



July 12, 2017

CITY OF SASKATOON

Asbestos-Containing Building Materials Assessment Report - Lawson Heights Civic Centre and Rusty MacDonald Library



Submitted to:

The City of Saskatoon
1101 Avenue P North
Saskatoon, SK S7L 7K6

Report Number: 1667963

Distribution:

One Copy: City of Saskatoon
One Copy: Golder Associates Ltd.

REPORT





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ASBESTOS-CONTAINING BUILDING MATERIALS ASSESSMENT REPORT - LAWSON HEIGHTS CIVIC CENTRE AND RUSTY MACDONALD LIBRARY

1.0 INTRODUCTION

Golder Associates Ltd. (Golder) was retained by the City of Saskatoon (the Client) to conduct an asbestos-containing building materials assessment of the Lawson Heights Civic Centre and Rusty MacDonald Library (the Site) located at 225 Primrose Drive in Saskatoon, Saskatchewan. This assessment report details our findings, conclusions and recommendations for the Site. A walkthrough of the Site was conducted on February 22, 2017 and the assessment was conducted on June 2 and 3, 2017 by Kody Henderson, OHS Project Manager. Asbestos-containing building materials were identified within the Lawson Heights Civic Centre and Rusty MacDonald Library during the assessment. Further information is provided in Section 3.0.

2.0 SCOPE OF WORK

In accordance with Tender 16-0844, Golder's scope of work included conducting an asbestos-containing building materials assessment of the Site to evaluate the quantities, locations, and conditions of asbestos-containing building materials.

Following the field work, Golder prepared this assessment report that includes laboratory analysis results, findings of the assessment, conclusions, and recommendations.

2.1 Asbestos-Containing Materials

The assessment involved a non-destructive inspection of the Site to assess the type and extent of suspect ACMs in the facility. The systems that were reviewed as part of the inspections included, but were not limited to:

- *Structural* - systems including: insulation between solid webbed joists, fireproofing, building envelope, and interior/exterior caulking around windows and doors;
- *Mechanical* - systems insulation including: hot water and steam system, condensate system, chilled water system, glycol system, domestic hot and cold water, emergency generator exhaust, boiler units, heat exchangers, and asbestos cement piping; and
- *Architectural* - systems including: texture coats, sheet flooring, vinyl floor tile, acoustical spray-applied materials, condensation control applications, ceiling tile, wall board, drywall joint compound, and asbestos sheet products.

Systematic sampling of suspect ACMs was conducted as part of the assessment. Samples were submitted under chain of custody to International Asbestos Testing Laboratory Inc. (IATL) and analyzed for asbestos type and percentage content using Polarized Light Microscopy (PLM) in accordance with EPA methodologies (EPA 600/R-93/116).

Further information related to the assessment and sample collection methods can be found in the Golder document *Golder Asbestos Assessment General Survey Plan and Protocol* provided to the Client.



3.0 RESULTS AND DISCUSSION

The Lawson Heights Civic Centre and Rusty MacDonald Library were constructed in 1988 and consist of numerous change rooms, office spaces, as well as a swimming pool area, auditorium, and library. The Lawson Heights Civic Centre and Rusty MacDonald Library consist of three floors; a lower floor, main floor, and second floor. During the assessment, the pool area, auditorium, and all associated offices and change rooms on the main floor were treated as one functional space, the library area and associated offices were treated as a second functional space, the lower level as a third functional space, and the second floor as a fourth functional space.

- The Laboratory Certificate of Analysis report for the bulk asbestos samples is included in Appendix A.
- Photographs collected during the assessment are provided in Appendix B.
- A room by room spreadsheet outlining the locations, quantities, friability, and condition of identified asbestos-containing materials as well as additional information is provided in Appendix C.
- Floor plans outlining the sample locations and locations of identified asbestos-containing materials is provided in Appendix D.
- Please refer to Sections 4.0 and 6.0 of this report for a summary of the limitations encountered.

3.1 Asbestos-Containing Materials

A total of seventy-two (72) samples of building materials were collected and tested for asbestos content during the assessment of the Lawson Heights Civic Centre and Rusty MacDonald Library. One (1) of the samples was found to contain asbestos.

3.1.1 List of Identified Asbestos-Containing Materials

A list of the identified asbestos-containing materials is provided below.

- Gold Sink Undercoat.

Further information on the identified asbestos-containing materials listed is provided below.

Gold Sink Undercoat

One (1) sample of gold sink undercoat was collected during the assessment. The sample collected was found to contain 2.7% Chrysotile asbestos. Asbestos-containing gold sink undercoat (see Photograph 1 in Appendix B) was observed in the following location:

- Room 105 (approximately 1 sink);
- Room 106 (approximately 1 sink); and
- Room 115 (approximately 1 sink).



3.1.2 Non Asbestos-Containing Materials

The following materials were sampled during this assessment and were found to not contain asbestos or were observed to be a non-suspect materials:

- Concrete scratch coat;
- Brown vinyl sheet flooring with white and dark brown flecks;
- Pipe-fitting insulation;
- Red/brown duct mastic;
- Drywall joint compound;
- Brown door caulking;
- Beige mosaic vinyl sheet flooring;
- Grey window frame caulking;
- Grey and blue speckled vinyl sheet flooring;
- 2'x4' Textured ceiling tile;
- Black window caulking;
- 2'x2' Ceiling tile with a square pattern;
- Grey window caulking;
- Red firestop;
- Stucco;
- Brick mortar;
- Red/brown building caulking;
- Grey building caulking;
- The drain lines throughout the site were not observed to have suspect packing;
- The duct work throughout the site was observed to be uninsulated or insulated with fibreglass insulation;
- The duct connector fabric throughout the site is not suspected to contain asbestos due to the vintage of construction;
- The 2'x4' ceiling tile with circular pattered fissures and the 2'x4' ceiling tile with small pinholes and small divots were date coded to a time period in which asbestos use was not widespread; and
- The boiler exhaust was observed to be insulated with fibreglass.



4.0 EXCLUDED AREAS AND MATERIALS

The following is a list of the areas and/or materials excluded during the assessment.

- During the assessment, approximately four floor locations were assessed for floor levelling compound. Floor levelling compound was not encountered at the time of the assessment. If floor levelling compound is encountered during renovation or demolition activities, additional sampling should be conducted to evaluate the presence or absence of asbestos.
- Building materials accessible by a ten foot ladder were assessed by Golder during the assessment. Materials located at heights that were inaccessible from a ten foot ladder were not assessed. If materials at heights are to be removed or impacted by future renovation or demolition activities, additional investigation and sampling of suspect materials may be required.
- The roof and associated components were not assessed by Golder during the assessment as per Tender 16-0844. If the roof and associated components are to be removed or impacted by future renovation or demolition activities, additional investigation and sampling of suspect materials may be required.
- Golder was unable to access Room 202A during the assessment as the room was locked and the Site Contact did not have keys. If work activities are scheduled within this area, further sampling may be required. If building materials within Room 104 are to be removed or impacted by future renovation or demolition activities, additional investigation and sampling of suspect materials may be required.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the visual assessment and the laboratory analytical results, the following project specific conclusions and recommendations are provided.

5.1 Asbestos-Containing Materials

Asbestos was positively identified within the gold sink undercoat on Site. Asbestos was not identified in the remaining samples collected and analyzed.

If the building is scheduled for renovations that will impact the identified asbestos-containing materials, it must be removed. If additional suspect asbestos-containing building materials are encountered during renovation activities, additional sampling should be undertaken to evaluate asbestos content.

Removal work should be completed by workers that are adequately trained in the hazards and proper methods of working with asbestos. Throughout the abatement activities, appropriate air monitoring and inspections should be conducted by a competent person to document that contamination is contained and that ACM are disposed of appropriately. Ensure asbestos waste is disposed of in accordance with the requirements of the Government of Saskatchewan.

All quantities listed in the report are approximate and are based on the conditions at the time of the assessment. Prior to abatement work it is recommended that a competent person conduct a review of the site to quantify and obtain all measurements of all building materials detailed in this report for cost estimating purposes.

In anticipation of potential abatement, Golder's recommendations for the asbestos-containing materials identified during the assessment are outlined below.



Gold Sink Undercoat

If scheduled for impact, asbestos-containing gold sink undercoat should be abated following low-risk abatement work procedures as outlined in the *Saskatchewan Asbestos Abatement Manual (2017)*. Alternatively, as the gold sink undercoat was observed in good condition, and with a priority rating of 5 (please see the room by room spreadsheet provided in Appendix C for a description of the priority ratings), it can be managed in place if not scheduled for impact.

6.0 SURVEY LIMITATIONS

This report is based on data and information collected by Golder during the assessment conducted on June 2 and 3, 2017 and is based solely on site conditions encountered at the time of the assessment. Any use of this document or the findings, conclusions or recommendations provided in this report by any person other than the City of Saskatoon is at the sole risk of such user.

The conclusions and recommendations contained in this survey report are based upon professional opinions with regard to the subject matter. These opinions are in accordance with currently accepted environmental assessment standards and practices applicable to these locations and are subject to the following inherent limitations:

The data and findings presented in this report are valid as of the dates of the investigations. The passage of time, manifestation of latent conditions or occurrence of future events may warrant further exploration at the properties, analysis of the data, and re-evaluation of the findings, observations, and conclusions expressed in this report. No assurance is made regarding changes in conditions or practices subsequent to the time of the investigation. It was beyond the scope of this assessment to conduct a risk assessment and the potential health risks that may be associated with asbestos exposure for building occupants.

The data reported and the findings, observations and conclusions expressed in this report are limited by the Scope of Work. The Scope of Work was defined by Tender 16-0844 and the initial site walkthrough with the Client, the time and budgetary constraints imposed by the Client, and availability of access to the property.

Because of the limitations stated above, the findings, observations and conclusions expressed by Golder in this report are not, and must not be, considered an opinion concerning compliance of any past or present owner or operator of the site with any federal, provincial or local laws or regulations.

No warranty or guarantee, whether expressed or implied, is made with respect to the data or the reported findings, observations, and conclusions, which are based solely upon site conditions in existence at the time of investigation.

Golder's assessment reports present professional opinions and findings of a scientific and technical nature. While attempts were made to relate the data and findings to applicable environmental laws and regulations, the report shall not be construed to offer legal opinion or representations as to the requirements of, nor compliance with, environmental laws, rules, regulations or policies of federal, provincial, or local governmental agencies. Any use of the survey report constitutes acceptance of the limits of Golder's liability.

Golder's liability extends only to its client and not to other parties who may obtain this survey report. Issues raised by the report must be reviewed by appropriate legal counsel.



7.0 CLOSURE

We trust the information presented in this report meets your requirements. If you have any questions please contact Kody Henderson at (780) 483-3499 or email at kody_henderson@golder.com. Thank you for the opportunity to be of service. We look forward to working with you again in the future.



ASBESTOS-CONTAINING BUILDING MATERIALS ASSESSMENT REPORT - LAWSON HEIGHTS CIVIC CENTRE AND RUSTY MACDONALD LIBRARY

Report Signature Page

GOLDER ASSOCIATES LTD.

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KH/AG/ba

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APPENDIX A

Laboratory Certificate of Analysis Report

CERTIFICATE OF ANALYSIS

Client: Golder Associates Ltd
16820 107 Ave
Edmonton AB T5P 4C3

Report Date: 6/15/2017
Report No.: 538138 - PLM
Project: Asbestos Surveys – City of Saskatoon
Project No.: 1667963

Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

<p>Lab No.: 6258597 Client No.: A-001</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Analyst Observation: Grey Cementitious Client Description: Concrete Scratch Coat</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> None Detected</p>	<p>Location: Stairwell Adjacent Corridor B05 Facility:</p> <p><u>Percent Non-Fibrous Material:</u> 100</p>
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<p>Lab No.: 6258598 Client No.: A-002</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Analyst Observation: Grey Cementitious Client Description: Concrete Scratch Coat</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> Trace Cellulose</p>	<p>Location: Corridor B05 Facility:</p> <p><u>Percent Non-Fibrous Material:</u> 100</p>
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<p>Lab No.: 6258599 Client No.: A-003</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Analyst Observation: Lt Tan/White Vinyl Sheet Flooring Client Description: Brown Vinyl Sheet Flooring With White And Dark Brown Flecks</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> None Detected</p>	<p>Location: Corridor B05 Facility:</p> <p><u>Percent Non-Fibrous Material:</u> 100</p>
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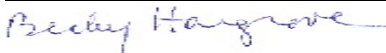
<p>Lab No.: 6258600 Client No.: A-004</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Analyst Observation: Grey Insulation Client Description: Pipe Fitting Insulation</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> 35 Fibrous Glass Trace Cellulose</p>	<p>Location: Room B04 Facility:</p> <p><u>Percent Non-Fibrous Material:</u> 65</p>
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<p>Lab No.: 6258601 Client No.: A-005</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Analyst Observation: Grey Insulation Client Description: Pipe Fitting Insulation</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> 35 Fibrous Glass</p>	<p>Location: Room B04 Facility:</p> <p><u>Percent Non-Fibrous Material:</u> 65</p>
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<p>Lab No.: 6258602 Client No.: A-006</p> <p><u>Percent Asbestos:</u> <i>None Detected</i></p>	<p>Analyst Observation: Grey Insulation Client Description: Pipe Fitting Insulation</p> <p><u>Percent Non-Asbestos Fibrous Material:</u> 35 Fibrous Glass</p>	<p>Location: Room B04 Facility:</p> <p><u>Percent Non-Fibrous Material:</u> 65</p>
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Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/7/2017
Date Analyzed: 06/15/2017

Signature: 
Analyst: Rebecca Hargrove

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Golder Associates Ltd
16820 107 Ave
Edmonton AB T5P 4C3

Report Date: 6/15/2017
Report No.: 538138 - PLM
Project: Asbestos Surveys – City of Saskatoon
Project No.: 1667963

Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6258603	Analyst Observation: Brown Mastic	Location: Room B04
Client No.: A-007	Client Description: Red/Brown Duct Mastic	Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

Lab No.: 6258604	Analyst Observation: Grey Insulation	Location: Corridor B03
Client No.: A-008	Client Description: Pipe-Fitting Insulation	Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 40 Fibrous Glass Trace Cellulose	<u>Percent Non-Fibrous Material:</u> 60

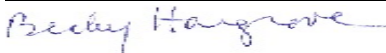
Lab No.: 6258605	Analyst Observation: Grey Insulation	Location: Room B01
Client No.: A-009	Client Description: Pipe-Fitting Insulation	Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 40 Fibrous Glass	<u>Percent Non-Fibrous Material:</u> 60

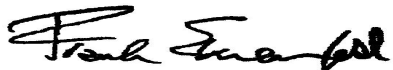
Lab No.: 6258606	Analyst Observation: Off-White Joint Compound	Location: Corridor 154
Client No.: A-010	Client Description: Drywall Joint Compound	Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

Lab No.: 6258607	Analyst Observation: Brown Caulk	Location: Room 155
Client No.: A-011	Client Description: Brown Door Caulking	Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

Lab No.: 6258608	Analyst Observation: White Joint Compound	Location: Room 165
Client No.: A-012	Client Description: Drywall Joint Compound	Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/7/2017
Date Analyzed: 06/15/2017
Signature: 
Analyst: Rebecca Hargrove

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Golder Associates Ltd
16820 107 Ave
Edmonton AB T5P 4C3

Report Date: 6/15/2017
Report No.: 538138 - PLM
Project: Asbestos Surveys – City of Saskatoon
Project No.: 1667963

Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6258609
Client No.: A-013
Percent Asbestos:
None Detected

Analyst Observation: Tan/Brown Vinyl Sheet Flooring
Client Description: Beige Mosaic Vinyl Sheet Flooring
Percent Non-Asbestos Fibrous Material:
10 Synthetic

Location: Room 165
Facility:
Percent Non-Fibrous Material:
90

Lab No.: 6258609(L2)
Client No.: A-013
Percent Asbestos:
None Detected

Analyst Observation: Tan Mastic
Client Description: Beige Mosaic Vinyl Sheet Flooring
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Room 165
Facility:
Percent Non-Fibrous Material:
100

Lab No.: 6258610
Client No.: A-014
Percent Asbestos:
None Detected

Analyst Observation: Grey Caulk
Client Description: Grey Window Frame Caulking
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Room 163
Facility:
Percent Non-Fibrous Material:
100

Lab No.: 6258611
Client No.: A-015
Percent Asbestos:
None Detected

Analyst Observation: Grey Cementitious
Client Description: Concrete Scratch Coat
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Room 159
Facility:
Percent Non-Fibrous Material:
100

Lab No.: 6258612
Client No.: A-016
Percent Asbestos:
None Detected

Analyst Observation: Grey/White Cementitious
Client Description: Concrete Scratch Coat
Percent Non-Asbestos Fibrous Material:
None Detected

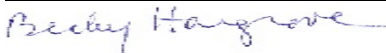
Location: Room 160
Facility:
Percent Non-Fibrous Material:
100


Lab No.: 6258613
Client No.: A-017
Percent Asbestos:
None Detected

Analyst Observation: Grey Cementitious
Client Description: Concrete Scratch Coat
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Room 150
Facility:
Percent Non-Fibrous Material:
100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/7/2017
Date Analyzed: 06/15/2017
Signature: 
Analyst: Rebecca Hargrove

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Golder Associates Ltd
16820 107 Ave
Edmonton AB T5P 4C3

Report Date: 6/15/2017
Report No.: 538138 - PLM
Project: Asbestos Surveys – City of Saskatoon
Project No.: 1667963

Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6258614
Client No.: A-018
Percent Asbestos:
None Detected

Analyst Observation: Grey Cementitious
Client Description: Concrete Scratch Coat
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Room 147
Facility:
Percent Non-Fibrous Material:
100

Lab No.: 6258615
Client No.: A-019
Percent Asbestos:
None Detected

Analyst Observation: Grey Cementitious
Client Description: Concrete Scratch Coat
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Room 141
Facility:
Percent Non-Fibrous Material:
100

Lab No.: 6258616
Client No.: A-020
Percent Asbestos:
None Detected

Analyst Observation: Off-White Joint Compound
Client Description: Drywall Joint Compound
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Room 138
Facility:
Percent Non-Fibrous Material:
100

Lab No.: 6258617
Client No.: A-021
Percent Asbestos:
None Detected

Analyst Observation: Grey/Blue Vinyl Sheet Flooring
Client Description: Grey And Blue Speckled Vinyl Sheet Flooring
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Room 139
Facility:
Percent Non-Fibrous Material:
100

Lab No.: 6258617(L2)
Client No.: A-021
Percent Asbestos:
None Detected

Analyst Observation: Lt Tan Mastic
Client Description: Grey And Blue Speckled Vinyl Sheet Flooring
Percent Non-Asbestos Fibrous Material:
None Detected

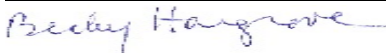
Location: Room 139
Facility:
Percent Non-Fibrous Material:
100


Lab No.: 6258617(L3)
Client No.: A-021
Percent Asbestos:
None Detected

Analyst Observation: Grey Leveling Compound
Client Description: Grey And Blue Speckled Vinyl Sheet Flooring
Percent Non-Asbestos Fibrous Material:
Trace Cellulose

Location: Room 139
Facility:
Percent Non-Fibrous Material:
100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/7/2017
Date Analyzed: 06/15/2017
Signature: 
Analyst: Rebecca Hargrove

Approved By: 
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Report No.: 538138 - PLM
Project: Asbestos Surveys – City of Saskatoon
Project No.: 1667963

Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6258618
Client No.: A-022
Percent Asbestos:
None Detected

Analyst Observation: Tan/White Ceiling Tile
Client Description: 2"x4" Textured Ceiling Tile
Percent Non-Asbestos Fibrous Material:
50 Cellulose
30 Fibrous Glass

Location: Room 139
Facility:
Percent Non-Fibrous Material:
20

Lab No.: 6258619
Client No.: A-023
Percent Asbestos:
None Detected

Analyst Observation: Tan/White Ceiling Tile
Client Description: 2"x4" Textured Ceiling Tile
Percent Non-Asbestos Fibrous Material:
50 Cellulose
30 Fibrous Glass

Location: Room 140
Facility:
Percent Non-Fibrous Material:
20

Lab No.: 6258620
Client No.: A-024
Percent Asbestos:
None Detected

Analyst Observation: Tan/White Ceiling Tile
Client Description: 2"x4" Textured Ceiling Tile
Percent Non-Asbestos Fibrous Material:
50 Cellulose
30 Fibrous Glass

Location: Room 140
Facility:
Percent Non-Fibrous Material:
20

Lab No.: 6258621
Client No.: A-025
Percent Asbestos:
None Detected

Analyst Observation: White Joint Compound
Client Description: Drywall Joint Compound
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Corridor 161
Facility:
Percent Non-Fibrous Material:
100

Lab No.: 6258622
Client No.: A-026
Percent Asbestos:
None Detected

Analyst Observation: White Joint Compound
Client Description: Drywall Joint Compound
Percent Non-Asbestos Fibrous Material:
None Detected

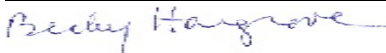
Location: Room 131A
Facility:
Percent Non-Fibrous Material:
100


Lab No.: 6258623
Client No.: A-027
Percent Asbestos:
None Detected

Analyst Observation: Off-White Joint Compound
Client Description: Drywall Joint Compound
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Room 132
Facility:
Percent Non-Fibrous Material:
100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/7/2017
Date Analyzed: 06/15/2017
Signature: 
Analyst: Rebecca Hargrove

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Golder Associates Ltd
16820 107 Ave
Edmonton AB T5P 4C3

Report Date: 6/15/2017
Report No.: 538138 - PLM
Project: Asbestos Surveys – City of Saskatoon
Project No.: 1667963

Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6258624	Analyst Observation: White Joint Compound	Location: Room 130 A/B/C/D
Client No.: A-028	Client Description: Drywall Joint Compound	Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

Lab No.: 6258625	Analyst Observation: Grey/White Ceiling Tile	Location: Room 130 A/B/C/D
Client No.: A-029	Client Description: 2'x4 Textured Ceiling Tile	Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 50 Cellulose 35 Fibrous Glass	<u>Percent Non-Fibrous Material:</u> 15

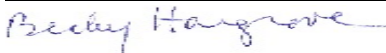
Lab No.: 6258626	Analyst Observation: Grey/White Ceiling Tile	Location: Room 130 A/B/C/D
Client No.: A-030	Client Description: 2'x4 Textured Ceiling Tile	Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 50 Cellulose 30 Fibrous Glass	<u>Percent Non-Fibrous Material:</u> 20

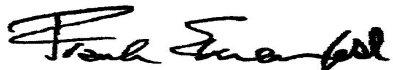
Lab No.: 6258627	Analyst Observation: Grey Putty	Location: Room 130 A/B/C/D
Client No.: A-031	Client Description: Black Window Caulking	Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 10 Cellulose	<u>Percent Non-Fibrous Material:</u> 90

Lab No.: 6258628	Analyst Observation: Grey Insulation	Location: Room 167/168
Client No.: A-032	Client Description: Pipe-Fitting Insulation	Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 35 Fibrous Glass	<u>Percent Non-Fibrous Material:</u> 65

Lab No.: 6258629	Analyst Observation: White Joint Compound	Location: Room 103
Client No.: A-033	Client Description: Drywall Joint Compound	Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/7/2017
Date Analyzed: 06/15/2017
Signature: 
Analyst: Rebecca Hargrove

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Golder Associates Ltd
16820 107 Ave
Edmonton AB T5P 4C3

Report Date: 6/15/2017
Report No.: 538138 - PLM
Project: Asbestos Surveys – City of Saskatoon
Project No.: 1667963

Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6258630
Client No.: A-034
Percent Asbestos:
None Detected

Analyst Observation: Off-White Joint Compound
Client Description: Drywall Joint Compound
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Room 103
Facility:
Percent Non-Fibrous Material:
100

Lab No.: 6258631
Client No.: A-035
Percent Asbestos:
None Detected

Analyst Observation: Grey/White Ceiling Tile
Client Description: 2'x2 Ceiling Tile With A Square Pattern
Percent Non-Asbestos Fibrous Material:
50 Cellulose
35 Fibrous Glass

Location: Room 103
Facility:
Percent Non-Fibrous Material:
15

Lab No.: 6258632
Client No.: A-036
Percent Asbestos:
None Detected

Analyst Observation: Grey/White Ceiling Tile
Client Description: 2'x2 Ceiling Tile With A Square Pattern
Percent Non-Asbestos Fibrous Material:
50 Cellulose
35 Fibrous Glass

Location: Room 103
Facility:
Percent Non-Fibrous Material:
15

Lab No.: 6258633
Client No.: A-037
Percent Asbestos:
None Detected

Analyst Observation: Grey/White Ceiling Tile
Client Description: 2'x2 Ceiling Tile With A Square Pattern
Percent Non-Asbestos Fibrous Material:
50 Cellulose
35 Fibrous Glass

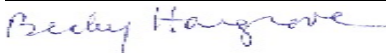
Location: Room 103
Facility:
Percent Non-Fibrous Material:
15

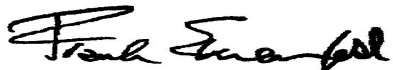
Lab No.: 6258634
Client No.: A-038
Percent Asbestos:
None Detected

Analyst Observation: White Joint Compound
Client Description: Drywall Joint Compound
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Room 104
Facility:
Percent Non-Fibrous Material:
100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/7/2017
Date Analyzed: 06/15/2017
Signature: 
Analyst: Rebecca Hargrove

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Golder Associates Ltd
16820 107 Ave
Edmonton AB T5P 4C3

Report Date: 6/15/2017
Report No.: 538138 - PLM
Project: Asbestos Surveys – City of Saskatoon
Project No.: 1667963

Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6258635
Client No.: A-039
Percent Asbestos:
None Detected

Analyst Observation: Brown Vinyl Sheet Flooring
Client Description: Beige Mosaic Vinyl Sheet Flooring
Percent Non-Asbestos Fibrous Material:
15 Cellulose
5 Synthetic

Location: Children's Washroom
Facility:
Percent Non-Fibrous Material:
80

Lab No.: 6258635(L2)
Client No.: A-039
Percent Asbestos:
None Detected

Analyst Observation: Tan Mastic
Client Description: Beige Mosaic Vinyl Sheet Flooring
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Children's Washroom
Facility:
Percent Non-Fibrous Material:
100

Lab No.: 6258636
Client No.: A-040
Percent Asbestos:
None Detected

Analyst Observation: Grey/White Ceiling Tile
Client Description: 2'x4' Textured Ceiling Tile
Percent Non-Asbestos Fibrous Material:
45 Fibrous Glass
40 Cellulose

Location: Children's Washroom
Facility:
Percent Non-Fibrous Material:
80

Lab No.: 6258637
Client No.: A-041
Percent Asbestos:
None Detected

Analyst Observation: Grey/White Ceiling Tile
Client Description: 2'x4' Textured Ceiling Tile
Percent Non-Asbestos Fibrous Material:
50 Cellulose
30 Fibrous Glass

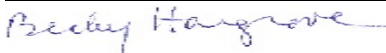
Location: Room 105
Facility:
Percent Non-Fibrous Material:
20

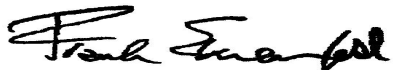
Lab No.: 6258638
Client No.: A-042
Percent Asbestos:
PC 2.7 Chrysotile

Analyst Observation: Black/Gold Insulation
Client Description: Gold Sink Undercoat
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Room 105
Facility:
Percent Non-Fibrous Material:
97.3

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/7/2017
Date Analyzed: 06/15/2017
Signature: 
Analyst: Rebecca Hargrove

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Golder Associates Ltd
16820 107 Ave
Edmonton AB T5P 4C3

Report Date: 6/15/2017
Report No.: 538138 - PLM
Project: Asbestos Surveys – City of Saskatoon
Project No.: 1667963

Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6258639
Client No.: A-043

Analyst Observation: Grey/White Ceiling Tile
Client Description: 2'x4' Textured Ceiling Tile

Location: Room 109
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
45 Cellulose
40 Fibrous Glass

Percent Non-Fibrous Material:
15

Lab No.: 6258640
Client No.: A-044

Analyst Observation: Grey Putty
Client Description: Grey Window Caulking

Location: Room 103
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
10 Cellulose

Percent Non-Fibrous Material:
90

Lab No.: 6258641
Client No.: A-045

Analyst Observation: White Joint Compound
Client Description: Drywall Joint Compound

Location: Room 108
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6258642
Client No.: A-046

Analyst Observation: Sample Not Analyzed
Client Description: Drywall Joint Compound

Location: Room 111
Facility:

Percent Asbestos:
Sample Not Analyzed

Percent Non-Asbestos Fibrous Material:
Sample Not Analyzed

Percent Non-Fibrous Material:

Not Analyzed, Insufficient Sample

Lab No.: 6258643
Client No.: A-047

Analyst Observation: Off-White Joint Compound
Client Description: Drywall Joint Compound

Location: Room 114
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6258643(L2)
Client No.: A-047

Analyst Observation: White Joint Compound
Client Description: Drywall Joint Compound

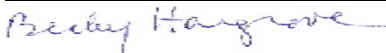
Location: Room 114
Facility:

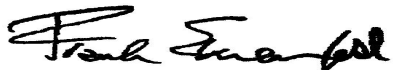
Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/7/2017
Date Analyzed: 06/15/2017
Signature: 
Analyst: Rebecca Hargrove

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Golder Associates Ltd
16820 107 Ave
Edmonton AB T5P 4C3

Report Date: 6/15/2017
Report No.: 538138 - PLM
Project: Asbestos Surveys – City of Saskatoon
Project No.: 1667963

Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6258644
Client No.: A-048
Percent Asbestos:
None Detected

Analyst Observation: Off-White/White Joint Compound
Client Description: Drywall Joint Compound
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Room 114
Facility:
Percent Non-Fibrous Material:
100

Lab No.: 6258645
Client No.: A-049
Percent Asbestos:
None Detected

Analyst Observation: Brown Mastic
Client Description: Red/Brown Duct Mastic
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Room 109
Facility:
Percent Non-Fibrous Material:
100

Lab No.: 6258646
Client No.: A-050
Percent Asbestos:
None Detected

Analyst Observation: Grey Insulation
Client Description: Pipe-Fitting Insulation
Percent Non-Asbestos Fibrous Material:
40 Fibrous Glass

Location: Room 201
Facility:
Percent Non-Fibrous Material:
60

Lab No.: 6258647
Client No.: A-051
Percent Asbestos:
None Detected

Analyst Observation: Grey Insulation
Client Description: Pipe-Fitting Insulation
Percent Non-Asbestos Fibrous Material:
40 Fibrous Glass

Location: Room 201
Facility:
Percent Non-Fibrous Material:
60

Lab No.: 6258648
Client No.: A-052
Percent Asbestos:
None Detected

Analyst Observation: Red/Brown Caulk
Client Description: Red Firestop
Percent Non-Asbestos Fibrous Material:
None Detected

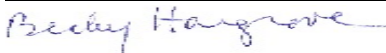
Location: Room 201
Facility:
Percent Non-Fibrous Material:
100


Lab No.: 6258649
Client No.: A-053
Percent Asbestos:
None Detected

Analyst Observation: White Insulation
Client Description: Drywall Joint Compound
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Room 202B
Facility:
Percent Non-Fibrous Material:
100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/7/2017
Date Analyzed: 06/15/2017
Signature: 
Analyst: Rebecca Hargrove

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Golder Associates Ltd
16820 107 Ave
Edmonton AB T5P 4C3

Report Date: 6/15/2017
Report No.: 538138 - PLM
Project: Asbestos Surveys – City of Saskatoon
Project No.: 1667963

Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6258650	Analyst Observation: Sample Not Analyzed	Location: Room 202B
Client No.: A-054	Client Description: Drywall Joint Compound	Facility:
<u>Percent Asbestos:</u> <i>Sample Not Analyzed</i>	<u>Percent Non-Asbestos Fibrous Material:</u> Sample Not Analyzed	<u>Percent Non-Fibrous Material:</u>
<u>Not Analyzed, Insufficient Sample</u>		

Lab No.: 6258651	Analyst Observation: White Joint Compound	Location: Room 202B
Client No.: A-055	Client Description: Drywall Joint Compound	Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

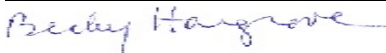
Lab No.: 6258652	Analyst Observation: Grey Insulation	Location: Room 202B
Client No.: A-056	Client Description: Pipe-Fitting Insulation	Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 35 Fibrous Glass Trace Cellulose	<u>Percent Non-Fibrous Material:</u> 65


Lab No.: 6258653	Analyst Observation: Tan/Grey Stucco	Location: Exterior
Client No.: A-057	Client Description: Stucco	Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> Trace Fibrous Glass	<u>Percent Non-Fibrous Material:</u> 100

Lab No.: 6258654	Analyst Observation: Grey Stucco	Location: Exterior
Client No.: A-058	Client Description: Stucco	Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

Lab No.: 6258655	Analyst Observation: Grey Stucco	Location: Exterior
Client No.: A-059	Client Description: Stucco	Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/7/2017
Date Analyzed: 06/15/2017
Signature: 
Analyst: Rebecca Hargrove

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Golder Associates Ltd
16820 107 Ave
Edmonton AB T5P 4C3

Report Date: 6/15/2017
Report No.: 538138 - PLM
Project: Asbestos Surveys – City of Saskatoon
Project No.: 1667963

Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6258656
Client No.: A-060
Percent Asbestos:
None Detected

Analyst Observation: Grey Stucco
Client Description: Stucco
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Exterior
Facility:
Percent Non-Fibrous Material:
100

Lab No.: 6258657
Client No.: A-061
Percent Asbestos:
None Detected

Analyst Observation: Grey Stucco
Client Description: Stucco
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Exterior
Facility:
Percent Non-Fibrous Material:
100

Lab No.: 6258658
Client No.: A-062
Percent Asbestos:
None Detected

Analyst Observation: Grey Stucco
Client Description: Stucco
Percent Non-Asbestos Fibrous Material:
Trace Cellulose

Location: Exterior
Facility:
Percent Non-Fibrous Material:
100

Lab No.: 6258659
Client No.: A-063
Percent Asbestos:
None Detected

Analyst Observation: Grey Stucco
Client Description: Stucco
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Exterior
Facility:
Percent Non-Fibrous Material:
100

Lab No.: 6258660
Client No.: A-064
Percent Asbestos:
None Detected

Analyst Observation: Red/Brown Mortar
Client Description: Brick Mortar
Percent Non-Asbestos Fibrous Material:
None Detected

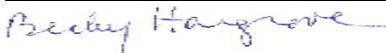
Location: Exterior
Facility:
Percent Non-Fibrous Material:
100

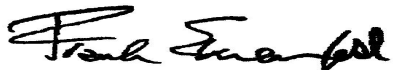
Lab No.: 6258661
Client No.: A-065
Percent Asbestos:
None Detected

Analyst Observation: Red/Brown Mortar
Client Description: Brick Mortar
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Exterior
Facility:
Percent Non-Fibrous Material:
100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/7/2017
Date Analyzed: 06/15/2017
Signature: 
Analyst: Rebecca Hargrove

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Golder Associates Ltd
16820 107 Ave
Edmonton AB T5P 4C3

Report Date: 6/15/2017
Report No.: 538138 - PLM
Project: Asbestos Surveys – City of Saskatoon
Project No.: 1667963

Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6258662
Client No.: A-066
Percent Asbestos:
None Detected

Analyst Observation: Red/Brown Mortar
Client Description: Brick Mortar
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Exterior
Facility:
Percent Non-Fibrous Material:
100

Lab No.: 6258663
Client No.: A-067
Percent Asbestos:
None Detected

Analyst Observation: Red/Brown Mortar
Client Description: Brick Mortar
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Exterior
Facility:
Percent Non-Fibrous Material:
100

Lab No.: 6258664
Client No.: A-068
Percent Asbestos:
None Detected

Analyst Observation: Red/Brown Mortar
Client Description: Brick Mortar
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Exterior
Facility:
Percent Non-Fibrous Material:
100

Lab No.: 6258665
Client No.: A-069
Percent Asbestos:
None Detected

Analyst Observation: Red/Brown Mortar
Client Description: Brick Mortar
Percent Non-Asbestos Fibrous Material:
Trace Cellulose

Location: Exterior
Facility:
Percent Non-Fibrous Material:
100

Lab No.: 6258666
Client No.: A-070
Percent Asbestos:
None Detected

Analyst Observation: Red/Brown Mortar
Client Description: Brick Mortar
Percent Non-Asbestos Fibrous Material:
Trace Cellulose

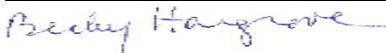
Location: Exterior
Facility:
Percent Non-Fibrous Material:
100

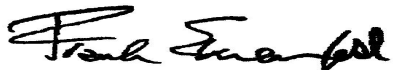
Lab No.: 6258667
Client No.: A-071
Percent Asbestos:
None Detected

Analyst Observation: Tan Caulk
Client Description: Red/Brown Building Caulking
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Exterior
Facility:
Percent Non-Fibrous Material:
100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/7/2017
Date Analyzed: 06/15/2017
Signature: 
Analyst: Rebecca Hargrove

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Golder Associates Ltd
16820 107 Ave
Edmonton AB T5P 4C3

Report Date: 6/15/2017
Report No.: 538138 - PLM
Project: Asbestos Surveys – City of Saskatoon
Project No.: 1667963

Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6258668
Client No.: A-072

Analyst Observation: Tan Caulk
Client Description: Grey Building Caulking

Location: Exterior
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.


Date Received: 6/7/2017

Date Analyzed: 06/15/2017

Signature:

Analyst: Rodney Redman

Approved By:



Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Golder Associates Ltd
16820 107 Ave
Edmonton AB T5P 4C3

Report Date: 6/15/2017
Report No.: 538138 - PLM
Project: Asbestos Surveys – City of Saskatoon
Project No.: 1667963

Client: GOL572

Appendix to Analytical Report

Customer Contact:

Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com

iATL Office Manager: cdavis@iatl.com

iATL Account Representative: Pete Lesniak

Sample Login Notes: See Batch Sheet Attached

Sample Matrix: Bulk Building Materials

Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

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Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

CERTIFICATE OF ANALYSIS

Client: Golder Associates Ltd
16820 107 Ave
Edmonton AB T5P 4C3

Report Date: 6/15/2017
Report No.: 538138 - PLM
Project: Asbestos Surveys – City of Saskatoon
Project No.: 1667963

Client: GOL572

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at customerservice@iatl.com.

- 1) Note: No mastic provided for analysis.
- 2) Note: Insufficient mastic provided for analysis.
- 3) Note: Insufficient material provided for analysis.
- 4) Note: Insufficient sample provided for QC reanalysis.
- 5) Note: Different material than indicated on Sample Log / Description.
- 6) Note: Sample not submitted.
- 7) Note: Attached to asbestos containing material.
- 8) Note: Received wet.
- 9) Note: Possible surface contamination.
- 10) Note: Not building material. 1% threshold may not apply.
- 11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
- 12) Note: Asbestos detected but not quantifiable.
- 13) Note: Multiple identical samples submitted, only one analyzed.
- 14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
- 15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gänge, homogeneous exfoliated books of mica, or mixed mineral composites). Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

- 1) **Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.
- 2) **Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.
- 3) **Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.
- 4) **Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.
- 5) **Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.

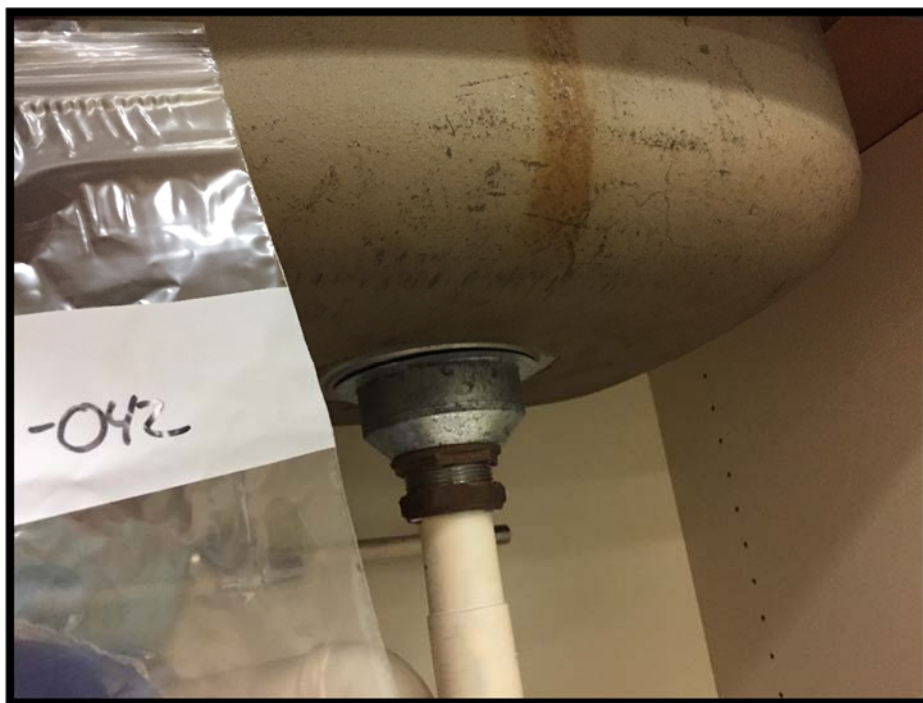
*With advance notice and confirmation by the laboratory.

**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).



APPENDIX B

Site Photographs



Photograph 1: Asbestos-Containing Gold Sink Undercoat.

\\golder\gal\edmonton\active\2016\3 proj\1667963 cityofsaskatoon_asbsurveys_saskatoon\07 reports\04 - lawson heights cc and rml\appendix b - site photographs.docx



APPENDIX C

Room by Room Spreadsheet

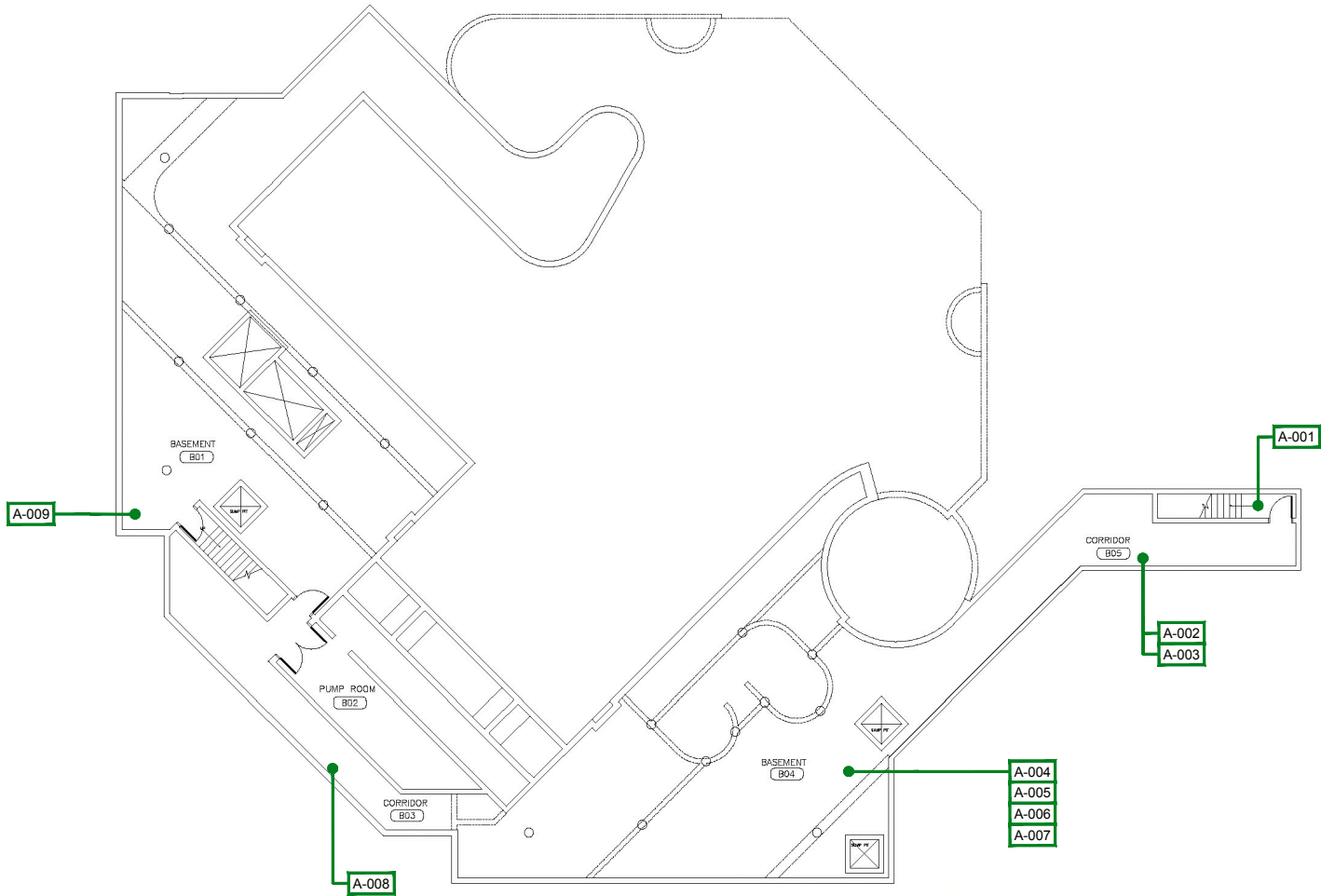
Appendix C
Lawson Heights Civic Centre and Rusty MacDonald Library
ACM Inventory

Included/Excluded	Floor	Room #	Area Description	Elements	Subelements	Material Description	Accessibility	Suspect?	Sampled?	Asbestos Containing Material?	Condition	Field Notes	Sample Type	Sample ID	Sample Date	Asbestos Type	ACM Product	% of asbestos	Friable	Sprayed-on	Maintenance	Inspection	Priority	Potential for Disturbance	Recommended Action	Quantity	Photograph ID	Labelling Type	
Included	M	170	Change Room	Walls	Walls	Block Wall	High	No	No	No	Good																		
Included	M	170	Change Room	Floor	Floor	Concrete	High	No	No	No	Good	Non-suspect flooring.																	
Included	M	170	Change Room	Ceiling	Ceiling	Metal	High	No	No	No	Good																		
Included	M	170	Change Room	Mechanical	Piping	Pipe-Fitting Insulation	High	No	Yes	No	Good			VS A-009															
Included	M	170	Change Room	Mechanical	Duct Work	Bare Duct Work	High	No	No	No	Good																		
Included	M	170	Change Room	Electrical	Electrical Panels and Components	Electrical Panels and Components	High	Yes	No	Potential	Good	Not sampled due to safety concerns.							No	No		Annually		Low	Inspect and sample if scheduled for removal.				
Included	S	201	Mechanical Room	Walls	Walls	Block Wall	High	No	No	No	Good																		
Included	S	201	Mechanical Room	Floor	Floor	Concrete	High	No	No	No	Good																		
Included	S	201	Mechanical Room	Ceiling	Ceiling	Metal	High	No	No	No	Good																		
Included	S	201	Mechanical Room	Mechanical	Piping	Pipe-Fitting Insulation	High	No	Yes	No	Good		Bulk	A-050 and A-051	2-Jun-17														
Included	S	201	Mechanical Room	Mechanical	Duct Work	Bare Duct Work and Fibreglass Insulation	High	No	No	No	Good	Non-suspect duct insulation.																	
Included	S	201	Mechanical Room	Mechanical	Firestop	Red Firestop	High	No	Yes	No	Good		Bulk	A-052	2-Jun-17														
Included	S	201	Mechanical Room	Mechanical	Duct Work	Red/Brown Duct Mastic	High	No	Yes	No	Good	Painted white.		VS A-007															
Included	S	201	Mechanical Room	Electrical	Electrical Panels and Components	Electrical Panels and Components	High	Yes	No	Potential	Good	Not sampled due to safety concerns.							No	No		Annually		Low	Inspect and sample if scheduled for removal.				
Included	S	201	Mechanical Room	Mechanical	Boilers and Components	Boilers and Components	High	Yes	No	Potential	Good	Not sampled due to safety concerns.							No	No		Annually		Low	Inspect and sample if scheduled for removal.				
Included	S	202B	Mechanical Room	Walls	Walls	Block Wall	High	No	No	No	Good																		
Included	S	202B	Mechanical Room	Walls	Walls	Drywall Joint Compound	High	No	Yes	No	Good		Bulk	A-053, A-054, and A-055	2-Jun-17														
Included	S	202B	Mechanical Room	Floor	Floor	Concrete	High	No	No	No	Good																		
Included	S	202B	Mechanical Room	Ceiling	Ceiling	Metal	High	No	No	No	Good																		
Included	S	202B	Mechanical Room	Mechanical	Piping	Pipe-Fitting Insulation	High	No	Yes	No	Good		Bulk	A-056	2-Jun-17														
Included	S	202B	Mechanical Room	Mechanical	Duct Work	Bare Duct Work and Fibreglass Insulation	High	No	No	No	Good	Non-suspect duct insulation.																	
Included	S	202B	Mechanical Room	Mechanical	Duct Work	Red/Brown Duct Mastic	High	No	Yes	No	Good	Painted white.		VS A-007															
Included	E	Exterior	Exterior	Walls	Walls	Stucco	High	No	Yes	No	Good		Bulk	A-057, A-058, A-059, A-060, A-061, A-062, and A-063	2-Jun-17														
Included	E	Exterior	Exterior	Walls	Walls	Brick Mortar	High	No	Yes	No	Good		Bulk	A-064, A-065, A-066, A-067, A-068, A-069, and A-070	2-Jun-17														
Included	E	Exterior	Exterior	Walls	Walls	Red/Brown Building Caulking	High	No	Yes	No	Good		Bulk	A-071	2-Jun-17														
Included	E	Exterior	Exterior	Walls	Walls	Grey Building Caulking	High	No	Yes	No	Good		Bulk	A-072	2-Jun-17														
Excluded	M	202A	Office	Entire Room	Entire Room							Access was not provided.																	
Excluded		Exterior	Roof	Exterior Roof	Exterior Roof							Not assessed due to scope of work.																	



APPENDIX D

Floor Plans



SCHEMATIC ONLY, NOT TO SCALE

NOTE(S)

1. ASBESTOS IS A CARCINOGEN. DO NOT BREATHE ASBESTOS DUST.
2. SAMPLES A-057 TO A-072 WERE COLLECTED ALONG THE EXTERIOR OF THE BUILDING.

CLIENT

CITY OF SASKATOON

PROJECT

ASBESTOS ASSESSMENT
 LAWSON HEIGHT CIVIC CENTRE AND RUSTY MacDONALD LIBRARY
 225 PRIMROSE DRIVE

CONSULTANT



YYYY-MM-DD 2017-07-11

DESIGNED KH

PREPARED YAW

REVIEWED KH

APPROVED AG

TITLE

LOWER FLOOR

REFERENCE(S)

PLAN OBTAINED FROM INFRASTRUCTURE SERVICES DEPARTMENT CITY OF SASKATOON. DATED: JULY 11, 2003.

PROJECT NO.
1667963

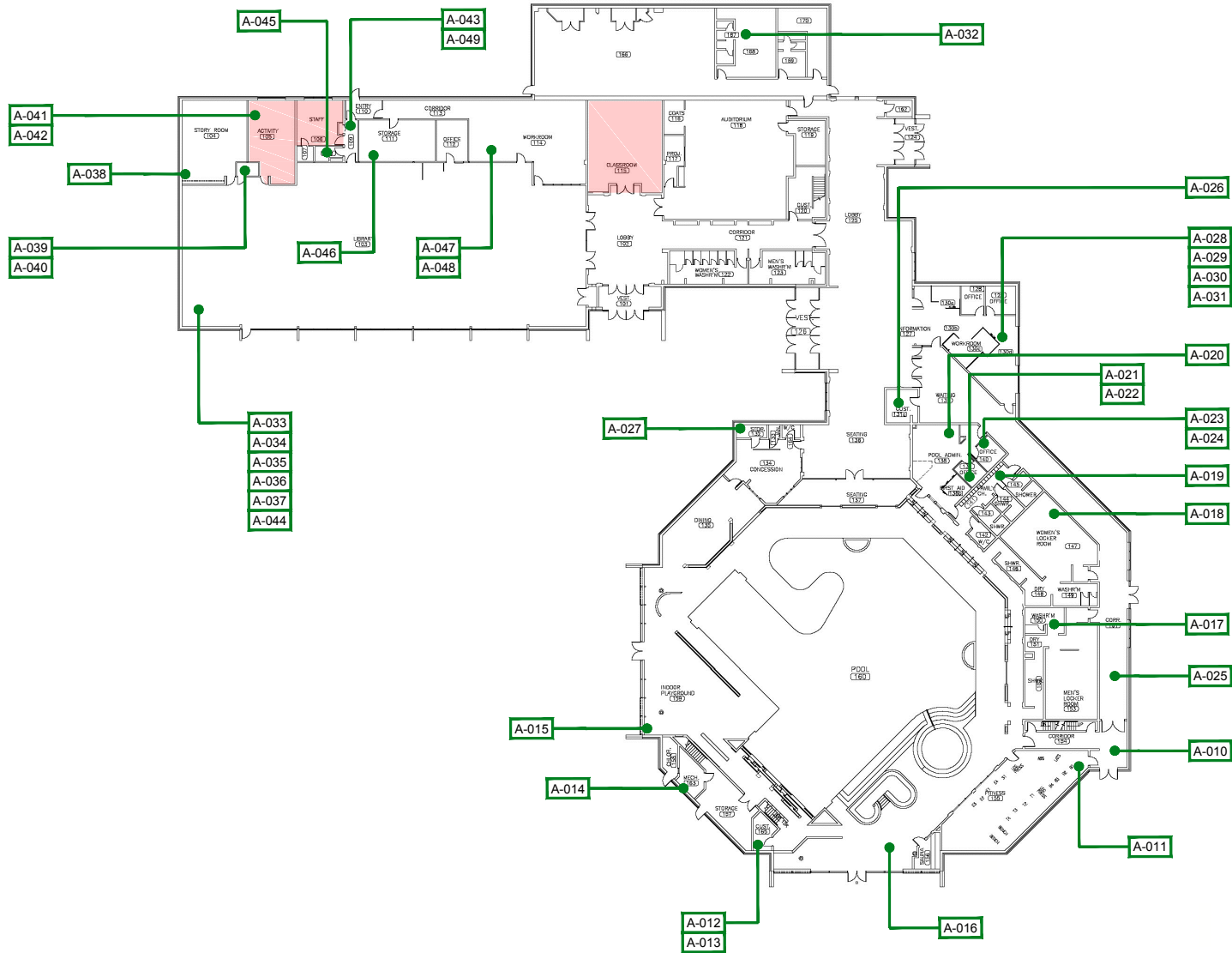
CONTROL
1000-HM-0002

REV.
0

FIGURE
1


IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A

25 mm



SCHEMATIC ONLY, NOT TO SCALE

NOTE(S)
 1. ASBESTOS IS A CARCINOGEN. DO NOT BREATHE ASBESTOS DUST.
 2. SAMPLES A-057 TO A-072 WERE COLLECTED ALONG THE EXTERIOR OF THE BUILDING.

LEGEND
 ASBESTOS - CONTAINING SINK UNDERCOAT

REFERENCE(S)
 PLAN OBTAINED FROM INFRASTRUCTURE SERVICES DEPARTMENT CITY OF SASKATOON. DATED: 11/08/2011.

CLIENT
 CITY OF SASKATOON

CONSULTANT



YYYY-MM-DD 2017-07-11
 DESIGNED KH
 PREPARED YAW
 REVIEWED KH
 APPROVED AG

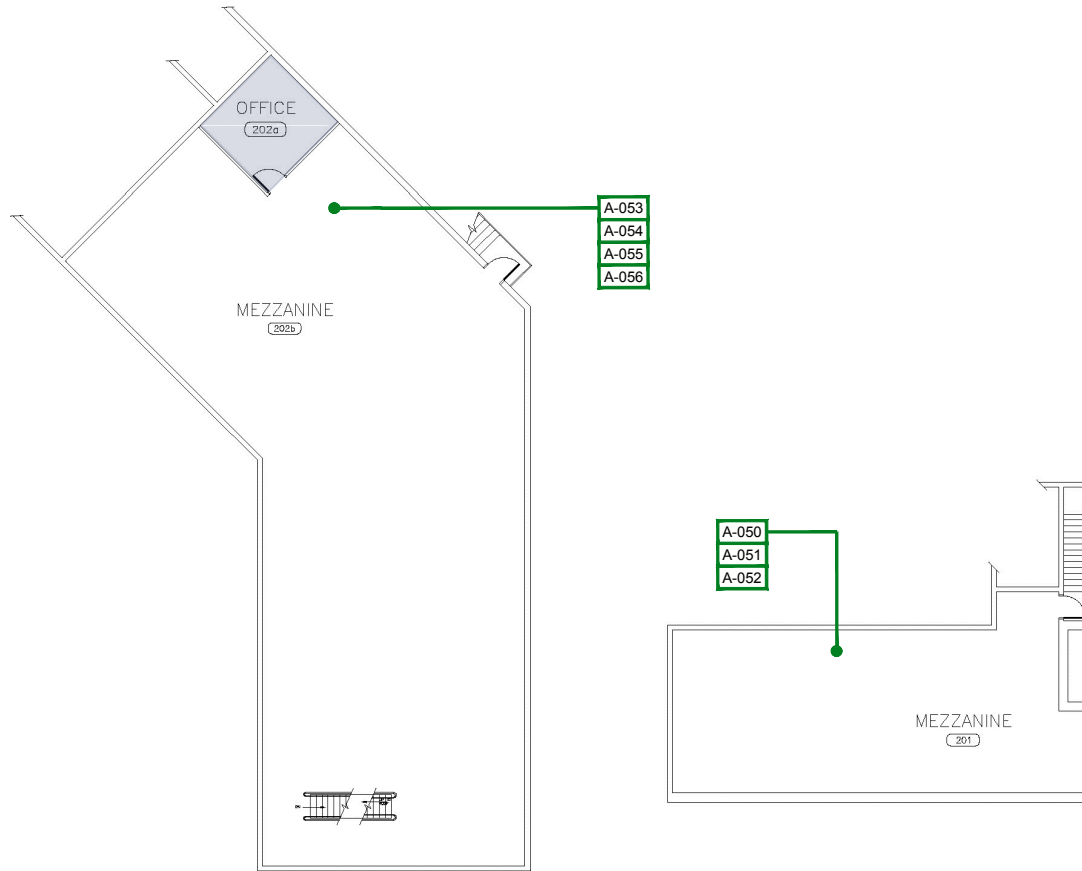
PROJECT
 ASBESTOS ASSESSMENT
 LAWSON HEIGHT CIVIC CENTRE AND RUSTY MacDONALD LIBRARY
 225 PRIMROSE DRIVE

TITLE
MAIN FLOOR

PROJECT NO. 1667963 CONTROL 1000-HM-0003 REV. 0 FIGURE 2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A

26 mm



SCHEMATIC ONLY, NOT TO SCALE

NOTE(S)

1. ASBESTOS IS A CARCINOGEN. DO NOT BREATHE ASBESTOS DUST.
2. SAMPLES A-057 TO A-072 WERE COLLECTED ALONG THE EXTERIOR OF THE BUILDING.

LEGEND

NO ACCESS

REFERENCE(S)

PLAN OBTAINED FROM INFRASTRUCTURE SERVICES DEPARTMENT CITY OF SASKATOON. DATED: 09/07/1999.

CLIENT

CITY OF SASKATOON

CONSULTANT



YYYY-MM-DD 2017-07-11

DESIGNED KH

PREPARED YAW

REVIEWED KH

APPROVED AG

PROJECT

ASBESTOS ASSESSMENT
 LAWSON HEIGHT CIVIC CENTRE AND RUSTY MacDONALD LIBRARY
 225 PRIMROSE DRIVE

TITLE

SECOND FLOOR

PROJECT NO.
1667963

CONTROL
1000-HM-0004

REV.
0

FIGURE
3

As a global, employee-owned organisation with over 50 years of experience, Golder Associates is driven by our purpose to engineer earth's development while preserving earth's integrity. We deliver solutions that help our clients achieve their sustainable development goals by providing a wide range of independent consulting, design and construction services in our specialist areas of earth, environment and energy.

For more information, visit golder.com

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16820 107 Avenue
Edmonton, Alberta, T5P 4C3
Canada
T: +1 (780) 483 3499



August 28, 2019

City of Saskatoon
3130 Laurier Drive
Saskatoon, SK
S7L 5J7

ATTENTION: Brent Anderson

SUBJECT: Bulk Sample Analysis Report

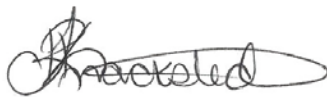
Please find attached the laboratory results for the bulk samples collected on August 20, 2019 from the Lawson Civic Centre in Saskatoon, Saskatchewan. The samples were analyzed for the identification of asbestos. Asbestos **was not** detected within any of the samples.

The results for the samples submitted were obtained by examination in accordance with the current USEPA 600/R-93/116 Method for the analysis of asbestos in building materials using polarized light microscopy and dispersion staining techniques. The detection limit of this method is listed as less than 1% by volume.

This test report relates only to the materials sent for examination and any use or extension of the information by the client of these results is the responsibility of the client.

If any questions arise on the results of the attached information, please contact our office. Thank you for this opportunity of service.

Sincerely,



Tyneal Knackstedt
Bersch Consulting Ltd.
B67BLH20I-Lawson Civic Centre

Bulk Sample Analysis Report

August 28, 2019

Project Number: B67.19

Client: City of Saskatoon

Contact: Brent Anderson

Location: Lawson Civic Centre

File Number: B67BAH20I

Sample Number	Sample Date	Sample Material	Sample Location and Information	Asbestos	%	Analyst
1a	2019/08/20	Grey/Black roof shingle	Roof surface beneath air units	No asbestos detected		EMSL/WB
1b	2019/08/20	Black roof membrane	Roof surface beneath air units	No asbestos detected		EMSL/WB
2	2019/08/20	Grey caulking	Between conduit and curb	No asbestos detected		EMSL/WB
3	2019/08/20	Beige caulking	Between air unit and curb	No asbestos detected		EMSL/WB

Note: The results for the samples submitted were obtained by examination in accordance with the current USEPA 600/R-93/116 Method for the analysis of asbestos in building materials using polarized light microscopy and dispersion staining techniques. The detection limit of this method is listed as less than 1% by volume.

Site Photos

Photo ID

B67BLH20I - 001

Sample Number

B67BAH20I - 1a

Description

Grey/Black Roof Shingle.
Roof Surface Beneath Air Units.



Photo ID

B67BLH20I - 002

Sample Number

B67BAH20I - 1b

Description

Black Roof Membrane.
Roof Surface Beneath Air Units.



Photo ID

B67BLH20I – 003

Sample Number

B67BAH20I – 2

Description

Grey Caulking.

Between Conduit and Curb.



Photo ID

B67BLH20I – 004

Sample Number

B67BAH20I – 3

Description

Beige Caulking.

Between Air Unit and Curb.

