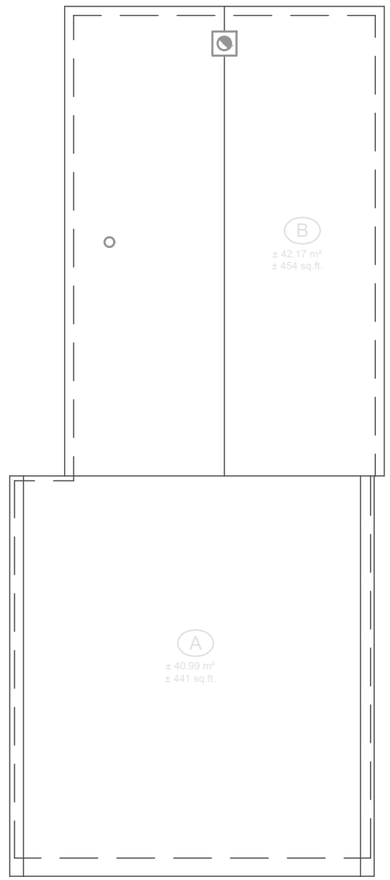
DRAWN: K.B.

CHECKED: J.T.

REV. NO.	DESCRIPTION	DATE	BY	APPD.

DRAWING NUMBER: A2

REV.:



egis
750 Palladium Road, Suite 310, Kanata, ON K2V 1C7
Tel: 613-836-2184 Fax: 613-836-3742
Toll Free: 1.888.348.8991 www.egis-group.com

Legend:

▲Asbestos Bulk Sample
□Lead Paint Sample <LOD
■Lead Paint Sample >LOD

NOTES: ACM ceiling and wall plaster is present throughout the building.

CLIENT: UNIVERSITY OF OTTAWA

PROJECT: 120 HENDERSON
DESIGNATED SUBSTANCE SURVEY

TITLE: SAMPLE LOCATIONS
ROOF

SCALE: 1:100

DATE: JANUARY 18, 2021

DRAWN: K.B.

CHECKED: J.T.

REV. NO.	DESCRIPTION	DATE	BY	APPD.

DRAWING NUMBER: A3

REV.: