



**Trades Offices
Asbestos Survey Report**



January 2014

Prepared For: City Of Saskatoon- Infrastructure Services Department
1101 Avenue P North, Saskatoon, SK.
Attn: Brent Anderson

Prepared By: Bersch & Associates Ltd.
Project No. : B67SRD30

1.0 EXECUTIVE SUMMARY

The survey of the Trades Offices located at 1101 Avenue P North in Saskatoon, Saskatchewan entailed the inspection of all accessible suspect asbestos containing material (ACM) located throughout the facility. Materials inspected included mechanical insulating material, floor covering, ceiling tile, wall board, textured ceiling material and heat shield material.

Bulk sample analysis results indicate the presence of “Chrysotile” asbestos within the Trades Offices located in Saskatoon, SK. Please refer to **Appendix I for Bulk Sample Analysis** results and **Bulk Sample Photos**. The recommended actions to be implemented in reference to the ACM identified are Management. Please refer to section 5 Asbestos Abatement Discussion for definitions. It should be noted that the recommendation of “Management” as part of the asbestos action plan is based upon the premise that renovations are not scheduled throughout the area that would impact the asbestos containing material present. ***Prior to any major renovation/demolition activity, a destructive investigation is recommended to identify any inaccessible ACM that is physically concealed or isolated in areas such as enclosed wall/ceiling/floor cavities and pipe chases.*** Asbestos was detected in the following forms throughout the facility:

- **Transite Board** is located above the windows and on the ceiling above the suspended ceiling of various rooms on the ground floor.
- **Heat Shield Material** is located within the incandescent light fixture within 101 Main Entry.

The various types of accessible ACM within the facility have been clearly identified to eliminate uncertainty of asbestos content. The identification of these materials is as follows:

- The Transite Board is identified with a red “ASBESTOS” stencil signifying it is asbestos containing.

Throughout the survey of the Trades Offices the Asbestos Containing Materials were assessed and given a Priority Rating of One, Two or Three, with Priority One being the items requiring the most immediate attention. See the **Survey Spreadsheet Database in Appendix II** for a room-by-room account.

Bersch & Associates Ltd. implemented the use of doorjamb labels that are applied to all the doorjambs of the rooms containing asbestos within the facility. This permits anyone accessing the room to easily identify the ACM present without having to reference the written report. Legends providing explanation of the abbreviations used on door jambs were placed on the backside of all maintenance/custodial doors within the facility. Employees and contractors will use the legend as a reference to identify ACM within the areas they are working.

2.0 INTRODUCTION

Bersch & Associates Ltd. was retained by the City of Saskatoon to conduct an Asbestos Survey and Hazard Assessment of the Trades Offices located in Saskatoon, SK. The survey entailed the inspection of all accessible areas of the facility; including crawlspaces, ceiling spaces, pipe chases, and attics. The purpose of the survey was to locate, identify and assess the condition of all Asbestos Containing Materials (ACM) located throughout the facility. This report gives a detailed account of the inspection results and our firm's recommendations on control options to be implemented to bring the facility in compliance with the Province of Saskatchewan Occupational Health and Safety Act and Regulations. Bersch & Associates Ltd. conducted the survey in January 2014. A review of this report shall be conducted with all trades that are entering the facility to perform maintenance or renovation activity. This will ensure they are familiar with the types and locations of asbestos-containing materials present and prevent any uncontrolled disturbance and/or possible exposure to asbestos.

3.0 METHODOLOGY

Bersch & Associates Ltd. conducted the survey of the Trades Offices in Saskatoon, SK in January of 2014. The primary documents for guidance and criteria in this survey were the Province of Saskatchewan "Occupational Health and Safety Act and Regulations, 1996", Province of Saskatchewan "Managing Asbestos", and the U.S. Environmental Protection Agency "Guidance for Controlling Asbestos Containing Materials in Buildings". The USEPA document identifies factors associated with the "condition" and the "potential for disturbance or erosion" of asbestos containing materials (ACM). These factors help to determine potential for exposure to ACM and were used to make a qualitative evaluation of the material. It should be noted that the recommendation of "Management" Asbestos Abatement Action is based upon the premise that renovations are not scheduled in that area that will require disturbing or violating the asbestos containing material. In the event that renovations are scheduled that impact upon the areas of asbestos containing material then pre-removal of the asbestos containing materials may be necessary.

In total, ten (10) bulk samples of suspect asbestos-containing materials were collected throughout the facility. Chrysotile asbestos was identified within the samples collected. Refer to Appendix I for a copy of the Bulk Sample Analysis Report. All bulk samples collected were analyzed by Bersch & Associates Ltd. laboratory 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 <1% by volume.

4.0 RECOMMENDATIONS:

Throughout the survey of the Trades Offices the Asbestos Containing Materials were assessed and given a Priority Rating of One, Two or Three, with Priority One being the items requiring the most immediate attention. As a result, no “Priority One” items were identified within the facility. Priority Ratings for all ACM identified is found in the **Asbestos Survey Database found in Appendix II** on a room-by-room account.

5.0 ASBESTOS ABATEMENT DISCUSSION

Asbestos is a known carcinogen and is listed in the Province of Saskatchewan under the Occupational Health and Safety Appendix, Part V as a Hazardous Chemical Substance and any release of asbestos fibres into the atmosphere creates a potential health hazard. Although the mechanism and epidemiology of asbestos carcinogenesis is not yet well defined, accumulating evidence suggests the significance of exposure at even very low fibre concentrations and hence human exposure should be kept to a minimum. It should be noted however that asbestos is a natural mineral and a measurable background concentration can be detected in any location sampled (inside buildings, outside buildings, urban, rural, etc.). The recommendations of the report are therefore intended to keep the potential exposure to an absolute minimum with the knowledge that a zero exposure is not possible.

Asbestos containing materials have been used in a wide variety of applications. Of particular concern, is the group of so called friable products. A friable product is one that can be crumbled or reduced to powder or smaller fragments by hand pressure. Publications from the U.S.E.P.A. as early as 1977 have indicated the potential hazard of asbestos exposure in buildings containing these friable products. The two main uses of friable asbestos products are as spray insulation (thermal, acoustic or fireproofing) on deck and/or beams or as thermal insulation on piping or mechanical equipment. A large amount of non-friable asbestos-containing materials have also been used in building construction such as asbestos cement board and asbestos containing vinyl flooring.

The mere presence of a friable asbestos containing material does not imply that there is an actual presence of elevated airborne fibre. As numerous studies have indicated, elevated asbestos fibre levels are generally found when settled dust or the actual asbestos containing material itself is disturbed by maintenance, renovation, inadvertent contact or vibration. The factors considered in the Environmental Protection Agency (USEPA) exposure assessment (condition of material, water damage, activity, movement, exposed surface area, accessibility, friability and presence in an air stream) often give some indication of the likelihood of fibre release but are not in any way definitive in determining whether a hazard exists or not. That is, even if the most friable product exists in a building, elevated fibre levels will not likely occur unless there is some disturbance by physical contact, vibration or an air stream.

There are four possible approaches to control exposure to airborne asbestos once a friable material is identified in a building. These methods briefly are as follows:

- A) Removal** - Asbestos material is removed and disposed of by burial and replaced by non-asbestos materials.
- B) Encapsulation** - Asbestos material is coated with a bridging or penetrating sealant.
- C) Enclosure** - Asbestos containing materials are separated from the building environment by barriers such as suspended ceilings or cladding materials.
- D) Deferred Action or Management and Custodial Control** - The Province of Saskatchewan Human Resources, Labor and Employment Branch under the Occupational health and Safety Regulations publish a document outlining “The Management of Asbestos”. In the guide for compliance, an action plan is outlined for management of the asbestos materials identified and in summary is:
1. Identification, which has been accomplished by this report.
 2. Development of Written Handling Procedures for maintenance personnel or often arrangements are made for a qualified contractor to conduct the necessary removal or spot maintenance prior to the regular staff conducting maintenance.
 3. Asbestos Abatement Awareness and Process Training if the regular maintenance personnel are required to conduct asbestos related activities.
 4. Inspection on regular basis is conducted to determine the ongoing condition of the material. Sask. Occupational Health & Safety Regulations require an “annual” inspection of all “friable” asbestos materials by a competent person.

In the event renovations or maintenance is performed within areas containing asbestos materials, written procedures must be developed to conduct the activity or prior removal if the situation warrants.

6.0 REFERENCES

- .1 Province of Saskatchewan "The Occupational Health and Safety Act and The Occupational Health and Safety Regulations" Office Consolidation, December 1996.
- .2 Province of Saskatchewan Human Resources, Labor, and Employment "The Management of Asbestos" January, 1991.
- .3 USEPA, 1985. U.S. Environmental Protection Agency, "Guidance for Controlling Asbestos-Containing Materials in Buildings". Washington, DC: Office of Toxic Substances, USEPA.
- .4 Midwest Centre for Occupational Health & Safety St. Paul's, Minnesota – Asbestos Training For Inspectors & Management Planners
- .5 McCrone Research Institute Course Hayward California " Asbestos Identification"
- .6 Environment Management and Protection Act, Saskatchewan Environment, October 2002
- .7 Hazardous Substances and waste Dangerous Goods Regulations, Saskatchewan Environment, April 1989

APPENDIX I

BULK SAMPLE ANALYSIS REPORT

BERSCH & ASSOCIATES LTD.

January 24, 2014

City Of Saskatoon
Infrastructure Services Department
1101 Avenue P North
Saskatoon, Sk.
S7L 7K6

ATTENTION: Brent Anderson

SUBJECT: Trades Offices Bulk Sample Analysis Report

Please find attached the laboratory results for the bulk analysis of the samples collected throughout the Trades Offices located at 1101 Avenue P North in Saskatoon, SK. The samples were analyzed in our laboratory for the identification of asbestos.

The results for the bulk samples 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 me at 306 222 7477. Thank you for this opportunity of service!

Sincerely,

Brad Berschiminsky
Bersch & Associates Ltd.
File: B67BLD30

Bersch & Associates Ltd.

B67BAD30

Box 3568

Humboldt, Sask. S0K 2A0

BULK SAMPLE ANALYSIS REPORT**PROJECT NO. B67.14****CLIENT: City of Saskatoon****Infrastructure Services - Facilities Branch****Contact: Brent Anderson****Location: Trades Offices & Greenhouses- 1101 Avenue P North, Saskatoon, SK.**

NO.	DATE	SAMPLE INFORMATION	ASBESTOS	%	ANALYST
1	30-Apr-13	Room 114 - Transite Board above window`s, above ceiling tile (board is also on ceiling above ceiling tile)	Chrysotile	25	WB
2	30-Apr-13	Room 115 Washroom - Sheet flooring, yellow and brown 6`` squares	None detected		WB
3	30-Apr-13	113 Corridor - 2` by 4` ceiling tile, slash marks with pin holes	None detected		WB
4	30-Apr-13	Basement Boiler Room - Pipeline fitting on medium green line overhead between boilers	None detected		WB
5	30-Apr-13	Room 105 - Textured ceiling	None detected		WB
6	30-Apr-13	106 Corridor - 1`by 1`ceiling tile	None detected		WB
7	30-Apr-13	101 Main Entry - Light fixture with heat shield material	Chrysotile	60	WB



Bersch & Associates Ltd.

B67BAD30

Box 3568
Humboldt, Sask. S0K 2A0

BULK SAMPLE ANALYSIS REPORT

PROJECT NO. B67.14

CLIENT: City of Saskatoon

Infrastructure Services - Facilities Branch

Contact: Brent Anderson

Location: Trades Offices & Greenhouses- 1101 Avenue P North, Saskatoon, SK.

NO.	DATE	SAMPLE INFORMATION	ASBESTOS	%	ANALYST
8	22-Jan-14	Basement Boiler Room - Boiler insulation	None detected		WB
9	22-Jan-14	Basement Boiler Room - Boiler exhaust flange gasket	None detected		WB
10	22-Jan-14	Basement Boiler Room - Ring gasket	None detected		WB

BULK SAMPLE PHOTOS OF ACM

#1) Transite Board



#7) Heat Shield in Light Fixture



#7) Heat Shield in Light Fixture



APPENDIX II

ASBESTOS SURVEY DATABASE

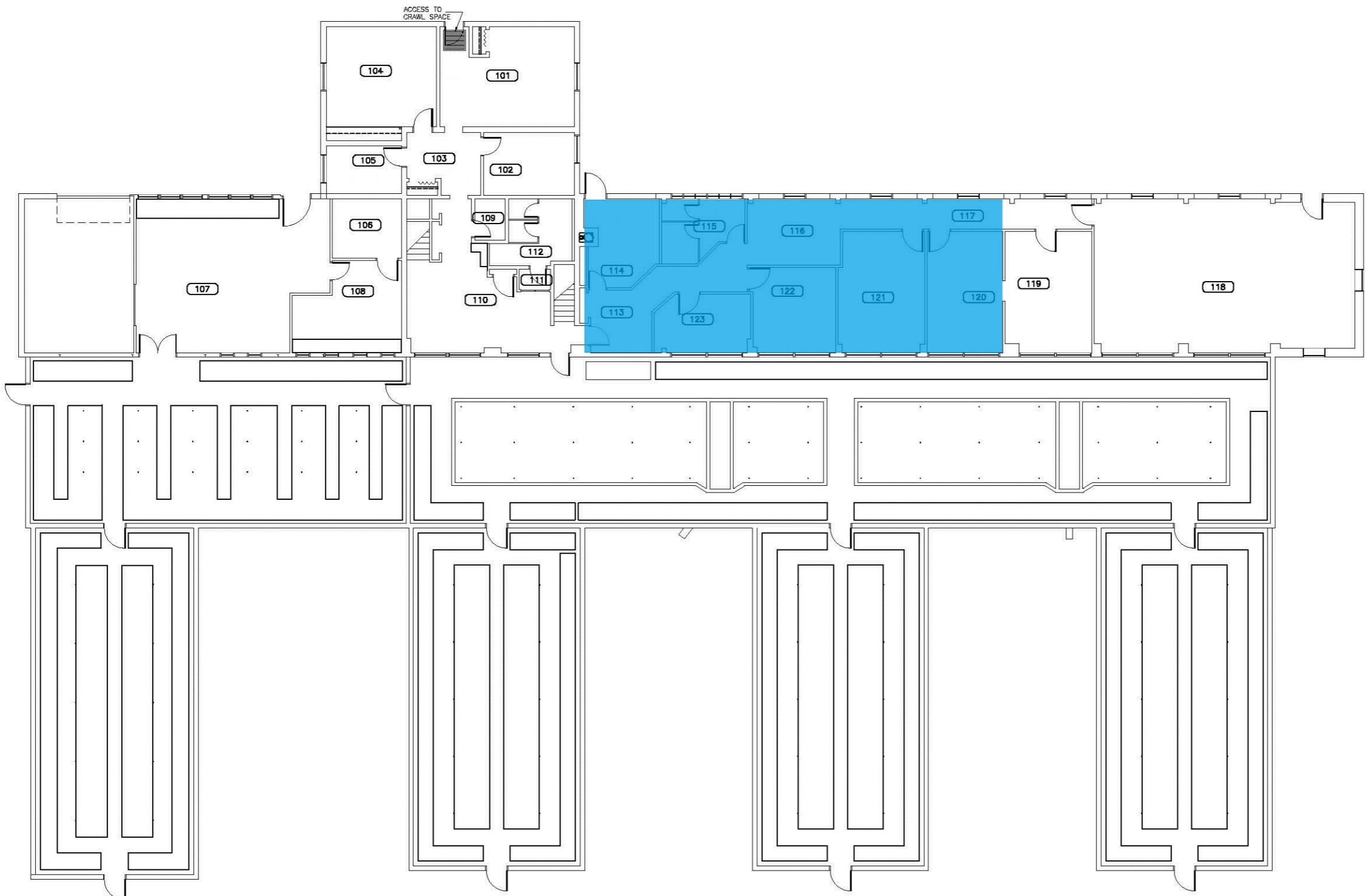
Trades Office and Greenhouses - 2014

SAMPLE DATA															
Floor	Room Number	Use	SAMPLE SAMPLE REP	Sample ID	Date DD/MM/YY	Asbestos Type	% of Asbestos	Tradename/ ACM Product	Condition	Priority	Description of Sample Location	Asbestos Content In Area	Potential for Disturbance	Recommended Action	Comments
B		Boiler Room	Sample	B67-ASB.4	30-Apr-13	None		Pipeline Fitting Compound			Basement Boiler Room - Pipeline fitting on medium green line overhead between boilers	No Accessible ACM			
B		Boiler Room	Sample	B67-ASB.8	22-Jan-14	None		Boiler Insulation			Basement Boiler Room - Boiler insulation	No Accessible ACM			
B		Boiler Room	Sample	B67-ASB.9	22-Jan-14	None		Gasket Material			Basement Boiler Room - Boiler exhaust flange gasket	No Accessible ACM			
B		Boiler Room	Sample	B67-ASB.10	22-Jan-14	None		Gasket Material			Basement Boiler Room - Ring gasket	No Accessible ACM			
M	101		Sample	B67-ASB.7	30-Apr-13	Chrysotile	60%	Heat Shield Material	Mod/Good	3	101 Main Entry - Light fixture with heat shield material	Heat Shield Material in Light Fixture	Low/Mod	Manage	If heat shield is noted damaged at time of maintenance it should be removed.
M	102											No Accessible ACM			
M	103											No Accessible ACM			
M	104											No Accessible ACM			
M	105		Sample	B67-ASB.5	30-Apr-13	None		Stipple Ceiling Texture			Room 105 - Textured ceiling	No Accessible ACM			
M	106		Sample	B67-ASB.6	30-Apr-13	None		Ceiling Tiles			106 Corridor - 1' by 1' ceiling tile	No Accessible ACM			
M	107											No Accessible ACM			
M	108											No Accessible ACM			
M	109											No Accessible ACM			
M	110											No Accessible ACM			
M	111											No Accessible ACM			
M	112											No Accessible ACM			
M	113		Sample	B67-ASB.3	30-Apr-13	None		Ceiling Tiles			113 Corridor - 2' by 4' ceiling tile, slash marks with pin holes	Transite Board above suspended ceiling			
M	113		Sample Rep	B67-ASB.1	30-Apr-13	Chrysotile	25%	Transite Board	Mod/Good	3	Room 114 - Transite Board above window's, above ceiling tile	Transite Board above suspended ceiling	Low	Manage	
M	114		Sample	B67-ASB.1	30-Apr-13	Chrysotile	25%	Transite Board	Mod/Good	3	Room 114 - Transite Board above window's, above ceiling tile	Transite Board above suspended ceiling	Low	Manage	
M	115		Sample	B67-ASB.2	30-Apr-13	None		Vinyl Sheet Flooring			Room 115 Washroom - Sheet flooring, yellow and brown 6" squares	Transite Board above suspended ceiling			
M	115		Sample Rep	B67-ASB.1	30-Apr-13	Chrysotile	25%	Transite Board	Mod/Good	3	Room 114 - Transite Board above window's, above ceiling tile	Transite Board above suspended ceiling	Low	Manage	
M	116		Sample Rep	B67-ASB.1	30-Apr-13	Chrysotile	25%	Transite Board	Mod/Good	3	Room 114 - Transite Board above window's, above ceiling tile	Transite Board above suspended ceiling	Low	Manage	
M	117		Sample Rep	B67-ASB.1	30-Apr-13	Chrysotile	25%	Transite Board	Mod/Good	3	Room 114 - Transite Board above window's, above ceiling tile	Transite Board above suspended ceiling	Low	Manage	
M	118											No Accessible ACM			
M	119											No Accessible ACM			
M	120		Sample Rep	B67-ASB.1	30-Apr-13	Chrysotile	25%	Transite Board	Mod/Good	3	Room 114 - Transite Board above window's, above ceiling tile	Transite Board above suspended ceiling	Low	Manage	
M	121		Sample Rep	B67-ASB.1	30-Apr-13	Chrysotile	25%	Transite Board	Mod/Good	3	Room 114 - Transite Board above window's, above ceiling tile	Transite Board above suspended ceiling	Low	Manage	
M	122		Sample Rep	B67-ASB.1	30-Apr-13	Chrysotile	25%	Transite Board	Mod/Good	3	Room 114 - Transite Board above window's, above ceiling tile	Transite Board above suspended ceiling	Low	Manage	
M	123		Sample Rep	B67-ASB.1	30-Apr-13	Chrysotile	25%	Transite Board	Mod/Good	3	Room 114 - Transite Board above window's, above ceiling tile	Transite Board above suspended ceiling	Low	Manage	
2	201											No Accessible ACM			

APPENDIX III

FLOOR PLANS

- GENERAL NOTES:
1. All dimensions are in millimetres
 2. Drawings are not to be scaled.
 3. All drawings to be read in conjunction with the specifications, unless otherwise noted.
 4. Verify site conditions and location of all utilities prior to the start of construction.
 5. Report all discrepancies to the Consultant.
 6. If in doubt, ask.



KEY
 Asbestos Board

REV	ISSUED FOR	DATE

DESIGNED BY:	DRAWN BY:	CHECKED BY:	REQUESTED BY:

SCALE:	DATE:
1:200	24/04/2008

SHEET NAME: Asbuilt

**Main Floor
Base Plan**

PROJECT TITLE
**635
V.Rempel
Greenhouse**

PROJECT NO.:	SHEET

BERSCH CONSULTING LTD.

PRE-RENOVATION ASSESSMENT

July 4, 2017

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

ATTENTION: Nathan Hahn

PROJECT: 1101 Avenue P North - Trades Office - Room 101 and 104

FILE NUMBER: B67PRG20G

Evan Westad and Brad Berschminsky of Bersch Consulting Ltd. conducted multiple site visits on July 4, 6, 12, 19 and 20, 2017 to the trades office located at 1101 Ave P north, Saskatoon, Saskatchewan. The purpose of the visits was to investigate and collect bulk samples to determine the presence/absence of asbestos. Eleven (11) bulk samples were collected and analyzed for the identification of asbestos. Three of the samples are composed of two layers of material. Asbestos **was** detected within four of the samples.

The results for the bulk samples 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. Please reference Appendix I for the bulk analysis results.

The result for the vermiculite bulk sample was obtained by examination in accordance with the EPA 600/R-93/116 method for 0.1% target analytical sensitivity using analytical electron microscopy. The laboratory detected actinolite/tremolite (amphibole) asbestos greater than 0.1% by weight. Based on the sample results, the material is classified as a **hazardous** material. Materials containing greater than 0.1% asbestos by weight are considered asbestos-containing materials and must be handled as such. Please refer to the attached analytical report for the sample results.

SITE OBSERVATION AND INFORMATION:

- 1) Throughout rooms 101 and 104, as well as the connecting corridor, the ceiling is finished with 1'x1' pinhole textured ceiling tile. The tiles have been sampled resulting in no asbestos detected. Refer to the bulk analysis report in appendix I.
- 2) The ceiling tiles are stapled to the wood strapping. The area above the ceiling tile consists of a poly vapor barrier and fiberglass batt insulation with a paper backing.
- 3) Room 101 - The carpet is installed over vinyl asbestos floor tile that is present in a portion of the room at the doorway. The 3/8 – inch subfloor is present under this portion of floor tile and the remainder of the room beneath the carpet. Below the 3/8 - inch subfloor is a layer of vinyl asbestos floor tile and below the floor tile is the 3/4 - inch plywood.
- 4) Room 104 - The carpet is installed over sheet floor covering. The asbestos sheet flooring was sampled and determined to contain asbestos. A 3/8 – inch subfloor is present below the sheet flooring. Below the 3/8 - inch subfloor is a layer of vinyl asbestos floor tile and below the floor tile is the 3/4 - inch plywood. The two interior walls have been installed with the bottom wall plates overtop of the existing sheet flooring.
- 5) The carpet mastic and floor leveler compound underneath the carpet were sampled resulting in no asbestos detected. Refer to the bulk analysis report in appendix I.
- 6) One drywall sample was collected from room 104 from the west wall resulting in no asbestos detected. The wall parging material (troweled swirl pattern) present in room 101 and 104 was tested in room 101 resulting in no asbestos detected. There is the concern within some block especially the northeast corner of room 101 as stated in item 7 below.
- 7) Bersch Consulting also examined the interior wall composition between the 101/104 corridor and the greenhouse corridor. A section of trim was removed to reveal several layers of thin plywood covering the wood framing within. There are no asbestos concerns involved in penetrating this wall for the purpose of running conduit.
- 8) Inspection holes were drilled throughout the exterior brick to test for vermiculite insulation. Vermiculite was observed in the test holes. Bersch Consulting has determined vermiculite is present within the cavity between the exterior brick façade and the cinder block wall. Inspection holes were drilled within the interior block resulting in vermiculite noted within the concrete block cavities in the northeast corner of room 101.
 - » **The existing northeast penetrations protrude as far as the cavity containing vermiculite and have therefore contaminated at least a portion of the interior block wall near the northeast corner. There cannot be any guarantees the vermiculite will not be encountered in other locations throughout the block wall without drilling into each individual cavity. The discussion on site mentioned - attaching horizontal strapping to the block wall to aide in any attachments required to the wall surface. When drilling into the block, the center and approximately 3/4 to 1 inch from the block edges will be the locations along the block face whereas the block cavity would not be penetrated due to the construction of the block.**
- 9) One drywall sample was collected from the south wall of Boardroom 118 resulting in no asbestos detected. There are no asbestos concerns hanging lockers in this room.

If any questions arise on the results of the attached information, please contact our office at 306.978.6665 or Brad at 306.222.7477. Thank you for this opportunity of service!

Sincerely,



Evan Westad
Bersch Consulting Ltd.



Brad Berschiminsky
Bersch Consulting Ltd.

File No.: B67PRG20G - 1101 Avenue P North- Trades Office

APPENDIX I

BULK SAMPLE ANALYSIS

Bersch Consulting Ltd.244-2002 Quebec Avenue
Saskatoon, SK S7K 1W4

B67BAG20G

BULK SAMPLE ANALYSIS REPORT**PROJECT NO: B67.17****CLIENT: CITY OF SASKATOON****CONTACT: NATHAN HAHN****LOCATION: 1101 AVE P NORTH - TRADES OFFICE**

NO.	DATE	SAMPLE INFORMATION	ASBESTOS	%	ANALYST
1	4-Jul-17	Rm 101 - 1'x1' Pinhole Textured Ceiling Tile	No Asbestos Detected		WB
2	4-Jul-17	Rm 101 - Swirl Pattern Wall Parging	No Asbestos Detected		EMSL
3	4-Jul-17	Rm 104 - West Wall Drywall Mud Compound	No Asbestos Detected		EMSL
4	4-Jul-17	Rm 101 - Vermiculite in Block Wall Cavity in the Northeast Corner	Actinolite/ Tremolite	>1	WB
5	6-Jul-17	Rm 104 - Carpet Mastic	No Asbestos Detected		EMSL
6	6-Jul-17	Rm 101 - Floor Leveling Compound Below the Carpet	No Asbestos Detected		EMSL
7	12-Jul-17	Rm 118 - Drywall Mud Compound on South Wall	No Asbestos Detected		EMSL
8a	19-Jul-17	Rm 101 - Beige Floor Tile Below the Carpet Adjacent The West Entry Door.	Chrysotile	3	EMSL
8b	19-Jul-17	Rm 101 - Beige Floor Tile - Black Mastic Below the Carpet Adjacent The West Entry Door.	No Asbestos Detected		EMSL

Bersch Consulting Ltd.244-2002 Quebec Avenue
Saskatoon, SK S7K 1W4

B67BAG20G

BULK SAMPLE ANALYSIS REPORT**PROJECT NO: B67.17****CLIENT: CITY OF SASKATOON****CONTACT: NATHAN HAHN****LOCATION: 1101 AVE P NORTH - TRADES OFFICE**

NO.	DATE	SAMPLE INFORMATION	ASBESTOS	%	ANALYST
9	19-Jul-17	Rm 104 - Sheet Flooring Beneath the Carpet With a Two-Tone, Irregular Shapes Pattern.	Chrysotile	30	EMSL
10a	20-Jul-17	Rm 101 - Beige / Light Brown Streak Floor Tile Below the Carpet in the Southwest Corner at the Floor Register Between the Subfloor and 3/4" Plywood.	Chrysotile	2	EMSL
10b	20-Jul-17	Rm 101 - Beige / Light Brown Streak Floor Tile - Yellow Mastic Below the Carpet in the Southwest Corner at the Floor Register Between the Subfloor and 3/4" Plywood.	No Asbestos Detected		EMSL
11a	20-Jul-17	Rm 101 - Yellow / Brown Flooring with Black Felt Below the Carpet in the Northeast Corner at the Floor Register Between the Subfloor and 3/4" Plywood.	No Asbestos Detected		EMSL
11b	20-Jul-17	Rm 101 - Yellow / Brown Flooring with Black Felt - Brown Mastic Below the Carpet in the Northeast Corner at the Floor Register Between the Subfloor and 3/4" Plywood.	No Asbestos Detected		EMSL

BERSCH CONSULTING LTD.

April 28th, 2017

The City of Saskatoon
222 3rd Avenue North
Saskatoon, SK
S7K 0J5

ATTENTION: Nathan Hahn

SUBJECT: Bulk Sample Analysis Report

Please find attached the laboratory results for the bulk samples collected April 25th, 2017 from 1101 Avenue P North, Saskatoon, SK. The samples were analyzed for the identification of asbestos. Asbestos **was** detected within one 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.

The results for bulk sample #1 was obtained by examination in accordance with the EPA 600/R-93/116 method for 0.1% target analytical sensitivity using analytical electron microscopy. The laboratory detected actinolite/tremolite (amphibole) asbestos greater than 0.1% by weight. Based on the sample results, the material is classified as a **hazardous** material. Materials containing greater than 0.1% asbestos by weight are considered asbestos-containing materials and must be handled as such. Please refer to the attached analytical report for the sample results.

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,



Mitch Webber
Bersch Consulting Ltd.
B67BLD25G

Bersch Consulting Ltd.

B67BAD25G

244-2002 Quebec Avenue
Saskatoon, SK S7K 1W4**BULK SAMPLE ANALYSIS REPORT****PROJECT NO: B67.17****CLIENT: CITY OF SASKATOON****CONTACT: NATHAN HAHN****LOCATION: 1101 AVENUE P NORTH, SASKATOON, SK.**

NO.	DATE	SAMPLE INFORMATION	ASBESTOS	%	ANALYST
1	25-Apr-17	Greenhouse Vehicle Garage - Vermiculite in West Block Wall Adj. Overhead Door	Actinolite /Tremolite	>0.1%	WB
2	25-Apr-17	Greenhouse #2 - Concrete Flooring	No Asbestos Detected		WB
3	25-Apr-17	Greenhouse #2 - Window Glazing	No Asbestos Detected		WB



FINAL
**Limited Asbestos
Building Materials
Assessment**

Greenhouse and Trades Office,
Data Drop, Fridge and
Microwave Dedicated Cable,
1101 Avenue P North,
Saskatoon, Saskatchewan

Prepared for:

City of Saskatoon
1101 Avenue P North
Saskatoon, Saskatchewan

Attention: Les Severson

April 4, 2017

PWL File: 7141AO-001r01

Issued to: City of Saskatoon
Contact: Les Severson

Issued on: April 4, 2017
PWL File: 7141AO-001r01
Issuing Office: 210 Cardinal Crescent, Saskatoon, SK
S7L 6H8

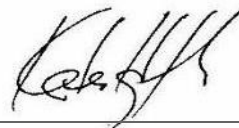
Primary PWL Contact: Jo-Ann Costley, Operations Manager
Saskatchewan, 306.500.3013



Author: _____
Paul Farago, B.A.Sc., P.Eng.
Project Coordinator
306.500.3019
pfarago@pinchinwest.com



Project Manager: _____
Jo-Ann Costley, Dipl (Env.)
Operations Manager Saskatchewan
306.500.3013
jcostley@pinchinwest.com



Reviewer: _____
Kenton Hogarth
Operations Manager Prairies, Hazardous Materials and Mould
780.508.7000
khogarth@pinchinwest.com



Limited Asbestos Building Materials Assessment

Greenhouse and Trades Office, Data Drop, Fridge and Microwave Dedicated Cable, 1101
Avenue P North, Saskatoon, Saskatchewan
City of Saskatoon

April 4, 2017

PWL File: 7141AO-001r01

FINAL

DISTRIBUTION

cc: Hazel Fernandez Indoor Air Quality Manager, Hazel.Fernandez@saskatoon.ca
Asbestos Program Manager,
Facilities & Fleet Division

EXECUTIVE SUMMARY

City of Saskatoon (Client) retained Pinchin West Ltd. (PWL) to conduct limited asbestos-containing building materials assessment for the “Data drop, fridge and microwave dedicated cable” at the Greenhouse and Trades Office, located at 1101 Avenue P North, Saskatoon, Saskatchewan. PWL performed the assessment on March 30, 2017.

The objective of the assessment was to identify specified hazardous building materials in preparation for building renovation. The results of this assessment are intended for use with a properly developed scope of work and performance specification.

The assessed area was limited to the hallway and the offices

SUMMARY OF FINDINGS

Asbestos:

Asbestos-containing transite board is present along the roof, above the acoustic ceiling tiles, and also along the outer top fascia inside the building.

SUMMARY OF RECOMMENDATIONS

Remove and properly dispose of asbestos-containing materials prior to demolition or if disturbed by the planned renovation work.

This Executive Summary is subject to the same standard limitations as contained in the report and must be read in conjunction with the entire report.



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1.0 INTRODUCTION AND SCOPE

City of Saskatoon (Client) retained Pinchin West Ltd. (PWL) to conduct a hazardous building materials assessment of City of Saskatoon Staff Development Center “Training Room Drop”, located at Greenhouse and Trades Office, Data Drop, Fridge and Microwave Dedicated Cable, 1101 Avenue P North, Saskatoon, Saskatchewan.

Paul Farago, B.A.Sc., P.Eng. performed the assessment on March 30, 2017. The surveyor was accompanied by Les Severson from the City of Saskatoon during the assessment. The building was occupied at the time of the assessment.

The objective of the assessment was to identify specified asbestos-containing building materials in preparation for building renovation. This assessment is intended to be used for pre-construction purposes only, and may not provide sufficient detail for long term management of hazardous materials as required by Health and Safety regulations. The results of this assessment are intended for use with a properly developed scope of work and performance specification.

1.1 Scope of Assessment

The assessment was performed to establish the location and type of asbestos building materials incorporated in the structure(s) and its finishes. The assessed area was limited to the hallway and the offices. The extent of the assessed area was defined by the Client and is limited to the locations shown on the appended drawing.

2.0 BACKGROUND INFORMATION

Building Description Item	Details
Building Use	Greenhouse and Trades Offices
Floor Level Assessed	Main floor area
Total Area of Assessed area of Building (Square Feet)	1000 square foot hallway and office space (locations (113, 117, 118, 119, 120, 121, 122, 123))
Year of Construction/Significant Additions/Renovations (area assessed)	Circa 1970's
Structure	Wood frame, structural steel, concrete, masonry brick
Exterior Cladding	Brick

Building Description Item	Details
HVAC	Ducting to diffusers in above ceiling space
Roof	Steel decking in above ceiling space
Flooring	Vinyl floor tile, carpet
Interior Walls	Drywall
Ceilings	Acoustic ceiling tiles

2.1 Existing Reports

PWL was provided, and instructed to rely upon, the following existing reports:

- Trades Offices Asbestos Survey Report, Bersch & Associates Ltd., Dated January 2014.

3.0 FINDINGS

3.1 Asbestos

3.1.1 Suspect Building Materials Not Found

The following types of building materials may historically contain asbestos but were not observed in the assessed area of the building and are not discussed in the report findings:

- Spray-applied fireproofing or thermal insulation
- Vermiculite
- Texture finishes (acoustic/decorative)
- Duct insulation
- Mechanical equipment insulation

3.1.1.1 Pipe Insulation

Pipes are insulated with fibreglass, or other non-asbestos insulation such as mineral fibre or elastomeric foam insulation.



Photo 1 - Non-Asbestos containing fibreglass piping insulation on piping above acoustic ceiling tiles in hallway location 117.



Photo 2 - Non-Asbestos containing fibreglass piping insulation on piping above acoustic ceiling tiles in hallway location 117.

3.1.1.2 Duct Insulation

Ducts are either not insulated or insulated with non-asbestos containing fibreglass insulation.

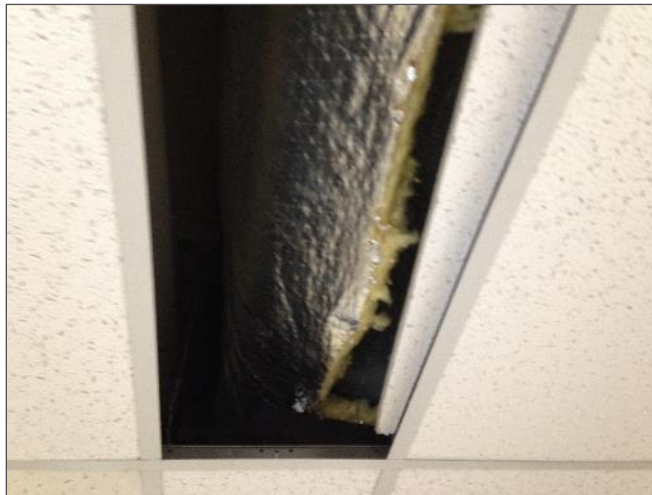


Photo 3: Ducts insulated with non-asbestos containing fibreglass insulation, Hallway (Location 117).

3.1.2 Acoustic Ceiling Tiles

Four distinct types of acoustic ceiling tile are present in the assessed area, as follows:

Size, Type, Pattern, Photo #	Locations (Quantity in Square Feet)	Sample Number or Date Code	Asbestos Type
24"x48", lay-in, fissure and pinhole, Photo #4	Hallway (Location 117), 100 ft ²	S0001a-c	None Detected
24"x48", lay-in, fissure and pinhole (less dense pattern), Photo #5	Hallway (Location 117), 50 ft ²	S0002a-c	None Detected
24"x48" (and 2"x48"), lay-in, wavy fissure and pinhole, Photo #6	Offices (Location 119, 120) 150 ft ²	S0005a-c	None Detected
24"x48" (and 2"x48"), lay-in, fissure and pinhole, Photo #7	Offices (Location 119, 121, 122, 123) 300 ft ²	Date Stamp 05/13/13	Non Asbestos Containing

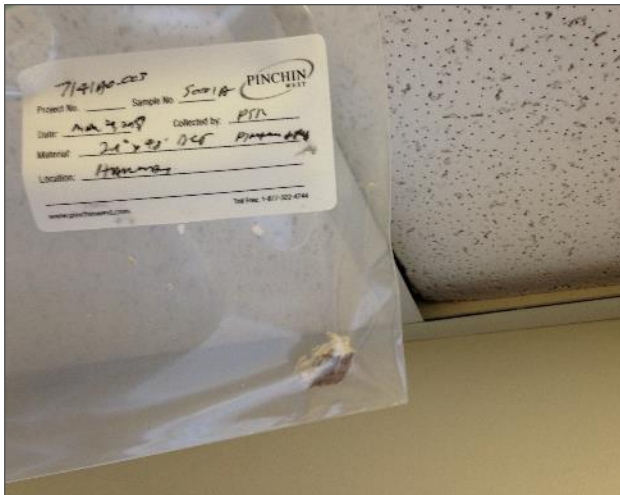


Photo 4: Acoustic Ceiling Tile, 24"x48" Pinhole and Fissure (Sample S0001A-C) Hallway Location (117).

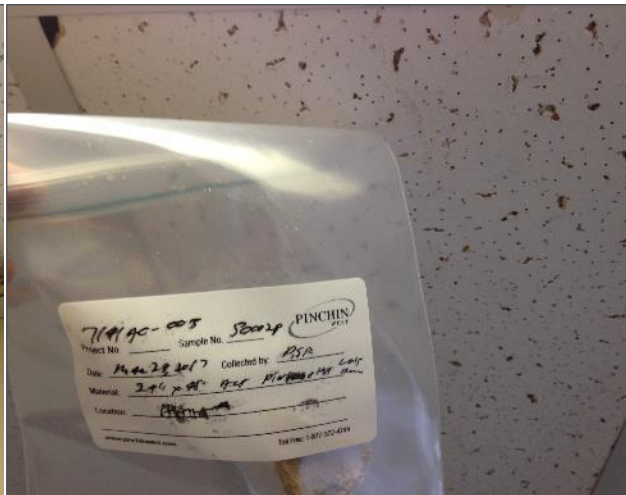


Photo 5: Acoustic Ceiling Tile, 24"x48" Pinhole and Fissure "Pattern less dense" (Sample S0002A-C) Hallway Location (117).

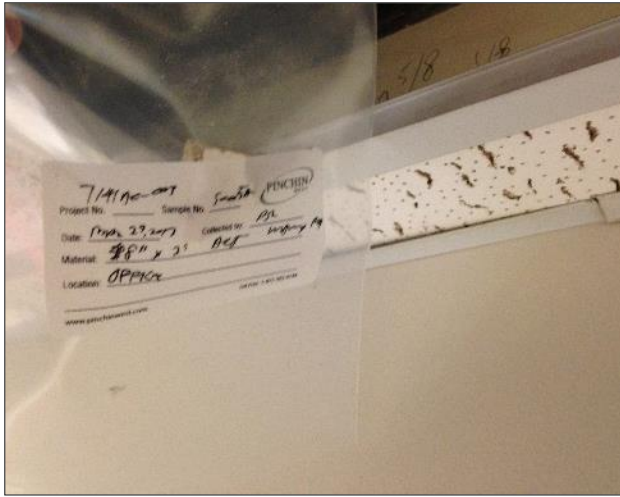


Photo 6: Acoustic Ceiling Tile, 24"x48" Pinhole and Wavy Fissure, (Sample S0005A-C) Office Location (119).



Photo 7: Acoustic Ceiling Tile, 24"x48" Pinhole and Fissure, Date Stamp 05/13/13, Office Location (119).

3.1.3 Drywall Joint Compound

Drywall (gypsum board) and drywall joint compound is present as a wall finish in the Greenhouse and Trades Office building. Based on the results of the testing on exterior walls (samples S0003a-c) and the interior wall that separates office 119 and 120 where the data drop will be (samples S0004a-c), the drywall joint compound in the assessed area does not contain asbestos.



Photo 8 - Drywall Joint Compound on exterior walls (Sample S0003A-C) Hallway Location (117)

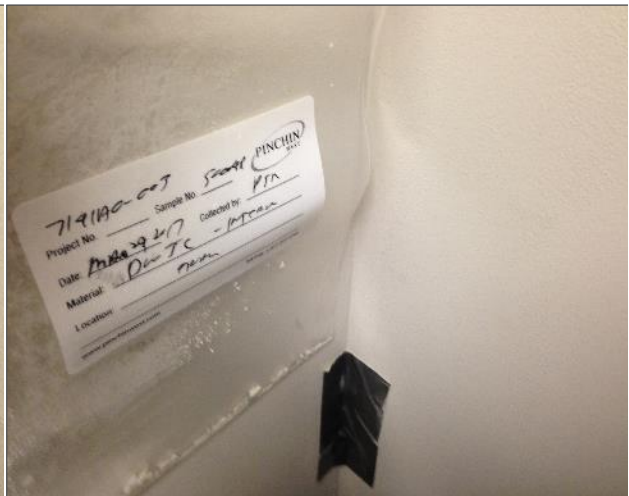


Photo 9 - Drywall Joint Compound on interior walls (Sample S0004A-C) Office Location 119

3.1.4 Asbestos Cement Products (Transite)

Transite board, containing Chrysotile asbestos, is present in the assessed area. The transite board is known to contain asbestos based on sampling conducted in the report from Bersch & Associates Ltd titled "Trades Offices Asbestos Survey Report" dated January 2014.



Photo 10 Asbestos-containing Transite panels above drywall along north exterior wall and across the ceiling. Non-asbestos containing fiberglass pipe insulation.



Photo 11 Asbestos-containing Transite panels across the ceiling.



Photo 12 Intrusive hole through north exterior drywall wall (Below the transite board shown in Photo 10), fiberglass insulation, plywood exterior sheathed with metal siding.



Photo 13 Asbestos-containing Transite panels along the top of the north exterior wall transition to drywall below.



3.1.5 *Presumed Asbestos Materials*

A number of materials which might contain asbestos were not sampled during the assessment due to limitations in scope and methodology. Where present, these materials must be presumed to be an asbestos material and are best sampled during project planning and preparation of contract documents for their removal. Materials presumed to contain asbestos are listed in the Methodology.

4.0 **RECOMMENDATIONS**

Remove and properly dispose of asbestos-containing materials prior to demolition if disturbed by the planned renovation work.

5.0 LIMITATIONS

Specific limitations related to the legal and financial and limitations to the scope of the current work are outlined in our proposal, the attached Methodology and the Authorization to Proceed which accompanied the proposal.

The work performed by PWL was conducted in accordance with generally accepted engineering or scientific practices current in this geographical area at the time the work was performed. No warranty is either expressed or implied by furnishing written reports or findings. The Client acknowledges that subsurface and concealed conditions may vary from those encountered or inspected. PWL can only comment on the environmental conditions observed on the date(s) the survey is performed. The work is limited to those materials or areas of concern identified by the Client or outlined in our proposal. Other areas of concern may exist but were not investigated within the scope of this assignment.

PWL makes no other representations whatsoever, including those concerning the legal significance of its findings or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issue, regulatory statutes are subject to interpretation and these interpretations may change over time. PWL accepts no responsibility for consequential financial effects on transactions or property values, or requirements for follow-up actions and costs.

The liability of PWL or our officers, directors, shareholders or staff will be limited to the lesser of the fees paid or actual damages incurred by the Client. PWL will not be responsible for any consequential or indirect damages. PWL will only be liable for damages resulting from the negligence of PWL. PWL will not be liable for any losses or damage if the Client has failed, within a period of two years following the date upon which the claim is discovered (Claim Period), to commence legal proceedings against PWL to recover such losses or damage unless the laws of the jurisdiction which governs the Claim Period which is applicable to such claim provides that the applicable Claim Period is greater than two years and cannot be abridged by the contract between the Client and PWL, in which case the Claim Period shall be deemed to be extended by the shortest additional period which results in this provision being legally enforceable.

Information provided by PWL is intended for Client use only. PWL will not provide results or information to any party unless disclosure by PWL is required by law. Any use by a third party of reports or documents authored by PWL or any reliance by a third party on or decisions made by a third party based on the findings described in said documents, is the sole responsibility of such third parties. PWL accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.

6.0 REFERENCES

The following legislation and documents were referenced in completing the assessment and this report:

1. Occupational Health and Safety Regulations, Saskatchewan Labour, (O-1.1 Reg 1).
2. The Hazardous Substances and Waste Dangerous Goods Regulations, Environmental Management and Protection Act, Saskatchewan Environment, 1989.
3. Halocarbon Control Regulations, Saskatchewan Environment, 2005.
4. PCB Regulations, SOR/2008-273, Canadian Environmental Protection Act.
5. Surface Coating Materials Regulations, SOR/2005-109, Hazardous Products Act.
6. Transportation of Dangerous Goods Regulations SOR/2008-34, Transportation of Dangerous Goods Act.
7. Mould Guidelines for the Canadian Construction Industry, Standard Construction Document CCA 82 – 2004, Canadian Construction Association.
8. Saskatchewan Asbestos Abatement Manual, Guidelines for Asbestos Processes in Building Demolition and Renovation, 2016.

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Template: Master Report for Hazardous Materials Assessment Report (Pre-Construction), Haz, February 1, 2016

APPENDIX I
Drawings

AREAS IMPACTED BY PROPOSED RENOVATION
 1) PENETRATE EXTERIOR WALL
 2) INTERIOR DRYWALL WALL BETWEEN 119+120

- 7141A0-001
- S0001A-C ACOUSTIC CEILING TILE
 - S0002A-C ACOUSTIC CEILING TILE
 - S0003A-C DRYWALL JOINT COMPOUND EXTERIOR WALL
 - S0004A-C DRYWALL JOINT COMPOUND INTERIOR WALL
 - S0005A-C ACOUSTIC CEILING TILE

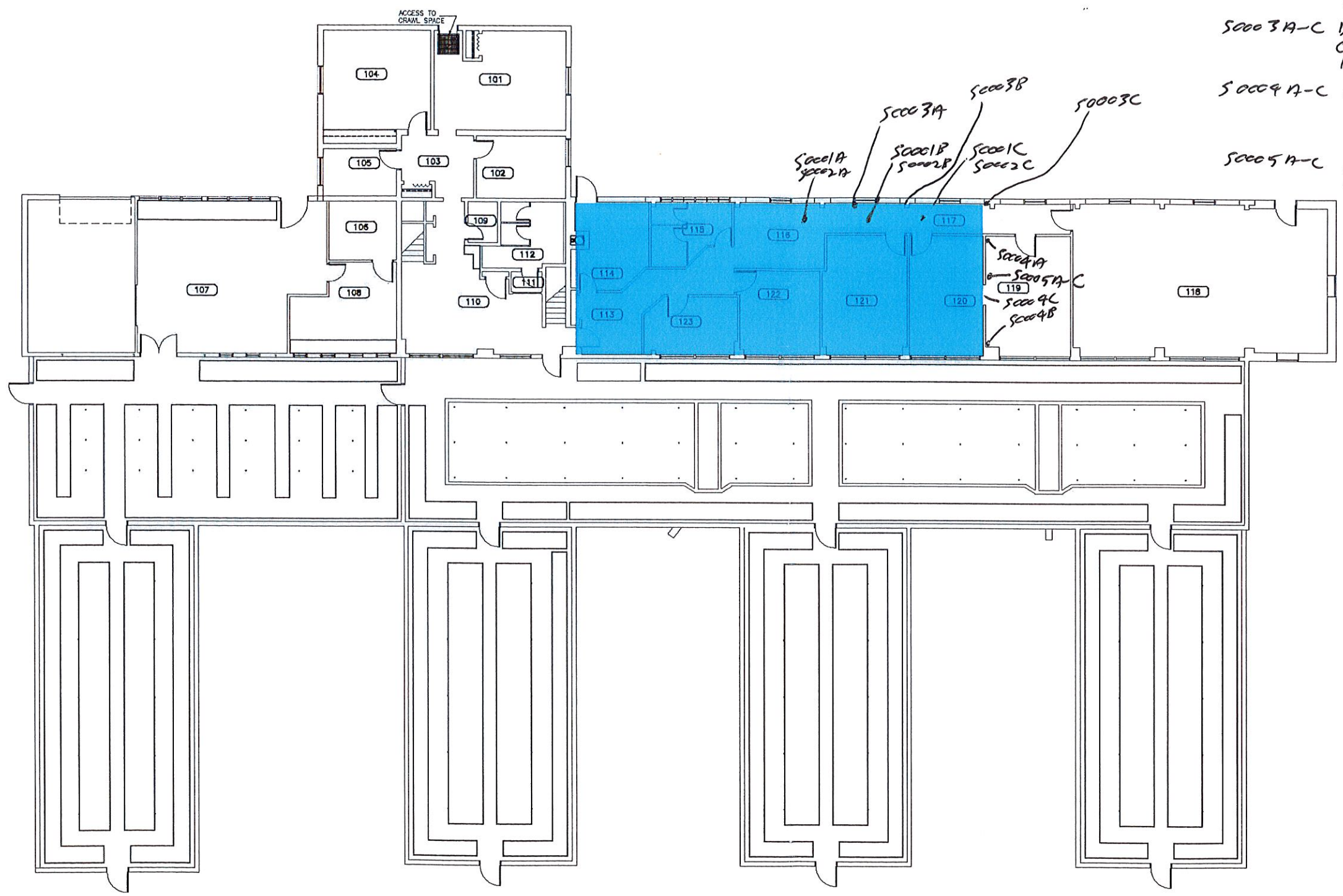


City of Saskatoon

Infrastructure Services Department

Facilities Branch
306-976-3300

- GENERAL NOTES:
1. All dimensions are in millimetres
 2. Drawings are not to be scaled.
 3. All drawings to be read in conjunction with the specifications, unless otherwise noted.
 4. Verify site conditions and location of all utilities prior to the start of construction.
 5. Report all discrepancies to the Consultant.
 6. If in doubt, ask.



KEY
 ■ Asbestos Board

REV	ISSUED FOR	DATE
DESIGNED BY:	DRAWN BY:	CHECKED BY:
SCALE:	DATE:	REQUESTED BY:
1:200	24/04/2008	
SHEET NAME		Asbuilt
Main Floor Base Plan		
PROJECT TITLE		
635 V. Rempel Greenhouse		
PROJECT NO.	SHEET	REV. NO.

APPENDIX II
Asbestos Analytical Certificates



Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 600/M4-82-020



Customer: Pinchin West Ltd.
210 Cardinal Crescent
Saskatoon, SK S7L 6H8

Attn: Paul Farago

Lab Order ID: 1706651
Analysis ID: 1706651_PLM
Date Received: 3/31/2017
Date Reported: 4/1/2017

Project: City of Saskatoon Greenhouse and Trades Office 1101 Avenue P North, Saskatoon, SK

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0001A	24"x48" Acoustic Ceiling Tile, Pinhole and Fissure, Hallway Loc 117	None Detected	45% Cellulose 45% Mineral Wool	10% Other	Gray Fibrous Heterogeneous
1706651PLM_1					Teased, Ashed
S0001B	24"x48" Acoustic Ceiling Tile, Pinhole and Fissure, Hallway Loc 117	None Detected	45% Cellulose 45% Mineral Wool	10% Other	Gray Fibrous Heterogeneous
1706651PLM_2					Teased, Ashed
S0001C	24"x48" Acoustic Ceiling Tile, Pinhole and Fissure, Hallway Loc 117	None Detected	45% Cellulose 45% Mineral Wool	10% Other	Gray Fibrous Heterogeneous
1706651PLM_3					Teased, Ashed
S0002A - A	24"x48" Acoustic Ceiling Tile, Pinhole and Fissure (Less Dense Pattern), Hallway Loc 1	None Detected	90% Cellulose	10% Other	Tan Fibrous Heterogeneous
1706651PLM_4					Teased
S0002A - B	24"x48" Acoustic Ceiling Tile, Pinhole and Fissure (Less Dense Pattern), Hallway Loc 1	None Detected	45% Cellulose 45% Mineral Wool	10% Other	Gray Fibrous Heterogeneous
1706651PLM_16					Teased, Ashed
S0002B	24"x48" Acoustic Ceiling Tile, Pinhole and Fissure (Less Dense Pattern), Hallway Loc 1	None Detected	90% Cellulose	10% Other	Tan Fibrous Heterogeneous
1706651PLM_5					Teased
S0002C - A	24"x48" Acoustic Ceiling Tile, Pinhole and Fissure (Less Dense Pattern), Hallway Loc 1	None Detected	90% Cellulose	10% Other	Tan Fibrous Heterogeneous
1706651PLM_6					Teased
S0002C - B	24"x48" Acoustic Ceiling Tile, Pinhole and Fissure (Less Dense Pattern), Hallway Loc 1	None Detected	45% Cellulose 45% Mineral Wool	10% Other	Gray Fibrous Heterogeneous
1706651PLM_17					Teased, Ashed

Disclaimer: Due to the nature of the EPA 600 method, asbestos may not be detected in samples containing low levels of asbestos. We strongly recommend that analysis of floor tiles, vermiculite, and/or heterogeneous soil samples be conducted by TEM for confirmation of "None Detected" by PLM. This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAL. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. government. Analytical uncertainty available upon request. Scientific Analytical Institute participates in the NVLAP Proficiency Testing program. Unless otherwise noted blank sample correction was not performed. Estimated MDL is 0.1%.

Byron Stroble (17)

Analyst

Approved Signatory



Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 600/M4-82-020



Customer: Pinchin West Ltd.
210 Cardinal Crescent
Saskatoon, SK S7L 6H8

Attn: Paul Farago

Lab Order ID: 1706651
Analysis ID: 1706651_PLM
Date Received: 3/31/2017
Date Reported: 4/1/2017

Project: City of Saskatoon Greenhouse and Trades Office 1101 Avenue P North, Saskatoon, SK

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0003A	Drywall Joint Compound, Exterior Wall, Hallway Loc 117	None Detected		100% Other	White Non Fibrous Heterogeneous
1706651PLM_7					Teased
S0003B	Drywall Joint Compound, Exterior Wall, Hallway Loc 117	None Detected		100% Other	White Non Fibrous Heterogeneous
1706651PLM_8					Teased
S0003C	Drywall Joint Compound, Exterior Wall, Hallway Loc 117	None Detected		100% Other	White Non Fibrous Heterogeneous
1706651PLM_9					Teased
S0004A	Drywall Joint Compound, Interior Wall separating Loc 120/119; Loc 119	None Detected		100% Other	White Non Fibrous Heterogeneous
1706651PLM_10					Teased
S0004B	Drywall Joint Compound, Interior Wall separating Loc 120/119; Loc 119	None Detected		100% Other	White Non Fibrous Heterogeneous
1706651PLM_11					Teased
S0004C	Drywall Joint Compound, Interior Wall separating Loc 120/119; Loc 119	None Detected		100% Other	White Non Fibrous Heterogeneous
1706651PLM_12					Teased
S0005A	2"x48" Acoustic Ceiling Tiles, Wavy Fissure and Pinhole, Office Loc 119	None Detected	45% Cellulose 45% Mineral Wool	10% Other	Beige Fibrous Heterogeneous
1706651PLM_13					Teased, Ashed
S0005B	2"x48" Acoustic Ceiling Tiles, Wavy Fissure and Pinhole, Office Loc 119	None Detected	45% Cellulose 45% Mineral Wool	10% Other	Beige Fibrous Heterogeneous
1706651PLM_14					Teased, Ashed

Disclaimer: Due to the nature of the EPA 600 method, asbestos may not be detected in samples containing low levels of asbestos. We strongly recommend that analysis of floor tiles, vermiculite, and/or heterogeneous soil samples be conducted by TEM for confirmation of "None Detected" by PLM. This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAL. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. government. Analytical uncertainty available upon request. Scientific Analytical Institute participates in the NVLAP Proficiency Testing program. Unless otherwise noted blank sample correction was not performed. Estimated MDL is 0.1%.

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Analyst

Approved Signatory



Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 600/M4-82-020



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Date Reported: 4/1/2017

Project: City of Saskatoon Greenhouse and Trades Office 1101 Avenue P North, Saskatoon, SK

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0005C	2"x48" Acoustic Ceiling Tiles, Wavy Fissure and Pinhole, Office Loc 119	None Detected	45% Cellulose 45% Mineral Wool	10% Other	Beige Fibrous Heterogeneous
1706651PLM_15					Teased, Ashed

Disclaimer: Due to the nature of the EPA 600 method, asbestos may not be detected in samples containing low levels of asbestos. We strongly recommend that analysis of floor tiles, vermiculite, and/or heterogeneous soil samples be conducted by TEM for confirmation of "None Detected" by PLM. This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAL. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. government. Analytical uncertainty available upon request. Scientific Analytical Institute participates in the NVLAP Proficiency Testing program. Unless otherwise noted blank sample correction was not performed. Estimated MDL is 0.1%.

Byron Stroble (17)

Analyst

Approved Signatory

APPENDIX III
Methodology

1.0 GENERAL

PWL conducts a room-by-room survey (rooms, corridors, service areas, exterior, etc.) to identify the asbestos building materials defined by the scope of the work. All work is conducted in accordance with our own internal Standard Operating Procedures.

Information regarding the location and condition of asbestos building materials encountered and visually estimated quantities are recorded. The locations of any samples collected are recorded on small-scale plans.

As-built drawings and previous reports are referenced where provided.

1.1 Scope Limitations

The assessment excludes the following:

- Articles belonging to the owner, tenant or occupant (e.g. stored items, furniture, appliances, etc.);
- Underground materials or equipment (e.g. vessels, drums, underground storage tanks, pipes, etc.);
- Building envelope, structural components, inaccessible or concealed materials or other items where sampling may cause consequential damage to the property.
- Energized systems (e.g. internal boiler components, elevators, mechanical or electrical components);
- Controlled products (e.g. stored chemicals, operational or process-related substances); and
- Materials not typically associated with construction (e.g. settled dust, spills, residual contamination from prior spills, etc.).

The assessment includes limited demolition of wall and ceiling finishes (drywall or plaster) to view concealed conditions at representative areas as permitted by the current building use. Limited destructive testing of flooring is conducted where possible (under carpets or multiple layers of flooring). Demolition of masonry walls (chases, shafts etc.), structural items or exterior building finishes is not conducted. PWL conducts limited demolition of masonry block walls (core holes) to investigate for loose fill insulation.

1.2 Detailed Methodology

PWL conducts an inspection for the presence of friable and non-friable asbestos-containing materials (ACM). A friable material is a material that when dry can be crumbled, pulverized or powdered by hand pressure.

A separate set of samples is collected of each type of homogenous material suspected to contain asbestos. A homogenous material is defined by the US EPA as material that is uniform in texture and appearance, was installed at one time, and is unlikely to consist of more than one type or formulation of material. The homogeneous materials are determined by visual examination and available information on the phases of construction and prior renovations.

PWL collects samples at a rate that is in compliance with the requirements of local regulations and guidelines.

The sampling strategy is also based on known ban dates and phase out dates of the use of asbestos; sampling of certain building materials is not conducted after specific construction dates. In addition, to be conservative, several years past these dates are added to account for some uncertainty in the exact start/finish date of construction and associated usage of ACM.

In some cases, manufactured products such as asbestos cement pipe are visually identified without sample confirmation.

Drywall joint compound is sampled at exterior walls, columns or other locations that are unlikely to have been renovated in an attempt to determine the presence of asbestos in the original drywall compound. Delineation of asbestos-containing drywall compound from newer, non-asbestos drywall compound is not conducted.

Flooring mastic or adhesive is sampled and analyzed if present on the underside of flooring samples (vinyl floor tile and vinyl sheet flooring).

If present, the following materials are presumed to be asbestos-containing and are best sampled immediately prior to commencing renovation/disturbance:

- electrical components or wiring within control centers, breakers, motors or lights, insulation on wiring

PWL submits the bulk samples to a NVLAP accredited laboratory for analysis. The analysis is performed in accordance with Test Method EPA/600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials, July 1993.

In Saskatchewan an ACM is defined as materials containing >1% asbestos by weight for non-friable materials, or >0.5% for friable materials or any amount if vermiculite.

The asbestos analysis is completed using a stop positive approach. Only one result meeting the above regulated criteria is required to determine that a material is asbestos-containing, but all samples must be analyzed to conclusively determine that a material is non-asbestos. The laboratory stops analyzing samples from a homogeneous material once a result equal to or greater than the regulated criteria is

detected in any of the samples of that material. All samples of a homogeneous material are analyzed if no asbestos is detected. In some cases, all samples are analyzed in the sample set regardless of result. Where building materials are described in the report as non-asbestos, this means that either no asbestos was detected by the analytical method utilized in any of the multiple samples or, if detected, it is below the lower limit of an asbestos-containing material in the applicable regulation.

Asbestos materials are evaluated in order to make recommendations regarding remedial work. The priority for remedial action is based on several factors:

- Friability (friable or non-friable).
- Condition (good, fair, poor, debris).
- Accessibility (ranking from accessible to all building users to inaccessible).
- Visibility (whether the material is obscured by other building components).
- Air movement or air erosion (present, not present).
- Efficiency of the work (for example, if damaged ACM is being removed in an area, it may be most practical to remove all ACM in the area even if it is in good condition).

Master Template: Methodology Document for Asbestos Assessment, HAZ, October 18, 2016

BERSCH CONSULTING LTD.

ASBESTOS ABATEMENT ACTIVITY INSPECTION REPORT

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

ATTENTION: Hazel Fernandez

PROJECT INFO: City of Saskatoon- Room 104 Trades Office Building
Sheet Flooring Removal- High-Risk Asbestos Removal Process

FILE NUMBER: B67IRH12G

Pre-Contamination Inspection

Tyneal Knackstedt of Bersch Consulting Ltd. conducted the pre-contamination inspection of room 104 containment at the City of Saskatoon Trades Office on August 11, 2017 at 13:30. Hub City Contracting Services was selected to conduct the asbestos abatement. The scope of work included the removal of the asbestos containing sheet flooring from room 104. The work was performed utilizing the high risk abatement procedures. The containment was properly constructed with polyethylene walls and floors. The negative air pressure at the time of the pre-contamination inspection was recorded at -0.075" H₂O. The required minimum is at -0.02" H₂O. The inspection was granted and removal work began immediately. Please see *APPENDIX I* for the Pre-Contamination Inspection Report.

Air Monitoring

Throughout the abatement process 2 air samples were collected in the adjacent areas to the containment. Each sample is measured in fiber count per volume of air or fibers/cc. The sample locations and results are as follows:

Decontamination Clean Room-	0.0004 fibers/cc
Area Adjacent to Decontamination Clean Room-	0.0006 fibers/cc

All levels were recorded well below the facility clearance limit of 0.01 fibers/cc.

Visual Inspection

Evan Westad of Bersch Consulting Ltd. conducted the visual inspection at 16:30 on August 12, 2017. The visual inspection was performed to ensure all visible debris had been cleaned up prior to applying the post removal sealant. During the visual inspection, small amounts of debris were observed throughout the containment and areas of the sheet flooring required trimming back flush with the wall. Hub City Contracting Services HEPA vacuumed the required areas and chiseled the identified areas flush with the wall. There were no other concerns noted. The visual inspection was

granted, allowing Hub City to apply the post removal sealant to lock down any residual fibers. Please see **APPENDIX I** for the Final Visual Report.

Air Clearance

Following the application of the post removal sealant, air clearance was conducted within the containment. The purpose of this process is to ensure fiber levels were below the facility clearance level prior to demobilization of the containment. High volume pumps were used to draw two (2) samples from within the containment at 21:00 on August 12, 2017. Both pumps were set to a minimum flow rate of 14.5 l/min and a run time of one (1) hour to obtain the minimum sample volume of 800L. The results are as follows:

Sample 1- 0.0014 fibers/cc
Sample 2- 0.0008 fibers/cc

Both samples were well below the facility clearance limit of 0.01 fibers/cc meeting the required levels prior to demobilization. Hub City Contracting Services was notified and granted air clearance. Demobilization of the containment began on August 13, 2017.

If you have any questions regarding the above please contact Bersch Consulting Ltd. at 306.978.6665.

Sincerely,



Evan Westad
Bersch Consulting Ltd.
File # B67IRH12G

APPENDIX I

INSPECTION REPORTS

**Bersch Consulting Ltd.
Pre-Contamination Inspection**

Project: Ave P Greenhouse & Trades Office
Contractor: Hub City Contracting Services
Scope: High Risk Sheet Flooring & Tile Removal
Client: City of Saskatoon

Documentation

Supervisor/ Worker Training	✓
Respirator Fit Tests/ Logs	✓
SK Labour Notice of Project	✓
Control Plan/MSDS/Work Procedures	✓
Work/Lock-Out Permit	✓
Hazard/Warning Signs	✓

Negative Air H.E.P.A Filter Units

Negative Air Units Installed (#)	1	✓
Exhausted: Indoor / <u>Outdoor</u>		✓
DOP Certified		✓
<u>August 4, 2017</u>		
Pre/Primary Filters Installed		✓
Manometer Type/Initial Reading		✓

w/o restriction - 0.01
w/ restriction on doors - 0.075

Shower

Shower Drain Provisions	✓
Water Shut Off Access	✓
Soap and Shampoo Supply	✓
Hot and Cold Water Tested	✓

Waste Transfer Room

Waste Water Handling Provisions	✓
Wash Tank/Basin	✓
6mil (0.15mm) Yellow Asbestos Bag	✓
Exterior Door Lock	✓

Personal Protective Equipment

General PPE (appropriate for job and job site)	✓
Silicone Half Mask with Filter	N/A
PAPR Full Face with Filter	✓
Supplied Air Full-Face	N/A
Respirator Tested	✓

Equipment

Temporary Lighting	N/A
Ground Fault Panel	✓
Wetting Supply and Equipment	✓
Hand Tools	✓
Power Tools	✓
Scaffolds/Ladders (#)	N/A
H.E.P.A Vacuum Serial Number(s)	1
<u>09091148</u>	
DOP: <u>Dec 28, 2016</u>	

Decontamination Clean Room

Door Ventilation	✓
Exterior Door Lock	✓
First Aid Kit(s)	✓
Clothes Hangers/Shelves	N/A

Containment

6mil (0.15mm) Polyethylene Sheeting	✓
Mechanical/Electrical Isolated	✓
Sealed Floors/Walls/Doors/Windows	✓
Overlapping Poly Door Flaps Throughout	✓

Comments: Map of decontamination, water lines behind poly are labelled. Power tools - tile remover, saws.

Inspector: Ty Neal Knackstedt **Date/ Time:** Aug 11, 2017
12:40

Approved: YES NO **Signature:** [Signature]


**Bersch Consulting Ltd.
Visual Inspection Check List**

Project: City of Saskatoon Trades Office - Floor Sheet Removal
Contractor: Hub City Contracting Services
Client: City of Saskatoon

Containment	Comments	Yes	No
Visible Debris			✓
Floor			✓
Beams			
Conduits- Electrical Junction Boxes/ Etc.			
Penetrations- Wall/Ceiling			
Piping/Valves			
Cuts/Tears Sealed			

Comments: Parts of the flooring were not trimmed back far enough to be flush with the wall. Hub City chisled these areas back. Pieces of tile were found ~~at~~ in the gap between the wall and floor on the west wall. Debris was found (in small amounts) throughout the containment. Hub City cleaned and HEPA vacuumed these areas to an acceptable level. Permission was given for the encapsulant to be applied.

Inspection Results	Yes	No
Inspection Passed	✓	
Permission Granted to Apply Post Removal Encapsulant	✓	

Inspector: Evan Westad
Signature: 

Date/Time: August 12, 2017, 16:45