

HAZARDOUS MATERIALS SURVEY AND 2022 REASSESSMENT STANTON RESIDENCE, OTTAWA, ON



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McINTOSH PERRY

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REASSESSMENT SURVEY 2022

McIntosh Perry Limited (MPL) was retained by the University of Ottawa, to complete to a hazardous materials survey of Marchand Residence located at 100 University Private, Ottawa, ON. The survey was conducted on July 9th to July 20th, 2020. The reassessment was completed on June 10th, 2022.

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:

- ACM Drywall Joint Compound (DJC) was observed to be in Good and Fair Condition throughout the subject building.
- ACM Vinyl Floor Tiles (VFTs) varieties were observed to be in Good and Fair Condition throughout the subject building, with select locations in Poor Condition.
- ACM Texture Coats were observed to be in Good and Fair Condition on ceilings throughout the subject building.
- ACM Mastic (Blue) was observed to be in Good Condition in Room 1522 of the subject building.
- ACM Pipe Elbows/Fittings insulation was observed in Good Condition in Rooms 03, 010B, 016, 025, R140A, Penthouse Level 1 and Penthouse Level 2 of the subject building.
- ACM Boiler Insulation was observed in Good Condition in Penthouse Level 2 of the subject building.
- ACM Transite (Asbestos-cement) rainwater leader piping was observed to be in Good Condition throughout the subject building.
- Water damaged materials were observed in select locations during the site survey.
- Mould affected materials were observed in select locations during the site survey.

Summary of Recommendations:

- Perform a reassessment of asbestos materials on an annual basis.
- 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.
- Sample any presumed ACM prior to alteration or maintained work if presumed ACM may be disturbed by the work.

EXECUTIVE SUMMARY

McIntosh Perry Limited (MPL) was retained by the University of Ottawa, to complete to a hazardous materials survey of Stanton Residence located at 100 University Private, Ottawa, ON. The survey was conducted from July 9th to July 20th, 2020. The Reassessment Survey was completed on June 10th, 2022.

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 MPL, the following ACMs were identified or suspected to be present in the building:

Table A: Summary of Asbestos-Containing Materials Identified

| Material Description | Friable? | Location | Type of Asbestos |
|-------------------------------|----------|---------------------|------------------|
| Drywall Joint Compound | - | Throughout Building | Chrysotile |
| Vinyl Floor Tiles | No | Specific Areas Only | Chrysotile |
| Texture Coat | Yes | Throughout Building | Chrysotile |
| Mastic | No | Specific Areas Only | Chrysotile |
| Mechanical Insulation | Yes | Specific Areas Only | Chrysotile |
| Transite | No | Specific Areas Only | Suspected |
| Roofing Material | No | Throughout Building | Suspected |
| Brick Mortar | No | Throughout Building | Suspected |
| Ceramic Wall/Floor Tile Grout | No | Throughout Building | Suspected |

Note: Please refer to the complete report 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.

Based on the assessment conducted by MPL, 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 |
|----------------------------|---------------------|
| Mercury Vapour | Specific Equipment |
| Lead Acid Batteries | Specific Equipment |
| Lead Paint | Throughout Building |
| Ozone Depleting Substances | Specific Equipment |
| Radioactive Materials | Specific Equipment |
| PCBs | Specific Equipment |
| Silica | Throughout Building |

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

Designated Substances are 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 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.

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

McINTOSH PERRY

December 16, 2022

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Hazardous Materials Survey and 2022 Reassessment
McIntosh Perry Limited Reference No. Z2021102HZ / CCC-230252-00

1.0 INTRODUCTION

In accordance with your instructions, McIntosh Perry Limited (MPL) carried out a Hazardous Materials Survey at the Stanton Residence building located at 100 University Private, Ottawa, ON. The site is situated on the west side of University Private, east of Nicholas Street. The survey was conducted from July 9th to July 20th, 2020. The Reassessment Survey was completed on June 10th, 2022.

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.

MPL completed the following,

- Visual review of the building to identify materials which could contain Designated Substances and hazardous materials;
- Bulk sampling and analysis of building materials suspected of containing asbestos (if required);
- Bulk sampling and analysis of representative paints and finishes suspected of containing lead (if required);
- Review of previously completed Hazardous Materials Survey(s) and historical building record(s); and,
- Recommendations for appropriate action where required.

2.0 PROPERTY DESCRIPTION

The subject building is an eighteen-storey residence building. The subject building was constructed in 1971 and is approximately 99, 114 square feet. The subject building was observed to be constructed with a concrete slab floor. The roof is concrete with tar and gravel. The interior walls are gypsum wallboard and concrete block. Within the subject building, ceilings were observed to be either suspended ceiling tiles, drywall or texture coat. The floors were generally concrete, vinyl floor tiles, terrazzo or carpet.

3.0 FINDINGS & RECOMMENDATIONS

Designated Substances

3.1 Asbestos

Findings

A total of forty-five (45) 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 | Room 024 | Drywall Joint Compound | 2% Chrysotile | - |
| BS 1.2 | Room 1218 | Drywall Joint Compound | Positive Stop – Not Analyzed | - |
| BS 1.3 | Room 1418 | Drywall Joint Compound | Positive Stop – Not Analyzed | - |
| BS 1.4 | Room 1518 | Drywall Joint Compound | Positive Stop – Not Analyzed | - |
| BS 1.5 | Room 803/804 | Drywall Joint Compound | Positive Stop – Not Analyzed | - |
| BS 1.6 | Room 06 | Drywall Joint Compound | Positive Stop – Not Analyzed | - |
| BS 1.7 | Room 129 | Drywall Joint Compound | Positive Stop – Not Analyzed | - |
| BS 2.1 | Room 014 | VFT (12"x12" Grey with White Streaks) | 5% Chrysotile | Non-Friable |

| Sample ID | Location | Material | Type and Content | Friability |
|-----------|------------|---------------------------------------|------------------------------|-------------|
| BS 2.2 | Room 014 | VFT (12"x12" Grey with White Streaks) | Positive Stop – Not Analyzed | Non-Friable |
| BS 2.3 | Room 014 | VFT (12"x12" Grey with White Streaks) | Positive Stop – Not Analyzed | Non-Friable |
| BS 3.1 | Room 318 | Texture Coat (Shallow Stipple) | 3% Chrysotile | Friable |
| BS 3.2 | Room 718 | Texture Coat (Shallow Stipple) | Positive Stop – Not Analyzed | Friable |
| BS 3.3 | Room 918 | Texture Coat (Shallow Stipple) | Positive Stop – Not Analyzed | Friable |
| BS 3.4 | Room 1018 | Texture Coat (Shallow Stipple) | Positive Stop – Not Analyzed | Friable |
| BS 3.5 | Room 1118 | Texture Coat (Shallow Stipple) | Positive Stop – Not Analyzed | Friable |
| BS 3.6 | Room 1218 | Texture Coat (Shallow Stipple) | Positive Stop – Not Analyzed | Friable |
| BS 3.7 | Room 1418 | Texture Coat (Shallow Stipple) | Positive Stop – Not Analyzed | Friable |
| BS 4.1 | Room 414 | Texture Coat (Deep Stipple) | 3% Chrysotile | Friable |
| BS 4.2 | Room 501 | Texture Coat (Deep Stipple) | Positive Stop – Not Analyzed | Friable |
| BS 4.3 | Room 616 | Texture Coat (Deep Stipple) | Positive Stop – Not Analyzed | Friable |
| BS 4.4 | Room 812 | Texture Coat (Deep Stipple) | Positive Stop – Not Analyzed | Friable |
| BS 4.5 | Room 904 | Texture Coat (Deep Stipple) | Positive Stop – Not Analyzed | Friable |
| BS 4.6 | Room 1003 | Texture Coat (Deep Stipple) | Positive Stop – Not Analyzed | Friable |
| BS 4.7 | Room 1115 | Texture Coat (Deep Stipple) | Positive Stop – Not Analyzed | Friable |
| BS 5.1 | Room 1428 | VFT (12"x12" Purple Marble) | None Detected | N/A |
| BS 5.2 | Room 1624A | VFT (12"x12" Purple Marble) | None Detected | N/A |
| | | Adhesive (White) | None Detected | N/A |
| | | Leveler (Grey) | None Detected | N/A |
| BS 5.3 | Room 723 | VFT (12"x12" Purple Marble) | None Detected | N/A |
| BS 6.1 | Room 1512 | VFT (12"x12" Grey Marble) | None Detected | N/A |
| BS 6.2 | Room 1614 | VFT (12"x12" Grey Marble) | None Detected | N/A |
| | | Adhesive (White) | None Detected | N/A |

| Sample ID | Location | Material | Type and Content | Friability |
|-----------|------------|---------------------------------------|------------------------------|-------------|
| | | Leveler (Grey) | None Detected | N/A |
| BS 6.3 | Room 801 | VFT (12"x12" Grey Marble) | None Detected | N/A |
| BS 7.1 | Room 1618A | VFT (12"x12" White with Grey Streaks) | 2% Chrysotile | Non-Friable |
| | | Mastic (Black) | None Detected | N/A |
| BS 7.2 | Room 818A | VFT (12"x12" White with Grey Streaks) | Positive Stop – Not Analyzed | Non-Friable |
| | | Mastic (Black) | None Detected | N/A |
| BS 7.3 | Room 718A | VFT (12"x12" White with Grey Streaks) | Positive Stop – Not Analyzed | Non-Friable |
| | | Mastic (Black) | None Detected | N/A |
| BS 8.1 | Room 1522 | Grey/Black Speckle Mastic | None Detected | N/A |
| BS 8.2 | Room 1122 | Grey/Black Speckle Mastic | None Detected | N/A |
| BS 8.3 | Room 1022 | Grey/Black Speckle Mastic | None Detected | N/A |
| BS 9.1 | Room 522 | Red (solid) Firestop | None Detected | N/A |
| BS 9.2 | | Red (solid) Firestop | None Detected | N/A |
| BS 9.3 | | Red (solid) Firestop | None Detected | N/A |
| BS 10.1 | Room 1522 | Red Firestop with Black Speckle | None Detected | N/A |
| BS 10.2 | | Red Firestop with Black Speckle | None Detected | N/A |
| BS 10.3 | | Red Firestop with Black Speckle | None Detected | N/A |
| BS 11.1 | Room 1522 | Blue Mastic | 2% Chrysotile | Non-Friable |
| BS 11.2 | | Blue Mastic | Positive Stop – Not Analyzed | Non-Friable |
| BS 11.3 | | Blue Mastic | Positive Stop – Not Analyzed | Non-Friable |

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

Mechanical pipe straight insulation was observed throughout the subject building. MPL made several incisions throughout to investigate its composition, and it was visually identified as fiberglass, and therefore not suspected of containing asbestos.

3.1.2.2 Mechanical Piping Elbows/Fittings Insulation

Previously identified mechanical pipe elbows/fittings insulation was observed in Rooms 03, 010B, 016, 025, R140A, penthouse level 1 and penthouse level 2. The laboratory analytical results indicate that this material contains 40-50% Chrysotile asbestos. This material is considered to be friable and was observed in good condition.

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

Previously identified boiler insulation was observed in penthouse level 2. The laboratory analytical results indicate that this material contains 50% Chrysotile asbestos. This material is considered to be friable and was observed in good condition.

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 heat shield insulation was observed in the subject building.

3.1.5 Texture Finishes

Ceiling texture coat (shallow stipple) was observed throughout the subject building. The laboratory analytical results of ceiling texture coat samples collected indicate that this material contains 3% Chrysotile asbestos. This material is considered to be friable and was observed in good condition.

Ceiling texture coat (deep stipple) was observed throughout the subject building. The laboratory analytical results of ceiling texture coat samples collected indicate that this material contains 3% Chrysotile asbestos. This material is considered to be friable and was observed in good condition.

3.1.6 Plaster

No plaster was observed in the subject building.

3.1.7 Grey Sheeting

No grey sheeting was observed in the subject building.

3.1.8 Drywall Joint Compound

Drywall joint compound was observed throughout the subject building. The laboratory analytical results of drywall joint compound samples collected indicate that this material contains 2% Chrysotile asbestos. Since drywall joint compound is a homogeneous material, all areas must be treated as asbestos-containing unless additional bulk sampling and analysis proves otherwise. This material was observed in good condition.

3.1.9 Ceiling Tiles

Various types of suspended ceiling tiles were observed and previously sampled throughout the subject building. Laboratory analytical results indicate that this material does not contain asbestos.

3.1.10 Vinyl Floor Tiles

Several different types of vinyl floor tiles were observed and sampled within the building as follows:

- Vinyl floor tiles (12"x12"- Grey with White Streaks) were observed throughout the subject building. The laboratory analytical results of the vinyl floor tile samples collected from indicate that this material does not contain asbestos. This material contains 5% Chrysotile asbestos and is considered to be non-friable. This material was observed to be in good condition.
- Vinyl floor tiles (12"x12"- White with Grey Streaks) were observed throughout the subject building. The laboratory analytical results of the vinyl floor tile samples collected from indicate that this material does not contain asbestos. This material contains 2% Chrysotile asbestos and is considered to be non-friable. This material was observed to be in good condition. The associated mastic (Black) was found not to contain asbestos.
- Vinyl floor tiles (12"x12" – Purple Marble) was observed throughout the subject building. The laboratory analytical results of the vinyl floor tile samples collected indicated that this material does not contain asbestos. The associated adhesive (White) and leveler (Grey) was found not to contain asbestos.
- Vinyl floor tiles (12"x12" – Grey Marble) was observed throughout the subject building. The laboratory analytical results of the vinyl floor tile samples collected indicated that this material does not contain asbestos. The associated adhesive (White) and leveler (Grey) was found not to contain asbestos.

- Previously identified asbestos-containing vinyl floor tiles (12"x12" - Green) were observed in Room 01, 05, 012, 013, 014 and 018. This material contains 23.8% Chrysotile asbestos and is considered to be non-friable. This material was observed to be in good condition.
- Previously identified asbestos-containing vinyl floor tiles (12"x12" - Orange) were observed in Room 130D. This material contains 25.4% Chrysotile asbestos and is considered to be non-friable. This material was observed to be in good condition.
- Previously identified asbestos-containing vinyl floor tiles (12"x12" – white with black dots) were observed in Room 131. This material contains 25.4% Chrysotile asbestos and is considered to be non-friable. This material was observed to be in good condition.
- Previously identified asbestos-containing vinyl floor tiles (12"x12" – light green) were observed in Room 07. This material contains 22.5% Chrysotile asbestos and is considered to be non-friable. This material was observed to be in good condition.
- Previously identified asbestos-containing vinyl floor tiles (12"x12" – light grey) were observed in Room 09. This material contains 15.4% Chrysotile asbestos and is considered to be non-friable. This material was observed to be in good condition.

3.1.11 Vinyl Sheet Flooring

No vinyl sheet flooring was observed in the subject building.

3.1.12 Parquet Flooring

No parquet flooring was observed in the subject building.

3.1.13 Brick Mortar

To avoid damage and compromising the integrity of the structure, no bulk samples of the brick mortar were collected. Prior to renovation/demolition, concrete brick mortar should be examined and tested for asbestos content. Brick mortar should therefore be considered to contain asbestos until bulk samples and analysis proves otherwise.

3.1.14 Concrete Block Mortar

To avoid damage and compromising the integrity of the structure, no bulk samples of the concrete block mortar were collected. Prior to renovation/demolition, concrete brick mortar should be examined and tested for asbestos content. Concrete block mortar should therefore be considered to contain asbestos until bulk samples and analysis proves otherwise.

3.1.15 Ceramic Wall / Floor Tile Grout

To avoid damage and compromising the integrity of the structure, no bulk samples of the ceramic wall/floor tile grout were collected. Prior to renovation/demolition, concrete brick mortar 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 proves otherwise.

3.1.16 Transite (Asbestos Cement)

Transite rainwater leaders were observed in Room 010B, 016, 211, 213 penthouse level 1, penthouse level 2. To avoid possible damage, no bulk samples of the transite piping were collected. However, this material is known to contain asbestos. Assume this material to contain a type of asbestos other than Chrysotile. This material is considered to be non-friable and was observed in good condition.

3.1.17 Caulking/Mastic/Firestop

No caulking was observed in the subject building.

Mastic (blue) was observed in Room 1522. Laboratory analytical results indicate that this material contains 2% Chrysotile asbestos. This material is considered to be non-friable and was observed in good condition.

Mastic (grey/black speckle) was observed throughout the subject building. Laboratory analytical results indicate that this material does not contain asbestos.

Firestop (red) was observed throughout the subject building. Laboratory analytical results indicate that this material does not contain asbestos.

Firestop (red with black speckle) was observed in Room 1522. Laboratory analytical results indicate that this material does not contain asbestos.

3.1.18 Cementitious Coating

No cementitious coating finishes were observed in the subject building.

3.1.19 Glazing

No glazing materials suspected of containing asbestos were observed in the subject building.

3.1.20 Fire Doors

Fire doors were observed at various locations throughout the subject building. To avoid possible damage, no bulk samples of the internal door insulation materials were collected. Prior to removal and/or replacement, fire doors should be examined and tested for asbestos content. Fire doors should be considered to contain asbestos until bulk samples and analysis proves otherwise. All fire doors were observed to be in good condition.

3.1.21 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

- 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;
- Prior to renovation/demolition of materials which are assumed to be asbestos-containing (suspect materials which were not sampled, i.e., roofing materials, ceramic wall/floor tile grout, brick mortar, concrete block mortar 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

Findings

3.2.1 Paint Finishes

A total of (10) paint samples from the subject building were 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 | Room 023 | Door Frame Paint | Green | 0.058 |
| Pb2 | Room 03 | Door Paint | Beige | <0.023 |
| Pb3 | Room 726A | Door Paint | Dark Grey | <0.030 |
| Pb4 | Room 921 | Door Frame Paint | Blue | 0.048 |
| Pb5 | Room 1520 | Wall Paint | Light Grey | <0.0080 |
| Pb6 | Room 1628 | Floor/Stair Paint | Beige | 0.086 |
| Pb7 | Room 314 | Wall Paint | White | <0.0097 |
| Pb8 | Room 109 | Wall Paint | Beige/Yellow | <0.011 |
| Pb9 | Room 1222 | Door Paint | Purple | 2.0 |
| Pb10 | Room 129 | Door Paint | Purple/Pink | <0.094 |
| Previously Identified Lead Paint | | | | |
| STN-16-LBP-081007-01 | Room 1626A | Door Paint | Beige | <0.02 |
| STN-16-LBP-081007-02 | Room 1626A | Doorframe Paint | Green | <0.03 |
| STN-14-LBP-081007-03 | Room 1423 | Doorframe Paint | Purple | 0.04 |
| STN-14-LBP-081007-04 | Room 1423 | Handrails Paint | Brown | 0.23 |
| STN-2-LBP-081007-05 | Room 215 | Door Paint | Beige/Red | 0.01 |
| STN-2-LBP-081007-06 | Room 213 | Window Frame Paint | White | <0.02 |
| STN-1-LBP-081007-07 | Room 125 | Handrail Paint | Grey | <0.03 |

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.

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.

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

MPL identified lead-containing acid battery packs throughout the subject building. These battery packs were observed on walls and above exits throughout the surveyed building.

Lead may also 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 Ontario 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

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

3.3.2 Fluorescent Light Tubes

MPL 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

No pressure gauges or float switches suspected of containing mercury were noted in 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/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 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.

Other Hazardous Materials

3.5 Polychlorinated Biphenyls (PCBs)

Findings

3.5.1 Light Ballasts

The subject building is illuminated by fluorescent lights. 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.

3.5.2 HID Light Ballasts

MPL 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

MPL 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.

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. MPL 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. MPL observed Kidde brand smoke detectors, which contains 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.

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

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. MPL identified select areas throughout the subject building, where materials were affected by mould growth.

3.9.2 Water Damage

A visual survey of the subject building was conducted to determine if any water damaged was present. MPL identified select areas throughout the subject building, where materials were affected by water damage.

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.

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 McIntosh Perry Limited (MPL), 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.

MPL 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 MPL, both on its own behalf and as agent on behalf of its employees and principals.

The client expressly agrees that MPL's 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 MPL's 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,

MCINTOSH PERRY LIMITED



Lauren Hamilton, B.Eng.
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 other hazardous materials such as polychlorinated biphenyls (PCBs), radioactive materials, ozone depleting substances (ODSs), other halocarbons, and mould.

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

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 AIHA accredited independent laboratory for analysis. Laboratory Certificate 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 within 100 University Private 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 Inventory by Conestoga-Rovers & Associates (dated February 2008, reference # 045870(84));
- Asbestos Abatement Project Summary-Stanton Residence- 16th, 15th, 8th, 7th and 6th Floors by EHS Enviromental (dated August 6, 2014 reference # 04-0033-14-025); and
- Asbestos Abatement Project Summary-Stanton Residence- Room308 by EHS Enviromental (dated August 21, 2013 reference # 04-0033-13-047).

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 | Less than 90 square metres | 3 |
| | | 90 or more square metres, but less than 450 square metres | 5 |

| | | | |
|----|--|--|---|
| | otherwise, such as acoustical plaster on ceilings and fireproofing materials on structural members | 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 EMSL Canada Inc. (EMSL), an independent laboratory. EMSL is an independent laboratory accredited by National Institute of Standards and Technology/National Voluntary Laboratory Accreditation (NIST/NVLAP) (Lab Code #200877-0).

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 thermostat 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 (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.

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.

MPL 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.

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EMSL Canada Order 672001214
 Customer ID: 55CTCS25B
 Customer PO: 0Z2-021101
 Project ID: Ottawa DSS

Attn: Monica Black Phone: (613) 836-2184
 McIntosh Perry Consulting Engineers Ltd Fax:
 115 Walgreen Rd RR 3 Collected:
 Carp, ON K0A 1L0 Received: 7/27/2020
 Analyzed: 8/04/2020

Proj: University of Ottawa 0Z2-021101 (Stanton Residence) (Ottawa DSS)

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

Client Sample ID: 1.1 **Lab Sample ID:** 672001214-0001

Sample Description: Stanton Residence/Drywall Joint Compound

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | Beige | 0.0% | 98.0% | 2% Chrysotile | |

Client Sample ID: 1.2 **Lab Sample ID:** 672001214-0002

Sample Description: Stanton Residence/Drywall Joint Compound

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|------------------------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | | | | Positive Stop (Not Analyzed) | |

Client Sample ID: 1.3 **Lab Sample ID:** 672001214-0003

Sample Description: Stanton Residence/Drywall Joint Compound

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|------------------------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | | | | Positive Stop (Not Analyzed) | |

Client Sample ID: 1.4 **Lab Sample ID:** 672001214-0004

Sample Description: Stanton Residence/Drywall Joint Compound

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|------------------------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | | | | Positive Stop (Not Analyzed) | |

Client Sample ID: 1.5 **Lab Sample ID:** 672001214-0005

Sample Description: Stanton Residence/Drywall Joint Compound

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|------------------------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | | | | Positive Stop (Not Analyzed) | |

Client Sample ID: 1.6 **Lab Sample ID:** 672001214-0006

Sample Description: Stanton Residence/Drywall Joint Compound

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|------------------------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | | | | Positive Stop (Not Analyzed) | |

Client Sample ID: 1.7 **Lab Sample ID:** 672001214-0007

Sample Description: Stanton Residence/Drywall Joint Compound

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|------------------------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | | | | Positive Stop (Not Analyzed) | |



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EMSL Canada Order 672001214
 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: 2.1 **Lab Sample ID:** 672001214-0008
Sample Description: Stanton Residence/VFT - grey with white streaks

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | Tan | 0.0% | 95.0% | 5% Chrysotile | |

Client Sample ID: 2.2 **Lab Sample ID:** 672001214-0009
Sample Description: Stanton Residence/VFT - grey with white streaks

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|------------------------------|-------------|----------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | | Positive Stop (Not Analyzed) | | | |

Client Sample ID: 2.3 **Lab Sample ID:** 672001214-0010
Sample Description: Stanton Residence/VFT - grey with white streaks

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|------------------------------|-------------|----------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | | Positive Stop (Not Analyzed) | | | |

Client Sample ID: 3.1 **Lab Sample ID:** 672001214-0011
Sample Description: Stanton Residence/Shallow stipple ceiling

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | White | 0.0% | 97.0% | 3% Chrysotile | |

Client Sample ID: 3.2 **Lab Sample ID:** 672001214-0012
Sample Description: Stanton Residence/Shallow stipple ceiling

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|------------------------------|-------------|----------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | | Positive Stop (Not Analyzed) | | | |

Client Sample ID: 3.3 **Lab Sample ID:** 672001214-0013
Sample Description: Stanton Residence/Shallow stipple ceiling

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|------------------------------|-------------|----------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | | Positive Stop (Not Analyzed) | | | |

Client Sample ID: 3.4 **Lab Sample ID:** 672001214-0014
Sample Description: Stanton Residence/Shallow stipple ceiling

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|------------------------------|-------------|----------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | | Positive Stop (Not Analyzed) | | | |

Client Sample ID: 3.5 **Lab Sample ID:** 672001214-0015
Sample Description: Stanton Residence/Shallow stipple ceiling

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|------------------------------|-------------|----------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | | Positive Stop (Not Analyzed) | | | |



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| | |
|-------------------|------------|
| EMSL Canada Order | 672001214 |
| 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: 3.6 **Lab Sample ID:** 672001214-0016
Sample Description: Stanton Residence/Shallow stipple ceiling

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|----------|------------------------------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | | | | | Positive Stop (Not Analyzed) |

Client Sample ID: 3.7 **Lab Sample ID:** 672001214-0017
Sample Description: Stanton Residence/Shallow stipple ceiling

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|----------|------------------------------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | | | | | Positive Stop (Not Analyzed) |

Client Sample ID: 4.1 **Lab Sample ID:** 672001214-0018
Sample Description: Stanton Residence/Deep stipple ceiling

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | White | 0.0% | 97.0% | 3% Chrysotile | |

Client Sample ID: 4.2 **Lab Sample ID:** 672001214-0019
Sample Description: Stanton Residence/Deep stipple ceiling

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|----------|------------------------------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | | | | | Positive Stop (Not Analyzed) |

Client Sample ID: 4.3 **Lab Sample ID:** 672001214-0020
Sample Description: Stanton Residence/Deep stipple ceiling

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|----------|------------------------------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | | | | | Positive Stop (Not Analyzed) |

Client Sample ID: 4.4 **Lab Sample ID:** 672001214-0021
Sample Description: Stanton Residence/Deep stipple ceiling

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|----------|------------------------------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | | | | | Positive Stop (Not Analyzed) |

Client Sample ID: 4.5 **Lab Sample ID:** 672001214-0022
Sample Description: Stanton Residence/Deep stipple ceiling

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|----------|------------------------------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | | | | | Positive Stop (Not Analyzed) |

Client Sample ID: 4.6 **Lab Sample ID:** 672001214-0023
Sample Description: Stanton Residence/Deep stipple ceiling

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|----------|------------------------------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | | | | | Positive Stop (Not Analyzed) |



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EMSL Canada Order 672001214
 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: 4.7 **Lab Sample ID:** 672001214-0024
Sample Description: Stanton Residence/Deep stipple ceiling

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|----------|------------------------------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | | | | | Positive Stop (Not Analyzed) |

Client Sample ID: 5.1 **Lab Sample ID:** 672001214-0025
Sample Description: Stanton Residence/VFT - purple marble

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|------------------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | Tan/White/Purple | 10.0% | 90.0% | None Detected | |

Client Sample ID: 5.2-Vinyl Floor Tile **Lab Sample ID:** 672001214-0026
Sample Description: Stanton Residence/VFT - purple marble

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|------------------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | Tan/White/Purple | 10.0% | 90.0% | None Detected | |

Client Sample ID: 5.2-Adhesive **Lab Sample ID:** 672001214-0026A
Sample Description: Stanton Residence/VFT - purple marble

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | White | 0.0% | 100.0% | None Detected | |

Client Sample ID: 5.2-Leveler **Lab Sample ID:** 672001214-0026B
Sample Description: Stanton Residence/VFT - purple marble

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | Gray | 10.0% | 90.0% | None Detected | |

Client Sample ID: 5.3 **Lab Sample ID:** 672001214-0027
Sample Description: Stanton Residence/VFT - purple marble

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|------------------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | Tan/White/Purple | 10.0% | 90.0% | None Detected | |

Client Sample ID: 6.1 **Lab Sample ID:** 672001214-0028
Sample Description: Stanton Residence/VFT - grey marble

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|----------------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | Gray/Tan/White | 10.0% | 90.0% | None Detected | |

Client Sample ID: 6.2-Vinyl Floor Tile **Lab Sample ID:** 672001214-0029
Sample Description: Stanton Residence/VFT - grey marble

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | | 0.0% | 100.0% | None Detected | |



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EMSL Canada Order 672001214
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: 6.2-Adhesive **Lab Sample ID:** 672001214-0029A
Sample Description: Stanton Residence/VFT - grey marble

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | White | 0.0% | 100.0% | None Detected | |

Client Sample ID: 6.2-Leveler **Lab Sample ID:** 672001214-0029B
Sample Description: Stanton Residence/VFT - grey marble

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | Gray | 15.0% | 85.0% | None Detected | |

Client Sample ID: 6.3 **Lab Sample ID:** 672001214-0030
Sample Description: Stanton Residence/VFT - grey marble

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|----------------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | Gray/Tan/White | 10.0% | 90.0% | None Detected | |

Client Sample ID: 7.1-Vinyl Floor Tile **Lab Sample ID:** 672001214-0031
Sample Description: Stanton Residence/VFT- white with grey streaks

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|------------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | Gray/White | 0.0% | 98.0% | 2% Chrysotile | |

Client Sample ID: 7.1-Mastic **Lab Sample ID:** 672001214-0031A
Sample Description: Stanton Residence/VFT- white with grey streaks

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | Black | 0.0% | 100.0% | None Detected | |

Client Sample ID: 7.2 **Lab Sample ID:** 672001214-0032
Sample Description: Stanton Residence/VFT- white with grey streaks

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|----------|------------------------------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | | | | | Positive Stop (Not Analyzed) |

Client Sample ID: 7.3-Vinyl Floor Tile **Lab Sample ID:** 672001214-0033
Sample Description: Stanton Residence/VFT- white with grey streaks

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|----------|------------------------------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | | | | | Positive Stop (Not Analyzed) |

Client Sample ID: 7.3-Mastic **Lab Sample ID:** 672001214-0033A
Sample Description: Stanton Residence/VFT- white with grey streaks

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/04/2020 | Black | 0.0% | 100.0% | None Detected | |



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EMSL Canada Order 672001214
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

Analyst(s): _____

Jessica Schwartz PLM (17)

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 Analytical, Inc. Rochester, NY

Initial report from: 08/04/202015:28:04



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EMSL Canada Order 672001260
Customer ID: 55CTCS25B
Customer PO: 0Z2-021101
Project ID: Ottawa DSS

Attn: Monica Black
McIntosh Perry Consulting Engineers Ltd
115 Walgreen Rd RR 3
Carp, ON K0A 1L0
Phone: (613) 836-2184
Fax:
Collected:
Received: 7/31/2020
Analyzed: 8/10/2020
Proj: University of Ottawa 0Z2-021101 (Stanton Residence) (Ottawa DSS)

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

Client Sample ID: 8.1 **Lab Sample ID:** 672001260-0001

Sample Description: Stanton/Grey/black speckle mastic

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|------------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/10/2020 | Gray/Black | 0.0% | 100.0% | None Detected | |

Client Sample ID: 8.2 **Lab Sample ID:** 672001260-0002

Sample Description: Stanton/Grey/black speckle mastic

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|------------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/10/2020 | Gray/Black | 0.0% | 100.0% | None Detected | |

Client Sample ID: 8.3 **Lab Sample ID:** 672001260-0003

Sample Description: Stanton/Grey/black speckle mastic

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|------------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/10/2020 | Gray/Black | 0.0% | 100.0% | None Detected | |

Client Sample ID: 9.1 **Lab Sample ID:** 672001260-0004

Sample Description: Stanton/Red (solid) firestop

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/10/2020 | Red | 0.0% | 100.0% | None Detected | |

Client Sample ID: 9.2 **Lab Sample ID:** 672001260-0005

Sample Description: Stanton/Red (solid) firestop

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/10/2020 | Red | 0.0% | 100.0% | None Detected | |

Client Sample ID: 9.3 **Lab Sample ID:** 672001260-0006

Sample Description: Stanton/Red (solid) firestop

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/10/2020 | Red | 0.0% | 100.0% | None Detected | |

Client Sample ID: 10.1 **Lab Sample ID:** 672001260-0007

Sample Description: Stanton/Red firestop with black speckle

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/10/2020 | Red | 5.0% | 95.0% | None Detected | |



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<http://www.EMSL.com> / ottawalab@EMSL.com

EMSL Canada Order 672001260
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: 10.2 **Lab Sample ID:** 672001260-0008
Sample Description: Stanton/Red firestop with black speckle

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/10/2020 | Red | 5.0% | 95.0% | None Detected | |

Client Sample ID: 10.3 **Lab Sample ID:** 672001260-0009
Sample Description: Stanton/Red firestop with black speckle

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|---------------|---------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/10/2020 | Red | 5.0% | 95.0% | None Detected | |

Client Sample ID: 11.1 **Lab Sample ID:** 672001260-0010
Sample Description: Stanton/Blue mastic

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|----------|--------------|-------------|---------------|--------------------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/10/2020 | Tan/Blue | 0.0% | 98.0% | 2% Chrysotile | Inseparable layers |

Client Sample ID: 11.2 **Lab Sample ID:** 672001260-0011
Sample Description: Stanton/Blue mastic

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|----------|------------------------------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/10/2020 | | | | | Positive Stop (Not Analyzed) |

Client Sample ID: 11.3 **Lab Sample ID:** 672001260-0012
Sample Description: Stanton/Blue mastic

| TEST | Analyzed Date | Color | Non-Asbestos | | Asbestos | Comment |
|------|---------------|-------|--------------|-------------|----------|------------------------------|
| | | | Fibrous | Non-Fibrous | | |
| PLM | 8/10/2020 | | | | | Positive Stop (Not Analyzed) |

Analyst(s):

Simon Parent PLM (10)

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

Initial report from: 08/10/2020 13:59:38

**EMSL Canada Inc.**

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Phone/Fax: (289) 997-4602 / (289) 997-4607

<http://www.EMSL.com>torontolab@emsl.com

| | |
|----------------|-------------|
| EMSL Canada Or | 552008895 |
| CustomerID: | 55CTCS25B |
| CustomerPO: | 0Z2-0211012 |
| ProjectID: | Ottawa DSS |

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

Phone: (613) 836-2184
 Fax:
 Received: 7/28/2020 11:28 AM
 Collected:

Project: **University of Ottawa 0Z2-0211012 Stanton - uOttawa DSS****Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)***

| <i>Client Sample Description</i> | <i>Collected</i> | <i>Analyzed</i> | <i>Weight</i> | <i>RDL</i> | <i>Lead Concentration</i> |
|----------------------------------|--|-----------------|---------------|-------------|---------------------------|
| PB1 552008895-0001 | | 7/28/2020 | 0.0731 g | 0.027 % wt | 0.058 % wt |
| | Site: Stanton - Green Door Frame Paint (023) | | | | |
| PB2 552008895-0002 | | 7/28/2020 | 0.0879 g | 0.023 % wt | <0.023 % wt |
| | Site: Stanton - Beige Door Paint (03) Insufficient sample to reach reporting limit. | | | | |
| PB3 552008895-0003 | | 7/28/2020 | 0.0670 g | 0.030 % wt | <0.030 % wt |
| | Site: Stanton - Dark Grey Door Paint (726A) Insufficient sample to reach reporting limit. | | | | |
| PB4 552008895-0004 | | 7/28/2020 | 0.0747 g | 0.027 % wt | 0.048 % wt |
| | Site: Stanton - Blue Door Frame Paint (921) | | | | |
| PB5 552008895-0005 | | 7/28/2020 | 0.2515 g | 0.0080 % wt | <0.0080 % wt |
| | Site: Stanton - Light Grey Paint (1520) | | | | |
| PB6 552008895-0006 | | 7/28/2020 | 0.1652 g | 0.012 % wt | 0.086 % wt |
| | Site: Stanton - Beige Floor/Stair Paint (1628) | | | | |
| PB7 552008895-0007 | | 7/28/2020 | 0.2058 g | 0.0097 % wt | <0.0097 % wt |
| | Site: Stanton - White Wall Paint (314) Insufficient sample to reach reporting limit. | | | | |
| PB8 552008895-0008 | | 7/28/2020 | 0.1862 g | 0.011 % wt | <0.011 % wt |
| | Site: Stanton - Beige/Yellow Paint (109) Insufficient sample to reach reporting limit. | | | | |
| PB9 552008895-0009 | | 7/28/2020 | 0.0684 g | 0.15 % wt | 2.0 % wt |
| | Site: Stanton - Purple Door Paint (1222) | | | | |
| PB10 552008895-0010 | | 7/28/2020 | 0.0212 g | 0.094 % wt | <0.094 % wt |
| | Site: Stanton - Purple/Pink Paint (129) Insufficient sample to reach reporting limit. | | | | |

Rowena Fanto, Lead Supervisor
 or other approved signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. 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. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted.
 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 08/04/2020 09:48:23



EMSL Canada Inc.

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EMSL Canada Or 552008895
CustomerID: 55CTCS25B
CustomerPO: 0Z2-0211012
ProjectID: Ottawa DSS

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

Phone: (613) 836-2184
Fax:
Received: 7/28/2020 11:28 AM
Collected:

Project: **University of Ottawa 0Z2-0211012 Stanton - uOttawa DSS**

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

| <i>Client SampleDescription</i> | <i>Collected</i> | <i>Analyzed</i> | <i>Weight</i> | <i>RDL</i> | <i>Lead Concentration</i> |
|---------------------------------|------------------|-----------------|---------------|------------|---------------------------|
|---------------------------------|------------------|-----------------|---------------|------------|---------------------------|

Rowena Fanto, Lead Supervisor
or other approved signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. 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. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. 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 08/04/2020 09:48:23

APPENDIX D
Site Photographs



Photo 1: View of typical finishes observed at the building located at 100 University Private.



Photo 2: View of typical finishes observed at the building located at 100 University Private.



Photo 3: View of typical finishes observed at the building located at 100 University Private.



Photo 4: Typical view of ceramic floor tile grout suspected of containing asbestos.



Photo 5: View of asbestos-containing vinyl floor tiles (12"x12"- white with grey streaks) observed in Room 1618A (kitchen).

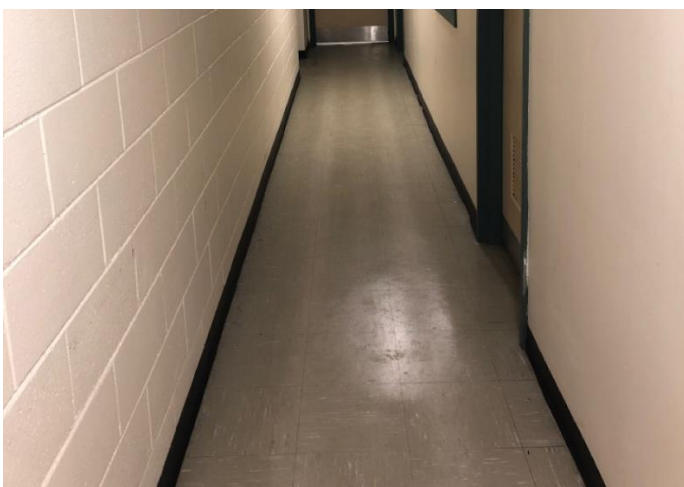


Photo 6: View of asbestos-containing vinyl floor tiles (12"x12"- grey with white streaks) observed in the basement corridor.



Photo 7: View of asbestos-containing vinyl floor tiles (12"x12" - white with black streaks) observed in Room 017.

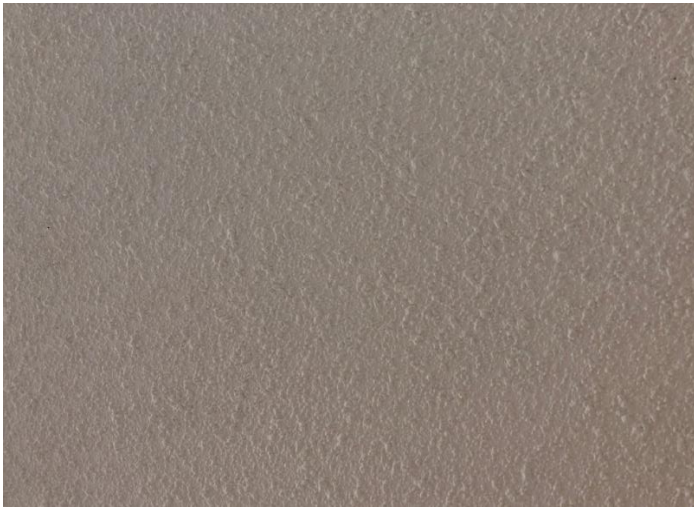


Photo 8: View of asbestos-containing texture coat observed in Room 1608.



Photo 9: View of asbestos-containing texture coat observed in fair condition in Room 130F.



Photo 10: View of asbestos-containing vinyl floor tiles (12"x12"-grey with white streaks) observed in fair condition in Room 130F.



Photo 11: View of asbestos-containing texture coat observed in fair condition in Room 312.



Photo 12: View of asbestos-containing texture coat observed in fair condition in Room 1607.



Photo 13: View of asbestos-containing drywall joint compound observed in fair condition in Room 1607.



Photo 14: View of asbestos-containing pipe fitting insulation observed in Room 025.



Photo 15: View of lead-containing battery packs observed throughout the subject building.



Photo 16: Typical view of smoke detectors containing radioactive materials.



Photo 17: View of water damaged ceiling tiles observed in Room 100G.

APPENDIX E

Asbestos-Containing Materials Checklists

| Floor/Level | Room | Type of ACM | Description | Asbestos Confirmed/ Suspected | Friable/Non-Friable | Damaged/ Deteriorated | Accessibility | Level of Work Near Material | Approx. Quantity | Unit | Recommended Action | Estimated Abatement Cost | Comments |
|-------------|--------------------------|----------------------------|-------------------------------|----------------------------------|---------------------|--------------------------|---------------|--------------------------------|------------------|------|--|-----------------------------|--------------------------|
| 0 | Room 014 | 12" x 12" Vinyl Floor Tile | Grey with White Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 126 | SF | Manage in Place | | |
| 0 | Room 01 | 12" x 12" Vinyl Floor Tile | Green | Confirmed | Non-Friable | Good Condition | Easy | Low | 135 | SF | Manage in Place | | |
| 0 | Room 05 | 12" x 12" Vinyl Floor Tile | Green | Confirmed | Non-Friable | Good Condition | Easy | Low | 122 | SF | Manage in Place | | |
| 0 | Room 07 | 12" x 12" Vinyl Floor Tile | Light Green | Confirmed | Non-Friable | Good Condition | Easy | Low | 124 | SF | Manage in Place | | |
| 0 | Room 09 | 12" x 12" Vinyl Floor Tile | Light Grey | Confirmed | Non-Friable | Good Condition | Easy | Low | 129 | SF | Manage in Place | | |
| 0 | Room 012 | 12" x 12" Vinyl Floor Tile | Green | Confirmed | Non-Friable | Good Condition | Easy | Low | 210 | SF | Manage in Place | | |
| 0 | Room 013 | 12" x 12" Vinyl Floor Tile | Green | Confirmed | Non-Friable | Good Condition | Easy | Low | 96 | SF | Manage in Place | | |
| 0 | Room 014 | 12" x 12" Vinyl Floor Tile | Green | Confirmed | Non-Friable | Good Condition | Easy | Low | 126 | SF | Manage in Place | | |
| 0 | Room 017 | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 465 | SF | Manage in Place | | |
| 0 | Room 018 | 12" x 12" Vinyl Floor Tile | Green | Confirmed | Non-Friable | Good Condition | Easy | Low | 200 | SF | Manage in Place | | |
| 0 | Room 018 | 12" x 12" Vinyl Floor Tile | Green | Confirmed | Non-Friable | Fair Condition | Easy | Low | 3 | SF | Monitor Condition of Material. Consider Removal or Repair. | | |
| 0 | Room 019 | 12" x 12" Vinyl Floor Tile | Light Beige with White Flecks | Confirmed | Non-Friable | Good Condition | Easy | Low | 273 | SF | Manage in Place | | No Access to Room (2022) |
| 0 | Room 021 | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 275 | SF | Manage in Place | | |
| 0 | Service Tunnel | 12" x 12" Vinyl Floor Tile | Light Beige with White Flecks | Confirmed | Non-Friable | Good Condition | Easy | Low | 150 | SF | Manage in Place | | |
| 0 | Throughout Subject Floor | Drywall Joint Compound | - | Confirmed | - | Good Condition | Easy | Moderate | 60 | SF | Manage in Place | | |
| 0 | Room 016 | Transite Pipe | Rainwater Leader | Confirmed | Non-Friable | Good Condition | Easy | Moderate | 10 | LF | Manage in Place | | No Access to Room (2022) |
| 0 | Room 010B | Transite Pipe | Rainwater Leader | Confirmed | Non-Friable | Good Condition | Easy | Moderate | 4 | LF | Manage in Place | | No Access to Room (2022) |
| 0 | Room 03 | Pipe Elbows/fittings | Parging | Confirmed | Friable | Good Condition | Difficult | Low | 1 | C | Manage in Place | | |
| 0 | Room 015 | Pipe Elbows/fittings | Parging | Confirmed | Friable | Good Condition | Difficult | Low | 11 | C | Manage in Place | | |
| 0 | Room 016 | Pipe Elbows/fittings | Parging | Confirmed | Friable | Good Condition | Difficult | Low | 5 | C | Manage in Place | | No Access to Room (2022) |
| 0 | Room 025 | Pipe Elbows/fittings | Parging | Confirmed | Friable | Good Condition | Difficult | Low | 7 | C | Manage in Place | | |

| Floor/Level | Room | Type of ACM | Description | Asbestos Confirmed/ Suspected | Friable/Non-Friable | Damaged/ Deteriorated | Accessibility | Level of Work Near Material | Approx. Quantity | Unit | Recommended Action | Estimated Abatement Cost | Comments |
|-------------|---|-------------------------------|-------------------------|----------------------------------|---------------------|-----------------------|---------------|--------------------------------|------------------|------|--|-----------------------------|--|
| 1 | Room 130D | 12" x 12" Vinyl Floor Tile | Orange | Confirmed | Non-Friable | Good Condition | Difficult | Low | 130 | SF | Manage in Place | | New Laminate; VFT may be concealed underneath |
| 1 | Room 131 | 12" x 12" Vinyl Floor Tile | White with Black Dots | Confirmed | Non-Friable | Good Condition | Difficult | Low | 45 | SF | Manage in Place | | New Laminate; VFT may be concealed underneath |
| 1 | Throughout Subject Floor | Drywall Joint Compound | - | Confirmed | - | Good Condition | Easy | Moderate | - | - | Manage in Place | | |
| 1 | Room 113 | Pipe Elbows/fittings | Parging | Confirmed | Friable | Good Condition | Difficult | Low | 5 | C | Manage in Place | | |
| 1 | Room 130 | Ceiling Texture Coat | - | Confirmed | Friable | Good Condition | Difficult | Low | 241 | SF | Manage in Place | | |
| 1 | Room 130A | Ceiling Texture Coat | - | Confirmed | Friable | Good Condition | Difficult | Low | 146 | SF | Manage in Place | | |
| 1 | Room 130B | Ceiling Texture Coat | - | Confirmed | Friable | Good Condition | Difficult | Low | 195 | SF | Manage in Place | | |
| 1 | Room 130F | Ceiling Texture Coat | - | Confirmed | Friable | Good Condition | Difficult | Low | 130 | SF | Manage in Place | | |
| 1 | Room 130F | Ceiling Texture Coat | - | Confirmed | Friable | Fair Condition | Difficult | Low | 2 | SF | Monitor Condition of Material. Consider Removal or Repair. | | |
| 1 | Room 130G | Ceiling Texture Coat | - | Confirmed | Friable | Good Condition | Difficult | Low | 111 | SF | Manage in Place | | |
| 1 | Room 130H | Ceiling Texture Coat | - | Confirmed | Friable | Good Condition | Difficult | Low | 90 | SF | Manage in Place | | |
| 1 | Room 131 | Ceiling Texture Coat | - | Confirmed | Friable | Good Condition | Difficult | Low | 45 | SF | Manage in Place | | |
| 2 | Throughout Subject Floor | Drywall Joint Compound | - | Confirmed | - | Good Condition | Easy | Moderate | 60 | - | Manage in Place | | |
| 2 | Room 211 | Transite Pipe | Rainwater Leader | Confirmed | Non-Friable | Good Condition | Easy | Moderate | 18 | LF | Manage in Place | | |
| 2 | Room 213 | Transite Pipe | Rainwater Leader | Confirmed | Non-Friable | Good Condition | Easy | Moderate | 5 | LF | Manage in Place | | |
| 3 | Room 312 | Ceiling Texture Coat | Deep/Shallow Stipple | Confirmed | Non-Friable | Fair Condition | Moderate | Low | 2 | SF | Monitor Condition of Material. Consider | | |
| 3 | Room 318A | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 44 | SF | Manage in Place | | |
| 3 | Room 319 | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 60 | SF | Manage in Place | | |
| 3 | Throughout Subject Floor | Drywall Joint Compound | - | Confirmed | - | Good Condition | Easy | Moderate | - | - | Manage in Place | | |
| 3 | Throughout Living Quarters, Lounges and Offices | Ceiling Texture Coat | Deep/Shallow Stipple | Confirmed | Friable | Good Condition | Difficult | Low | - | - | Manage in Place | | |
| 4 | Room 418A | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 44 | SF | Manage in Place | | |
| 4 | Room 419 | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 60 | SF | Manage in Place | | |

| Floor/Level | Room | Type of ACM | Description | Asbestos Confirmed/ Suspected | Friable/Non-Friable | Damaged/ Deteriorated | Accessibility | Level of Work Near Material | Approx. Quantity | Unit | Recommended Action | Estimated Abatement Cost | Comments |
|-------------|---|----------------------------|-------------------------|----------------------------------|---------------------|--------------------------|---------------|--------------------------------|------------------|------|--------------------|-----------------------------|----------|
| 4 | Throughout Subject Floor | Drywall Joint Compound | - | Confirmed | - | Good Condition | Easy | Moderate | - | - | Manage in Place | | |
| 4 | Throughout Living Quarters, Lounges and Offices | Ceiling Texture Coat | Deep/Shallow Stipple | Confirmed | Friable | Good Condition | Difficult | Low | - | - | Manage in Place | | |
| 5 | Room 518A | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 44 | SF | Manage in Place | | |
| 5 | Room 519 | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 60 | SF | Manage in Place | | |
| 5 | Throughout Subject Floor | Drywall Joint Compound | - | Confirmed | - | Good Condition | Easy | Moderate | - | - | Manage in Place | | |
| 5 | Throughout Living Quarters, Lounges and Offices | Ceiling Texture Coat | Deep/Shallow Stipple | Confirmed | Friable | Good Condition | Difficult | Low | - | - | Manage in Place | | |
| 6 | Room 618A | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 44 | SF | Manage in Place | | |
| 6 | Room 619 | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 60 | SF | Manage in Place | | |
| 6 | Throughout Subject Floor | Drywall Joint Compound | - | Confirmed | - | Good Condition | Easy | Moderate | - | - | Manage in Place | | |
| 6 | Throughout Living Quarters, Lounges and Offices | Ceiling Texture Coat | Deep/Shallow Stipple | Confirmed | Friable | Good Condition | Difficult | Low | - | - | Manage in Place | | |
| 7 | Room 718A | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 44 | SF | Manage in Place | | |
| 7 | Room 719 | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 60 | SF | Manage in Place | | |
| 7 | Throughout Subject Floor | Drywall Joint Compound | - | Confirmed | - | Good Condition | Easy | Moderate | - | - | Manage in Place | | |
| 7 | Throughout Living Quarters, Lounges and Offices | Ceiling Texture Coat | Deep/Shallow Stipple | Confirmed | Friable | Good Condition | Difficult | Low | - | - | Manage in Place | | |
| 8 | Room 818A | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 44 | SF | Manage in Place | | |
| 8 | Room 819 | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 60 | SF | Manage in Place | | |
| 8 | Throughout Subject Floor | Drywall Joint Compound | - | Confirmed | - | Good Condition | Easy | Moderate | - | - | Manage in Place | | |
| 8 | Throughout Resident Rooms/Offices | Ceiling Texture Coat | Deep/Shallow Stipple | Confirmed | Friable | Good Condition | Difficult | Low | - | - | Manage in Place | | |
| 9 | Room 918A | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 44 | SF | Manage in Place | | |
| 9 | Room 919 | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 60 | SF | Manage in Place | | |

| Floor/Level | Room | Type of ACM | Description | Asbestos Confirmed/ Suspected | Friable/Non-Friable | Damaged/ Deteriorated | Accessibility | Level of Work Near Material | Approx. Quantity | Unit | Recommended Action | Estimated Abatement Cost | Comments |
|-------------|---|----------------------------|-------------------------|----------------------------------|---------------------|--------------------------|---------------|--------------------------------|------------------|------|--------------------|-----------------------------|----------|
| 9 | Throughout Subject Floor | Drywall Joint Compound | - | Confirmed | - | Good Condition | Easy | Moderate | 60 | - | Manage in Place | | |
| 9 | Throughout Living Quarters, Lounges and Offices | Ceiling Texture Coat | Deep/Shallow Stipple | Confirmed | Friable | Good Condition | Difficult | Low | - | - | Manage in Place | | |
| 10 | Room 1018A | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 44 | SF | Manage in Place | | |
| 10 | Room 1019 | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 60 | SF | Manage in Place | | |
| 10 | Throughout Subject Floor | Drywall Joint Compound | - | Confirmed | - | Good Condition | Easy | Moderate | 60 | - | Manage in Place | | |
| 10 | Throughout Living Quarters, Lounges and Offices | Ceiling Texture Coat | Deep/Shallow Stipple | Confirmed | Friable | Good Condition | Difficult | Low | - | - | Manage in Place | | |
| 11 | Room 1118A | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 44 | SF | Manage in Place | | |
| 11 | Room 1119 | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 60 | SF | Manage in Place | | |
| 11 | Throughout Subject Floor | Drywall Joint Compound | - | Confirmed | - | Good Condition | Easy | Moderate | - | - | Manage in Place | | |
| 11 | Throughout Living Quarters, Lounges and Offices | Ceiling Texture Coat | Deep/Shallow Stipple | Confirmed | Friable | Good Condition | Difficult | Low | - | - | Manage in Place | | |
| 12 | Room 1218A | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 44 | SF | Manage in Place | | |
| 12 | Room 1219 | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 60 | SF | Manage in Place | | |
| 12 | Throughout Subject Floor | Drywall Joint Compound | - | Confirmed | - | Good Condition | Easy | Moderate | - | - | Manage in Place | | |
| 12 | Throughout Living Quarters, Lounges and Offices | Ceiling Texture Coat | Deep/Shallow Stipple | Confirmed | Friable | Good Condition | Difficult | Low | - | - | Manage in Place | | |
| 13 | Room 1318A | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 44 | SF | Manage in Place | | |
| 13 | Room 1319 | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 60 | SF | Manage in Place | | |
| 13 | Throughout Subject Floor | Drywall Joint Compound | - | Confirmed | - | Good Condition | Easy | Moderate | - | - | Manage in Place | | |
| 13 | Throughout Living Quarters, Lounges and Offices | Ceiling Texture Coat | Deep/Shallow Stipple | Confirmed | Friable | Good Condition | Difficult | Low | - | - | Manage in Place | | |
| 14 | Room 1418A | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 44 | SF | Manage in Place | | |
| 14 | Room 1419 | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 60 | SF | Manage in Place | | |

| Floor/Level | Room | Type of ACM | Description | Asbestos Confirmed/ Suspected | Friable/Non-Friable | Damaged/ Deteriorated | Accessibility | Level of Work Near Material | Approx. Quantity | Unit | Recommended Action | Estimated Abatement Cost | Comments |
|-------------|---|----------------------------|-------------------------|----------------------------------|---------------------|--------------------------|---------------|--------------------------------|------------------|------|--|-----------------------------|----------|
| 14 | Throughout Subject Floor | Drywall Joint Compound | Cracked | Confirmed | Non-Friable | Fair Condition | Easy | Moderate | 1 | SF | Monitor Condition of Material. Consider Removal or Repair. | | |
| 14 | Throughout Subject Floor | Drywall Joint Compound | - | Confirmed | - | Good Condition | Easy | Moderate | - | - | Manage in Place | | |
| 14 | Throughout Living Quarters, Lounges and Offices | Ceiling Texture Coat | Deep/Shallow Stipple | Confirmed | Friable | Good Condition | Difficult | Low | - | - | Manage in Place | | |
| 15 | Room 1522 | Mastic | Blue | Confirmed | Non-Friable | Good Condition | Easy | Low | 5 | LF | Manage in Place | | |
| 15 | Room 1518A | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 44 | SF | Manage in Place | | |
| 15 | Room 1519 | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 60 | SF | Manage in Place | | |
| 15 | Throughout Subject Floor | Drywall Joint Compound | - | Confirmed | - | Good Condition | Easy | Moderate | - | - | Manage in Place | | |
| 15 | Throughout Living Quarters, Lounges and Offices | Ceiling Texture Coat | Deep/Shallow Stipple | Confirmed | Friable | Good Condition | Difficult | Low | - | - | Manage in Place | | |
| 16 | Room 1617 | Ceiling Texture Coat | Deep/Shallow Stipple | Confirmed | Friable | Fair Condition | Difficult | Low | 1 | SF | Monitor Condition of Material. Consider Removal or Repair. | | |
| 16 | Room 1618A | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 44 | SF | Manage in Place | | |
| 16 | Room 1619 | 12" x 12" Vinyl Floor Tile | White with Grey Streaks | Confirmed | Non-Friable | Good Condition | Easy | Low | 44 | SF | Manage in Place | | |
| 16 | Throughout Subject Floor | Drywall Joint Compound | - | Confirmed | - | Good Condition | Easy | Moderate | - | - | Manage in Place | | |
| 16 | Throughout Living Quarters, Lounges and Offices | Ceiling Texture Coat | Deep/Shallow Stipple | Confirmed | Friable | Good Condition | Difficult | Low | - | - | Manage in Place | | |
| PH1 | Throughout Subject Floor | Transite Pipe | Rainwater Leader | Confirmed | Non-Friable | Good Condition | Easy | Moderate | - | - | Manage in Place | | |
| PH1 | Throughout Subject Floor | Drywall Joint Compound | - | Confirmed | - | Good Condition | Easy | Moderate | - | - | Manage in Place | | |
| PH1 | Room 3 | Pipe Elbows/fittings | Parging | Confirmed | Friable | Good Condition | Difficult | Low | 70 | C | Manage in Place | | |
| PH2 | Throughout Subject Floor | Transite Pipe | Rainwater Leader | Confirmed | Non-Friable | Good Condition | Easy | Moderate | - | - | Manage in Place | | |
| PH2 | Throughout Subject Floor | Drywall Joint Compound | - | Confirmed | - | Good Condition | Easy | Moderate | - | - | Manage in Place | | |
| PH2 | Throughout Subject Floor | Pipe Elbows/fittings | Parging | Confirmed | Friable | Good Condition | Difficult | Low | - | - | Manage in Place | | |

| Floor/Level | Room | Type of ACM | Description | Asbestos Confirmed/ Suspected | Friable/Non-Friable | Damaged/ Deteriorated | Accessibility | Level of Work Near Material | Approx. Quantity | Unit | Recommended Action | Estimated Abatement Cost | Comments |
|--------------|--------------------------------|-----------------------------|-------------|----------------------------------|---------------------|-----------------------|---------------|--------------------------------|------------------|------|--------------------|-----------------------------|----------|
| PH1, Roof | Exterior | Roofing Materials | - | Suspected | - | Good Condition | Difficult | Low | - | - | Manage in Place | | |
| All | Throughout Subject Building | Ceramic Wall Tile Grout | Grey | Suspected | - | Good Condition | Easy | Low | - | - | Manage in Place | | |
| All | Throughout Subject Building | Ceramic Floor Tile Grout | Grey | Suspected | - | Good Condition | Easy | Low | - | - | Manage in Place | | |
| All | Throughout Subject Building | Concrete Block Mortar | - | Suspected | - | Good Condition | Easy | Low | - | - | Manage in Place | | |
| All | Throughout Subject Building | Brick/Stone Mortar | - | Suspected | - | Good Condition | Easy | Low | - | - | Manage in Place | | |

APPENDIX F

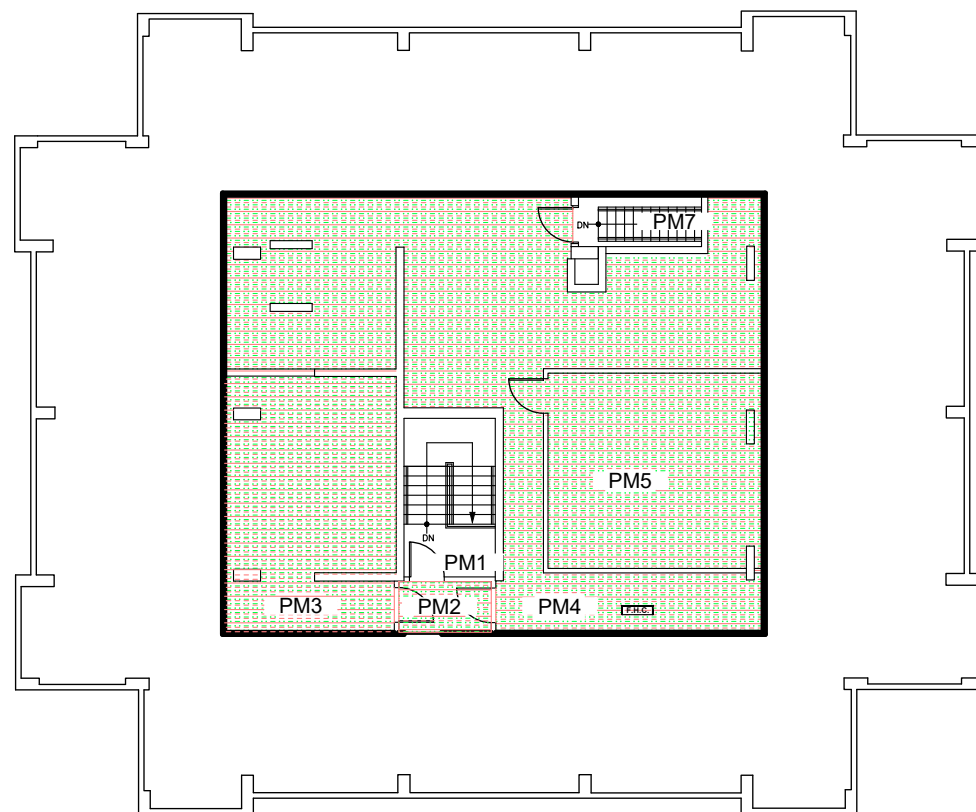
Hazardous Containing Materials Checklists

| Floor/Level | Location | DS Type | Component | Colour | Condition | Manufacturer | Quantity # | Unit | Suspected/ Confirmed | Recommended Action | Estimated Abatement Cost | Comments |
|-------------|-----------------------------|----------------------------------|-------------------------|--------|----------------|--------------|------------|------|-------------------------|--|-----------------------------|----------|
| 0 | Room 023 | Lead | Door Frame Paint | Green | Good Condition | - | - | - | Confirmed | Manage in Place | | |
| 0 | Room 023 | Water Damage | Ceiling Tiles | - | Poor Condition | N/A | 1 | C | Confirmed | Should be replaced as part of regular maintenance. | | |
| 1 | Room 103 | Ozone Depleting Substances (ODS) | Air Conditioning Unit | - | Good Condition | Panasonic | 1 | C | Confirmed | Manage in Place | | R22 |
| 2 | Room 215 | Lead | Door Paint | Beige | Good Condition | - | - | - | Confirmed | Manage in Place | | |
| 2 | Room 202 | Water Damage | Ceiling Tiles | - | Poor Condition | N/A | 1 | C | Confirmed | Should be replaced as part of regular maintenance. | | |
| 9 | Room 921 | Lead | Door Frame Paint | Blue | Good Condition | - | - | - | Confirmed | Manage in Place | | |
| 12 | Room 1222 | Lead | Door Paint | Purple | Good Condition | - | - | - | Confirmed | Manage in Place | | |
| 14 | Room 1423 | Lead | Handrail Paint | Brown | Good Condition | - | - | - | Confirmed | Manage in Place | | |
| 15 | Hallway outside Stairs A15 | Water Damage | Ceiling Tiles | - | Poor Condition | N/A | 2 | C | Confirmed | Should be replaced as part of regular maintenance. | | |
| 16 | Room 1628 | Lead | Floor Paint | Blue | Good Condition | - | - | - | Confirmed | Manage in Place | | |
| All | Throughout Subject Building | Polychlorinated Biphenyls (PCBs) | Light Ballast | N/A | Good Condition | N/A | - | - | Confirmed | Manage in Place | | |
| All | Throughout Subject Building | Mercury | Fluorescent Light Tubes | N/A | Good Condition | N/A | - | - | Confirmed | Manage in Place | | |

| Floor/Level | Location | DS Type | Component | Colour | Condition | Manufacturer | Quantity # | Unit | Suspected/ Confirmed | Recommended Action | Estimated Abatement Cost | Comments |
|-------------|-----------------------------------|-------------------------|---------------------------|--------|-------------------|--------------|------------|------|-------------------------|-----------------------|-----------------------------|----------|
| All | Throughout Subject Building | Radioactive Material | Smoke Detector | N/A | Good Condition | N/A | - | - | Confirmed | Manage in Place | | |
| All | Throughout Subject Building | Lead | Battery Pack | - | Good Condition | N/A | - | - | Confirmed | Manage in Place | | |
| All | Throughout Subject Building | Silica | Concrete, Mortar, Etc. | - | Good Condition | N/A | - | - | Confirmed | Manage in Place | | |

APPENDIX G

Site Sampling & Location Plans



McINTOSH PERRY

6240 HIGHWAY 7 SUITE 200 WOODBRIDGE ON L4H 4G3
 Tel: 905.856.5200 Fax: 905.695.0221
 Toll Free: 1.888.348.8991 www.mcintoshperry.com

Legend:

- ▲ Asbestos Bulk Sample
- Lead Paint Sample <LOD
- Lead Paint Sample >LOD

Notes:

Drywall with ACM joint compound is present throughout

- ACM Mechanical Insulation
- ACM Transite
- ACM Texture Coat
- ACM Vinyl floor Tile (VFT)
- ACM Mastic

CLIENT: UNIVERSITY OF OTTAWA

TITLE: SAMPLE LOCATIONS

PROJECT: STANTON RESIDENCE
DESIGNATED SUBSTANCE SURVEY

SCALE: 1:250

DATE: SEPTEMBER 28, 2020

DRAWN: D.B.

CHECKED: M.M.

| REV. NO. | DESCRIPTION | DATE | BY | APPD. |
|----------|-------------|------|----|-------|
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DRAWING NUMBER: A-18

REV.:

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