Investigation of Mould Growth

Carol Scout Lodge
Baden Powell Road, Labrador City, Newfoundland and Labrador

Prepared for:

Town of Labrador City
PO Box 280
Labrador City, NL A2V 2K5

Attn: Todd Kent
Facilities and Buildings Maintenance Supervisor

January 11, 2018

Pinchin File: 06-03-00187

Issued to:	**Town of Labrador City**
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Issued on:	**January 11, 2018**
Pinchin File:	**06-03-00187**
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EXECUTIVE SUMMARY

Town of Labrador City retained Pinchin LeBlanc Environmental Limited (Pinchin) to perform an investigation of potential mould growth at the Carol Scout Lodge on Baden Powell Road, Labrador City, Newfoundland and Labrador. The investigation was conducted due to a musty odour that is apparent when entering the building. The investigation was conducted in conjunction with sampling for asbestos on December 7 and 8, 2017. The survey addressed the entire building excluding the crawlspace underneath the main floor and part of the attic above the gymnasium due to limited access. The assessment included interviews, inspections, and testing.

During the investigation, visual inspections and building material moisture checks were conducted throughout the building. At the time of the investigation, mould growth and/or water damage was discovered in various locations including the Gymnasium, the Kitchen, the Lobby, the Classroom, the Hallway, the Janitor's Closet, the Upstairs Equipment Room and Attic and the Girl's Washroom.

It is not possible at this time to identify the cause of the water damage and mould growth identified in this assessment

Airborne mould samples (spore trap) were collected in eight locations within the building. An outdoor reference sample was also collected. Sample results suggest that airborne mould levels were negatively impacting the air quality in the Gymnasium, Lobby, Hallway, and Janitor's Closet. Airborne mould sample results also suggest that mould levels were acceptable in the rest of the sample locations.

One bulk mould sample was collected from the Girl's Washroom. Sample results identified heavy mould growth on the sample submitted.

The following recommendations are offered to improve air quality in this building:

1. Communicate the findings of this report to the occupants.
2. Consider any necessary steps for interim risk management.
3. The source(s) of the water infiltration should be determined and repaired as necessary. This should include but not be limited to, the standing water in the crawlspace and the tap drip in the Janitor's Room. A building envelope assessment may be required to identify all water infiltration sources and provide recommendations for repair.
4. Arrange for the following mould remediation, following CCA Level I methods. If during the remediation additional mould growth is discovered so that the total amount of mould is greater than 10 ft^2 then Level II or Level III procedures will need to be implemented as necessary.

a. Abrasively clean with an appropriate mould disinfectant the mould-impacted cabinet under the sink on the west wall and the oven door in the Kitchen (1 ft^2).
b. Abrasively clean the mould-impacted plywood floor underneath the stairwell off the Lobby, approximately six feet away from the crawlspace access hatch (2 ft^2).
c. Dispose of the mould-impacted bar of soap in the Classroom.
d. Remove the mould-impacted drywall in the northeast corner of the Classroom (2 ft^2).
e. Abrasively clean with an appropriate mould disinfectant the mould-impacted wood joists in the Electrical Room (2 ft^2).
f. Remove the bottom three feet of mould-impacted drywall in the northeast corner of the Janitor's Closet (3 ft^2).
g. Remove the bottom two feet of mould-impacted drywall on the bottom of the west wall adjacent to the doorway inside the Janitor's Closet (4 ft^2).
h. Remove the fungus growing in the northeast corner of the Girl's Washroom. In addition, remove the bottom one foot of drywall on the north and east walls in this corner.
i. Remove the bottom two feet of mould-impacted drywall in the Gymnasium on the wall common with the Girl's Washroom.

5. Due to elevated moisture readings, water-damage building materials, and/or musty odours further intrusive investigation is warranted in the following locations. If mould growth is discovered in any of the areas proceed with the removal/cleaning following the appropriate mould abatement methods as per the Canadian Construction Association:
    a. Remove the bottom six feet from the north wall and dispose of all the damp cardboard and debris currently on the floor in Storage Room #1 in the Gymnasium.
    b. Remove the top 3' x 2' section of drywall on the south wall near the wall/ceiling interface and remove a 2' x 2' section of damaged ceiling above the damaged south wall in Storage Room #3 in the Gymnasium.
    c. Remove the water-damaged cupboard at the bottom of the east wall in the Kitchen.
    d. Remove a 1' x 1' section of water-damaged drywall above the sink on the west wall in the Kitchen.
    e. Remove all the debris and standing water from the floor in the Crawlspace.
    f. Remove the damp insulation from around the base of the creosote treated log in the northeast corner of the Electrical Room.
    g. Abrasively clean with an appropriate mould disinfectant the water-damaged wood panels along the east and south walls in the Electrical Room.

h. Remove the water-damaged drywall on the south wall above the baseboard heater, on the east wall just above the baseboard, and above the sink on the west wall in the Classroom.

i. Remove the water-damaged drywall on the ceiling around the light fixture in the Janitor's Room.

j. Remove the water-damaged drywall on the bottom of the west wall in the Janitor's Room.

k. Abrasively clean with an appropriate mould disinfectant the water-damaged wood joists at the bottom of the stairwell leading upstairs and the entire wood stairs.

l. Repair the damaged plywood ceiling in the Upstairs Equipment Room.

m. Remove the water-damaged insulation in the north wall cavity in the Girl's Washroom.

n. Conduct further intrusive investigation for mould in the hallway, on the wall common with the Girl's Washroom.

6. Following Type 1 asbestos abatement procedures remove the water-damaged insulation in the Attic. Some of the debris on the floor of the attic contains transite, which contains asbestos.
7. Investigate the crawlspace for a decaying animal.
8. Replace all water-stained ceiling tiles in the Gymnasium and the Kitchen.
9. Clean the water-stained door and sink in the Classroom.
10. Implement drying procedures as necessary. Ensure all surfaces are dry before installation of new finishes.

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1.0 INTRODUCTION AND SCOPE

1.1 Statement of Understanding

Pinchin LeBlanc Environmental Limited (Pinchin) was retained by the Town of Labrador City (the Client) as represented by Todd Kent to conduct an investigation of potential mould growth at the Carol Scout Lodge on Baden Powell Road, Labrador City, Newfoundland and Labrador. This project was managed by Ross O'Keefe. Concerns of mould growth were brought to Pinchin by the Town of Labrador City, particularly regarding the musty odour that is apparent when entering the building.

1.2 Scope of Work

Brittany Marche, Project Technologist, performed the investigation on December 7 and 8, 2017. The assessment addressed all accessible areas of the building excluding the crawlspace underneath the main floor and part of the attic above the gymnasium/kitchen due to limited access.

The assessment involved the following activities:

- Review of occupant and management concerns.
- Spot readings of moisture content of building materials.
- Walkthrough inspection for water damage or mould growth.
- Collection and analysis of the following (including reference):
  - Nine spore trap mould air samples.
  - One bulk material mould sample.

2.0 METHODOLOGY

2.1 Interviews and Inspections

Pinchin interviewed Mr. Todd Kent, Facilities and Buildings Maintenance Supervisor and Mrs. Evelyn Ryan, Program Coordinator, to discuss the history of the building, maintenance practices, water damage and any indoor air quality complaints.

Pinchin performed a walkthrough inspection for indications of suspect mould growth and/or water damage on accessible building materials and/or contents, paying particular attention to areas where past water damage had been reported.

Where deemed necessary, the investigator inspected concealed conditions via existing access panels or by lifting lay-in ceiling tiles. No intrusive investigations were performed.

The investigator used a moisture meter to test for elevated moisture levels in building materials. The investigator also performed a thermographic scan using a FLIR B300 infrared camera, to help identify wet conditions.

2.2 Test Methods and Criteria

The following table presents the parameters tested in this investigation, recommended limits or interpretation guides, the units of measurement, and the instruments and sampling/analytical methods employed.

Table I – Parameters Tested, Recommended Limits and Instruments or Methods Used

Parameter	Unit of Measurement	Recommended Limit	Instrumentation or Test Method
Moisture in building materials (Note: detects surface moisture only, may not detect deeper moisture)	% Moisture	Threshold for mould growth:[1] Drywall, 0.7% Wood materials, 17%	Tramex® MRH III Hygro i (pin probe for wood materials, surface for other materials)
Airborne mould (spore trap method)	Spores per cubic metre of air	Compare test area to reference areas and outdoors[2] Consider water-damage indicator moulds	Allergenco-D® sampler, laboratory analysis by Direct Microscope Examination
Mould in bulk, swab, tape-lift samples (DME)	Presence or absence of Mould Growth, to genus, and Light, Moderate or Heavy density [3]	Current guidelines recommend remediation of all interior mould growth, regardless of species	Direct Microscope Examination with staining (Fungal)
Asbestos in bulk materials	% Asbestos	Threshold for mandatory precautions set in provincial regulations	Polarized Light Microscopy, dispersion staining

All air sampling pumps were calibrated before and after use.

1 Macher, J. (Ed): *Bioaerosols, Assessment and Control*. Cincinnati OH: American Conference of Governmental Industrial Hygienists, 1999.
2 Health Canada: *Fungal Contamination in Public Buildings: Health Effects and Investigation Methods*. Ottawa ON: Health Canada, 2004.
3 The density of mould growth is ranked by the Pinchin Environmental Microbiology Laboratory as: Light (covers less than about 10% of specimen); Moderate (covers 10-20% of specimen); or Heavy (covers more than about 20% of specimen).

2.3 Laboratory Based Test Methods

The analysis for mould was performed at the Pinchin Environmental Microbiology Laboratory, Mississauga. The Pinchin laboratory is independently accredited to ISO/IEC 17025:2005 for mould and bacteria analysis, by the American Industrial Hygiene Association (AIHA) (Lab ID 158835)[4] and the Quebec government (Lab ID 495).[5]

3.0 FINDINGS

3.1 Results of Interviews

Mr. Todd Kent, Facilities and Buildings Maintenance Supervisor and Mrs. Evelyn Ryan, Program Coordinator reported the following:

- The Carol Scout Lodge was constructed with materials that were collected from older buildings that were dismantled. It is believed that some materials came from buildings that were torn down when the town of Gagnon, QC was closed in the 1980's. The Carol Scout Lodge was officially opened on October 30th, 1988.
- The building is mainly used for recreational purposes such as Scout meetings and private events like craft fairs, staff parties, and children's birthday parties. The upstairs is designated as the Cadets equipment storage.
- There is a very noticeable musty odour when entering the building, especially when opening the hatch to access the crawlspace underneath the building. This odour is most noticeable during the summer.
- No major renovations were completed on the building since its opening. It is believed that several leaks in the ceiling above the attic occurred in the past, though history of repairs is unknown.

4 Accredited by the American Industrial Hygiene Association Laboratory Accreditation Program LLC (AIHA LAP LLC) under the Environmental Microbiology Laboratory Accreditation Program (EMLAP), for Bulk, Surface and Air testing for moulds, Escherichia coli, Legionella by the ISO 11731 method and for Legionella pneumophila by qPCR ISO 12869 method (Lab ID 158835).
5 Accredited by the Quebec government under the Programme d'accreditation des laboratoires d'analyses (PALA) program for Air Microbiology – domains 601, 603, 604, 605 606.

3.2 Facility Description

Table II – Facility Description

Item	Details
Construction Date	1988
Number of Floors	2, plus attic and crawlspace
Area of Building	Approximately 6,300 ft^2
Structural Type	Wood frame, creosote treated logs for structural support
Foundation Type	Concrete
Exterior Cladding	Transite sheeting (asbestos siding)
HVAC	Electric baseboard heaters
Roof	Asphalt shingles
Flooring	Main: tile/vinyl, Upstairs: plywood
Interior Walls	Main: drywall/panel-board, Upstairs: plywood
Ceilings	Main: pin-hole fissure tile/drywall, Upstairs: plywood
Pertinent Exterior Details	Front parking lot: gravel (snow covered), Tanya Lake walking trail entrance approximately 100 feet west of building

The facility was built at a time when asbestos-containing building materials were commonly used.

The asbestos bulk sampling conducted by Rhea Mitchelmore on December 7, 2017 confirmed the presence of asbestos-containing building materials at the site. These include the transite sheeting from the exterior north wall, and the debris (transite sheeting) in the attic above the gymnasium.

3.3 Results of Inspections and Testing

This section presents the findings of the walkthrough investigation and any tests for mould, as well as tests for asbestos containing materials. Appendix I presents the drawing(s). The analytical certificates for the mould tests are given in Appendix II. The analytical certificates for the asbestos tests are given in Appendix III.

Table III – Gymnasium (including Storage Rooms)

Extent of Mould Growth	None
Extent of Water Damage Including Mould Growth	6 ft^2

Table III – Gymnasium (including Storage Rooms)

Photo 1 – General view of the Gymnasium, facing the west wall. Doorways to Storage Rooms #1 and #2 are visible on the right.

Photo 2 –View of water-stained ceiling tile in the Gymnasium, approximately 16 feet from the west wall.

Photo 3 – View of damp cardboard and other debris observed in Storage Room #1.

Photo 4 – View of peeling paint on the south wall of Storage Room #3.

Photo 5 – View of location of spore trap sample obtained at the west end of the Gymnasium.

Photo 6 – View of location of the spore trap sample obtained at the east end of the Gymnasium.

Table III – Gymnasium (including Storage Rooms)

Moisture Measurements

Material/Location	Results	Material	Results
Drywall/ middle of south wall in Storage Room #3	>0.7 % -- WET	Drywall/ middle of north wall in Storage Room #1, ~ 6 ft. up from floor	>0.7 % -- WET
Wood panel/ bottom of south wall of gymnasium	<17% -- DRY	Wood panel/ middle of north wall in Storage Room #1	<17% -- DRY

Sample Log

Sample Type/ Location	Sample No.	Result
Airborne Mould Spore Trap/ West end of Gymnasium	1923597	760 total spores/m^3
Airborne Mould Spore Trap/ East end of Gymnasium	1923591	1700 total spores/m^3
Bulk Asbestos/ 12x12 Floor tile along South wall of the gymnasium	SP001	None detected
Bulk Asbestos/ Drywall joint compound from post next to South wall in gymnasium	SP002	None detected
Bulk Asbestos/ Drywall joint compound from West wall in gymnasium	SP003	None detected
Bulk Asbestos/ Drywall joint compound South West corner of gymnasium	SP004	None detected
Bulk Asbestos/ Drywall joint compound of South wall above ceiling tile in gymnasium	SP005	None detected

Observations and Comments

The Gymnasium dimensions are approximately 88 by 44 feet. The walls of the gymnasium are composed of drywall, with wood panel overlay on the bottom portion extending up 5 feet from the floor. There are three storage rooms in the Gymnasium, the outer walls of which do not meet the ceiling so the storage rooms are not completely isolated from the gymnasium. Storage Room #1 is located along the north wall, Storage Room #2 is located in the northwest corner, and Storage Room #3 is located in the southwest corner.

Visible mould growth was not observed in the gymnasium or in the accessible storage rooms.

Table III – Gymnasium (including Storage Rooms)

Water-stained ceiling tiles (4 ft^2) were observed in the gymnasium approximately 16 feet from the west wall (Photo 2).

In Storage Room #1, an unpleasant odour was noted and elevated moisture readings were detected on the north wall. Damp cardboard and other debris were observed on the floor of Storage Room #1 (Photo 3). Storage Room #2 was inaccessible at the time of the investigation. In Storage Room #3, water-damaged drywall was observed on the south wall in the form of delaminating paint (2 ft^2) and cracks were observed on the ceiling above the damaged wall (Photo 4). Elevated moisture readings were also detected on the south wall.

Table IV – Kitchen

Extent of Mould Growth	1 ft²
Extent of Water Damage Including Mould Growth	15 ft²

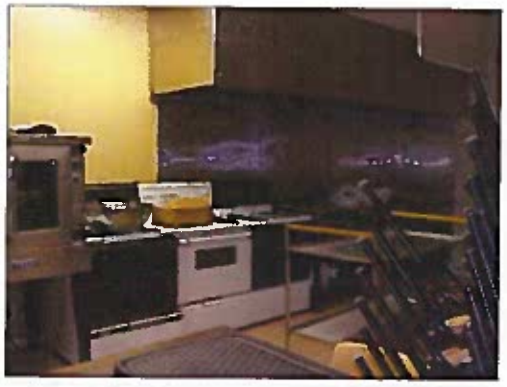


Photo 7 – General view of the Kitchen, facing the north wall.

Photo 8 – View of location of the spore trap sample obtained in the middle of the Kitchen.

Photo 9 – View of water-stained ceiling tile and re-plastered wall in the Kitchen.

Photo 10 – View of water-stained ceiling tile in the middle of the Kitchen.

Table IV – Kitchen

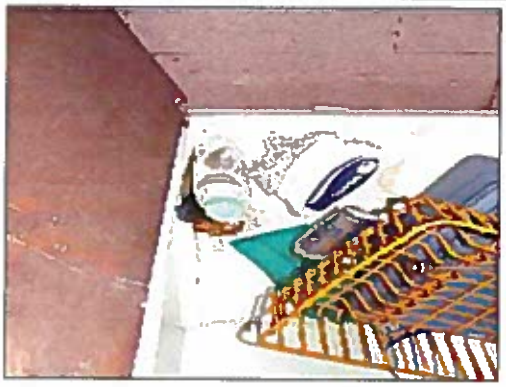


Photo 11 – View of mould growth underneath the sink along the west wall, inside a cabinet.

Photo 12 – View of mould growth on the oven in the Kitchen.

Moisture Measurements

Material/ Location	Results	Material	Results
Panel board/ Inside kitchen storage cupboard, bottom of east wall adjacent to doorway	>17% – WET	Drywall/ Just above sink on west wall of kitchen	>0.7 % – WET

Sample Log

Sample Type/Location	Sample No.	Result
Airborne Mould Spore Trap/ Middle of kitchen	1923608	830 total spores/m^3
Bulk Asbestos/ Drywall joint compound in Kitchen above sink	SP007	None detected
Bulk Asbestos/ 12x12 floor tile along South wall of Kitchen	SP008	None detected
Bulk Asbestos/ 2x4 pin hole flex ceiling tile by archway in Kitchen	SP009	None detected

Observations and Comments

The Kitchen dimensions are approximately 30 by 22 feet. Several water-stained ceiling tiles were observed (Photos 9 and 10). Water stains were also observed on some of the floor tiles. A section of drywall above the doorway leading out to the Gymnasium was cracked and has been re-plastered (4 ft^2; Photo 9).

Mould growth was observed on the floor of the panel board cabinet below the sink located along the west wall (Photo 11). In addition, mould growth was also observed on the surface of the oven storage door (Photo 12).

Elevated moisture readings were detected inside the kitchen storage cupboard at the bottom of the east wall adjacent to the cupboard door, and on the drywall above the sink along the west wall.

Table V – Lobby	
Extent of Mould Growth	2 ft^2
Extent of Water Damage Including Mould Growth	16 ft^2

Photo 13 – View of location of spore trap sample obtained in the back section of the Lobby.

Photo 14 – View of cracked and water-stained floor tiles near the front entrance in the Lobby.

Photo 15 – View of access to the crawlspace with a pool of standing water and abundant debris below the access hatch.

Photo 16 – Sticky residue and suspect mould growth to the right of the crawlspace access hatch, underneath the stairwell.

Moisture Measurements

Material/ Location	Results	Material	Results
Panel board/ Bottom of east wall of front section in Lobby	<17% -- DRY	Panel board / Bottom of south wall of back section in Lobby	<17 % – DRY

Sample Log

Sample Type/Location	Sample No.	Result
Airborne Mould Spore Trap/ Middle of back section in lobby	1923595	2400 total spores/m^3

Table V – Lobby

Observations and Comments
The Lobby is L-shaped; the dimensions are approximately 6 by 28 feet in the front section by the entrance and 8 by 16 feet in the back section towards the hallway. The walls are composed of drywall with wood panel overlay on the bottom portion extending up 5 feet from the floor. There were several cracks in the drywall walls which had been re-plastered, approximately 4 ft^2 total. The floor tile was cracked and water-stained and was in poor condition near the front entrance (Photo 14). In addition, there were water stains at the base of the wall above the damaged floor tiles near the front entrance, approximately 6 ft^2 in total. On the north wall at the end of the Lobby going towards the hallway, there is a small room that contains the access hatch for the crawlspace underneath the building. Above the room is the underside of the stairwell that leads upstairs. An extremely unpleasant odour was noted when opening the access hatch. The odour was detected just outside the hatch and got worse when the hatch was opened. The odour was similar to a decaying animal smell. A 2 ft^2 pool of standing water was observed on the crawlspace floor directly below the hatch (Photo 15). The crawlspace was not investigated as there was no ladder available to reach the floor. Approximately 6 feet to the right of the access hatch, there is approximately 4 ft^2 of sticky residue on the plywood floor which contained some mould growth (Photo 16).

Table VI – Classroom

Extent of Mould Growth	4 ft^2
Extent of Water Damage Including Mould Growth	38 ft^2

Photo 17 – View of southeast corner of the Classroom, doorway leading to the Electrical Room is on the left.

Photo 18 – View of location of spore trap sample obtained in the Classroom, across from the Electrical Room doorway.

Table VI – Classroom

Photo 19 – View of northeast corner of the Classroom, doorway leading to the Lobby is on the right.

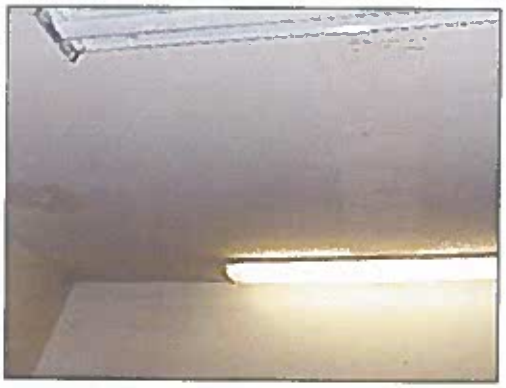


Photo 20 – Cracked drywall ceiling that was re-plastered in the Classroom.

Photo 21 – View of peeling paint on the south wall of the Classroom, just above the baseboard heater.

Photo 22 – View of mould growth on the surface of the drywall wall in the northeast corner of the Classroom.

Photo 23 – View of water stains around the sink basin and mould growth on the bar of soap next to the tap.

Photo 24 – View of Small Storage Area leading into the Electrical Room from the Classroom.

Table VI – Classroom

Photo 25 – View of base of hot water tanks with some water staining on the floor in the Small Storage Area leading into the Electrical Room.

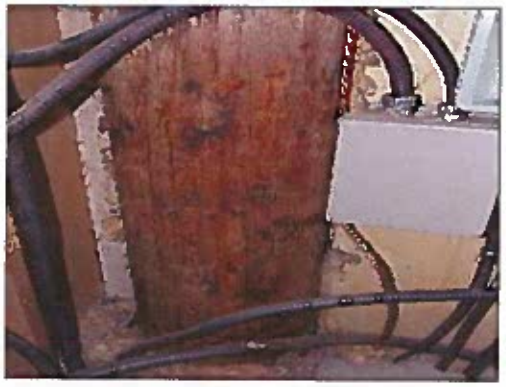


Photo 26 – View of water stains behind electrical panelling inside the Electrical Room. Damp insulation around the base of the creosote treated log. Mould growth on the wood joists.

Moisture Measurements

Material/ Location	Results	Material	Results
Drywall/ above baseboard on east wall in classroom, 10 ft from doorway leading into lobby	>0.7% – WET	Drywall/ 4 inches above sink in classroom, on west wall	>0.7% – WET
Wooden baseboard/ Bottom of west wall in Small Storage Area leading to Electrical Room	<17% – DRY		

Sample Log

Sample Type/Location	Sample No.	Result
Airborne Mould Spore Trap/ Inside classroom, across from Electrical Room doorway	1923594	1900 total spores/m^3
Bulk Asbestos/ 12x12 floor tile in Classroom by Electrical room	SP015	None detected
Bulk Asbestos/ Drywall joint compound North East corner of Classroom by Chalkboard	SP016	None detected

Table VI – Classroom
Observations and Comments
The Classroom dimensions are approximately 30 by 22 feet. There were several spots where the drywall ceiling had cracked and was re-plastered, approximately 15 ft^2 in total (Photo 20). Approximately 4 ft^2 of peeling paint was observed above the baseboard heater on the south wall (Photo 21). Mould growth was observed on the surface of the drywall wall in the northeast corner, approximately 10 feet away from the doorway leading to the Lobby (Photo 22). Minor water stains were noted on the floor tiles in several spots (2 ft^2). There is a sink in the southwest corner across from the Electrical Room doorway and water stains were observed surrounding the sink basin and running down the side of the sink. In addition, mould growth was observed on the bar of soap next to the tap (Photo 23). In the southeast corner of the Classroom there is a doorway leading into a Small Storage Area which then further leads to an Electrical Room, with dimensions of approximately 11 by 9 feet (Photo 24). There are two hot water tanks in the Small Storage Area along the south wall. Exposed insulation was noted around the base of the tanks and minor water stains was noted on the floor (Photo 25). Inside the Electrical Room there is evidence of water damage; this includes staining on the door leading into the Electrical Room (2 ft^2). There is staining behind the electrical wood panelling all along the east and south walls (10 ft^2). There is damp insulation around the base of the creosote treated log in the northeast corner and mould growth on the wood joists behind the log along the north wall (2 ft^2; Photo 26). Elevated moisture readings were detected on the drywall just above the baseboard on the east wall in the Classroom, approximately 10 feet from the doorway leading into the Lobby. Elevated moisture readings were also detected on the drywall along the west wall approximately 4 inches above the sink in the Classroom.

Table VII – Hallway	
Extent of Mould Growth	None
Extent of Water Damage Including Mould Growth	1 ft^2

Table VII – Hallway

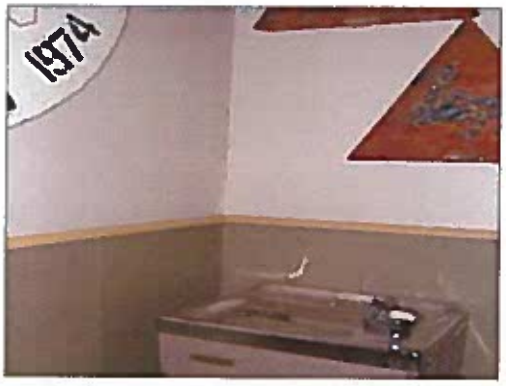


Photo 27 – View of water fountain in southeast corner of the Hallway.

Photo 28 – View of minor water staining at the base of the east wall in the Hallway.

Moisture Measurements

Material/ Location	Results	Material	Results
Wood panel board/ southeast corner of hallway	<17% – DRY	Wood panel board / Bottom of north wall in hallway	<17% – DRY

Sample Log

Sample Type/Location	Sample No.	Result
Airborne Mould Spore Trap/ In middle of hallway, to the right of the doorway leading into the Gymnasium	1923598	2300 total spores/m^3
Bulk Asbestos/ 12x12 floor tile along East wall in Hallway by Classroom doorway	SP017	None detected
Bulk Asbestos/ Drywall joint compound South West corner behind doorway to Hallway	SP019	None detected

Observations and Comments

The hallway dimensions are approximately 8 by 32 feet. The walls are composed of drywall with wood panel overlay on the bottom portion extending up 5 feet from the floor. Minor water stains were noted at the base of the walls in several spots (Photo 28).

Table VIII – Janitor's Closet	
Extent of Mould Growth	1 ft²
Extent of Water Damage Including Mould Growth	8 ft²

Photo 29 – General view of Janitor's Closet at south end of hallway.

Photo 30 – Location of spore trap sample obtained in the middle of Janitor's Closet.

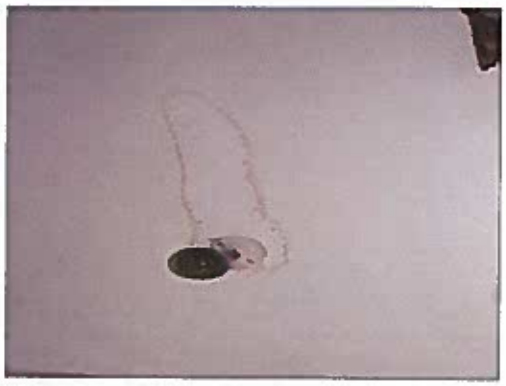


Photo 31 – View of water staining around light bulb on the ceiling in the Janitor's Closet.

Photo 32 – View of water-stained and damaged drywall accompanied by mould growth on the bottom of the west wall adjacent to the doorway in the Janitor's Closet.

Table VIII – Janitor's Closet

Photo 33 – View of water staining on the floor and around baseboards in the Janitor's Closet.

Photo 34 – View of active water running from the tap of the sink.

Photo 35 – View of mould growth on drywall on the wall behind the creosote treated log in the northeast corner.

Sample Log

Sample Type/Location	Sample No.	Result
Airborne Mould Spore Trap/ Middle of janitor closet	1923592	3100 total spores/m^3
Bulk Asbestos/ Drywall joint compound North West corner of Janitors closet	SP010	None detected

Observations and Comments

The Janitor's Closet dimensions are approximately 5 by 9 feet. Water-stained drywall was observed surrounding the light fixture on the ceiling (2 ft^2; Photo 31). Water-stained drywall was also observed on the west wall adjacent to the doorway (Photo 32). Water staining was also observed throughout the plywood floor (4 ft^2; Photo 33). An active water drip was noted from the tap of the sink located on the

Table VIII – Janitor's Closet
south wall (Photo 34). No moisture readings were obtained. Visible mould was observed on the drywall behind the creosote treated log in the northeast corner (1 ft^2; Photo 35).

Table IX – Upstairs Equipment Room & Attic	
Extent of Mould Growth	None
Extent of Water Damage Including Mould Growth	14 ft²

Photo 36 – General view of upstairs equipment room, facing south wall.

Photo 37 – View of location of spore trap sample obtained in upstairs equipment room, near top of stairs facing the north wall.

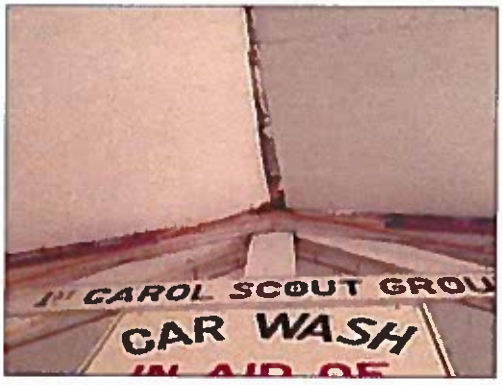


Photo 38 – View of damaged plywood ceiling of upstairs equipment room.

Photo 39 – View of bottom of stairwell leading to upstairs equipment room.

Table IX – Upstairs Equipment Room & Attic

Photo 40 – View inside attic above the Gymnasium.

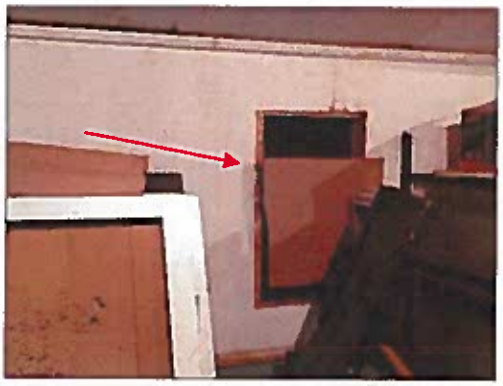


Photo 41 – View of access panel on north wall of upstairs equipment room leading into attic area above the Kitchen.

Moisture Measurements

Material/ Location	Results	Material	Results
Plywood/ Middle of north wall in upstairs equipment room	<17% -- DRY	Plywood/ Ceiling 2 inches above north wall in upstairs equipment room	<17% -- DRY
Wood/ Doorframe inside attic area facing east	<17% -- DRY	Wood/ 2x4 wood joist on base of south wall in upstairs equipment room	<17% – DRY

Sample Log

Sample Type/Location	Sample No.	Result
Airborne Mould Spore Trap/ Middle of upstairs equipment room, near top of stairs	1923606	420 total spores/m^3
Bulk Asbestos/ Debris(transite sheeting) from attic above gymnasium	SP022	Chrysotile 10-25%
Bulk Asbestos/ Floor debris from attic above gymnasium	SP023	None detected
Bulk Asbestos/ Insulation from attic above gymnasium	SP024	None detected

Observations and Comments

The Upstairs Equipment Room dimensions are approximately 29 by 30 feet. The ceiling is composed of plywood which was in poor condition in several areas (Photo 38). The walls are composed of plywood, and were blocked by lots of debris making access to them difficult (Photo 36). The floor is

Table IX – Upstairs Equipment Room & Attic

composed of plywood which was in good condition. The stairwell leading up to the Equipment Room is in poor condition, with peeling and cracked paint on the steps, and water stains on the wood joists at the bottom of the stairwell, approximately 4 ft^2 in total (Photo 39).

On the west wall of the Upstairs Equipment Room is a raised doorway leading out to the Attic that is located above the Gymnasium. The floor in the Attic is the backside of the pin-hole fissure ceiling tile in the Gymnasium and is covered in insulation in poor condition (i.e. damp) and other debris (Photo 40). On the north wall of the Upstairs Equipment Room is a small hole that gives restricted access to the Attic area that is above the Kitchen. The floor there is also the backside of the pin-hole flex ceiling tile in the Kitchen and is covered in insulation in poor condition (i.e. damp; Photo 41). The entire upstairs was noted to be very cold.

No elevated moisture readings were obtained, and no apparent mould was observed.

Table X – Girl's Washroom

Extent of Mould Growth	2 ft^2
Extent of Water Damage Including Mould Growth	6 ft^2

Photo 42 – View of access panel on the north wall inside the Girl's Washroom, to the left of stalls.

Photo 43 – View inside the wall cavity through the access panel in the Girl's Washroom, damp insulation was noted on the floor.

Table X – Girl's Washroom

Photo 44 – View of mould growth on drywall facing north wall, behind access panel in Girl's Washroom.

Photo 45 – View of fungus at base of wall in the northeast corner, last stall in Girl's Washroom.

Moisture Measurements

Material/ Location	Results	Material	Results
Wood baseboard/ Bottom of north wall to left of stalls	<17% -- DRY	Wood baseboard/ Bottom of east wall	<17% -- DRY

Sample Log

Sample Type/Location	Sample No.	Result
Bulk Mould/ Behind access panel on north wall to left of stalls, on drywall directly across from opening.	BM-01	Heavy growth (*Stachybotrys* species and *Ulocladium* species)
Bulk Asbestos/ Vinyl flooring along North wall of Girls Bathroom behind door	SP013	None detected
Bulk Asbestos/ Drywall joint compound North West corner of Girls Bathroom behind door	SP014	None detected

Observations and Comments

The Girl's Washroom dimensions are approximately 6 by 15 feet. Elevated moisture readings were not measured. However, in the wall cavity behind the access panel on the north wall to the left of the stalls there is damp insulation on the floor (4 ft^2; Photo 43). Also behind that access panel, visible mould growth was observed on the drywall directly across from the opening; this wall is common with the Gymnasium (2 ft^2; Photo 44). In the last stall on the northeast corner, there is a fungus growing at the base of the wall (Photo 45).

Table XI – Boy's Washroom	
Extent of Mould Growth	None
Extent of Water Damage Including Mould Growth	1 ft^2

Photo 46 – View of sinks in the Boy's Washroom.

Photo 47 – View of urinals on the north wall of the Boy's Washroom, peeling paint on the piping at the bottom.

Moisture Measurements

Material/ Location	Results	Material	Results
Drywall/ Bottom of north wall, between urinals	<0.7% – DRY	Drywall/ Bottom of north wall, inside first bathroom stall from the right	<0.7% – DRY

Sample Log

Sample Type/ Location	Sample No.	Result
Bulk Asbestos/ 12x12 floor tile along North wall in first stall of Boys Bathroom	SP011	None detected

Observations and Comments

The Boy's Washroom dimensions are approximately 6 by 15 feet. Elevated moisture readings were not measured. Some peeling paint was observed on the piping at the bottom of the two urinals (Photo 47). Signs of visible mould growth were not observed.

Table XII – Outdoors		
Temperature	-9.0 °C	
Relative Humidity	82 %RH	Photo 48 – View of location of spore trap sample obtained in front parking lot.

Sample Log

Sample Type/ Location	Sample No.	Result
Mould Air Sample/ Outside building exterior in front parking lot, approximately 10 ft. from front door	1923590	160 total spores/m^3
Bulk Asbestos/ Transite sheeting from exterior North wall	SP021	Chrysotile 10-25%

Observations and Comments

Weather was mainly clear skies in the morning, with slight winds (West - 17km/h). In the afternoon skies became cloudy with some light snow. Front parking lot was snow-covered.

4.0 DISCUSSION

4.1 Discussion of Water Damage and Mould Growth

During the investigation, visual inspections and building material moisture checks were conducted throughout the building. At the time of the investigation, mould growth and/or water damage was discovered in various locations including the Gymnasium, the Kitchen, the Lobby, the Classroom, the Hallway, the Janitor's Closet, the Upstairs Equipment Room and Attic and the Girl's Washroom.

Pinchin collected eight indoor spore trap mould air samples and one outdoor reference sample during the assessment. Spore trap sampling collects both viable and non-viable mould spores, but there is no

distinction during analysis. Non-viable refers to spores being incapable of life or living, whereas viable is capable of living. Spore trap sampling is only capable of determining the presence of mould spores identified at the genera level and cannot identify the species of the mould spores recovered.

Generally, the composition and concentration of mould recovered from indoor samples should be similar to the composition and concentration of the mould recovered from the outdoor reference sample. Many elements inside a building can affect the concentration and composition of indoor mould samples. These elements include occupant activities, furnishings and the amount of air exchange.

The concentration of the outdoor reference sample on the sampling day was 160 total spores/m^3. The concentrations of the indoor samples ranged from 420 to 3100 total spores/m^3. The concentrations of the samples collected in all of the locations tested were greater than the concentrations of the outdoor reference sample. *Stachybotrys* species were recovered in the composition of the samples collected in the Gymnasium and the Lobby. *Chaetomium* species were recovered in the composition of the samples collected in the Gymnasium. *Stachybotrys* and *Chaetomium* are species of mould that is typically not found in outdoor air samples and therefore when it is found in indoor air samples it is indicative of wet building materials and/or mould growth. In addition, elevated levels of *Aspergillus/Penicillium*-like spores were recovered in the sample collected in the Lobby and elevated levels of basidiospores were recovered in the samples collected in the Gymnasium, Hallway, and Janitor's Closet. Elevated levels of basidiospores may be an indication of wood rot.

Sample results suggests that airborne mould levels were negatively impacting the air quality in the Gymnasium, the Lobby, the Hallway, and the Janitor's Closet. Airborne mould sample results also suggest that mould levels were acceptable in the rest of the sample locations.

One mould bulk sample was collected in the building and submitted for analysis to confirm the presence of mould growth. The sample was collected from drywall in the wall cavity behind the access panel on the north wall to left of the stalls in the Girl's Washroom. Heavy growth of *Stachybotrys* species and *Ulocladium* species was detected on this sample confirming the presence of active mould growth.

It is not possible at this time to identify the cause of the water damage and mould growth identified in this assessment. Further investigation is recommended, as discussed below.

4.2 Mould Remediation and Inspection

Mould growth in buildings can be a risk factor for adverse health effects.[6] The mould growth found in this investigation should be remediated as soon as possible following currently accepted procedures. Pinchin recommends that mould remediation follow the procedures set by the Canadian Construction Association (CCA).[7] The work should be performed by a contractor with appropriate training, experience and insurance coverage. Ensure that remaining building materials are dry prior to reinstating mould-susceptible finishes, to prevent future mould growth.

Pinchin would be pleased to provide project management services to develop a remediation work plan and retain a specialized environmental abatement contractor. Pinchin will conduct a competitive bidding process to achieve the lowest possible price for the work. Proceeding in this manner will relieve the Client from taking on regulatory responsibility for contractor health and safety, and will reduce the risk of poor contractor performance and possible cross-contamination. Pinchin recommends that the Client retain services for project management, as well as for inspection and testing of this project. Health Canada and other authorities recommend independent inspection of medium and large scale mould remediation, to protect the occupants and building from cross-contamination.

The confirmed presence of asbestos in the tested building materials necessitates the use of the asbestos precautions required by provincial regulation, in addition to the precautions required for the mould remediation.

4.3 Communication and Interim Risk Management

The findings of this report should be communicated to the occupants as recommended by current mould guidelines. The Client should consider any interim risk management actions that would be appropriate under the circumstances, until the mould growth can be remediated. Interim risk management might include isolating an area of the building, or relocating persons experiencing adverse health effects or with greater sensitivity to mould.

5.0 RECOMMENDATIONS

Pinchin offers the following recommendations to improve air quality in this building and address any mould growth found. Pinchin would be pleased to assist with further investigations indicated by this assessment, make recommendations for remediation contractors, and provide services for the planning and inspection of the recommended remediation work.

6 US Environmental Protection Agency: Mold Remediation in Schools and Commercial Buildings. US EPA. 2001.
7 Canadian Construction Association: Mould Guidelines for the Canadian Construction Industry, [Guide 82]. Ottawa, ON: CCA, 2004

The following recommendations are offered to improve air quality in this building:

1. Communicate the findings of this report to the occupants.
2. Consider any necessary steps for interim risk management.
3. The source(s) of the water infiltration should be determined and repaired as necessary. This should include but not be limited to, the standing water in the crawlspace and the tap drip in the Janitor's Room. A building envelope assessment may be required to identify all water infiltration sources and provide recommendations for repair.
4. Arrange for the following mould remediation, following CCA Level I methods. If during the remediation additional mould growth is discovered so that the total amount of mould is greater than 10 ft^2 then Level II or Level III procedures will need to be implemented as necessary.
    a. Abrasively clean with an appropriate mould disinfectant the mould-impacted cabinet under the sink on the west wall and the oven door in the Kitchen (1 ft^2).
    b. Abrasively clean the mould-impacted plywood floor underneath the stairwell off the Lobby, approximately six feet away from the crawlspace access hatch (2 ft^2).
    c. Dispose of the mould-impacted bar of soap in the Classroom.
    d. Remove the mould-impacted drywall in the northeast corner of the Classroom (2 ft^2).
    e. Abrasively clean with an appropriate mould disinfectant the mould-impacted wood joists in the Electrical Room (2 ft^2).
    f. Remove the bottom three feet of mould-impacted drywall in the northeast corner of the Janitor's Closet (3 ft^2).
    g. Remove the bottom two feet of mould-impacted drywall on the bottom of the west wall adjacent to the doorway inside the Janitor's Closet (4 ft^2).
    h. Remove the fungus growing in the northeast corner of the Girl's Washroom. In addition, remove the bottom one foot of drywall on the north and east walls in this corner.
    i. Remove the bottom two feet of mould-impacted drywall in the Gymnasium on the wall common with the Girl's Washroom.
5. Due to elevated moisture readings, water-damage building materials, and/or musty odours further intrusive investigation is warranted in the following locations. If mould growth is discovered in any of the areas proceed with the removal/cleaning following the appropriate mould abatement methods as per the Canadian Construction Association:
    a. Remove the bottom six feet from the north wall and dispose of all the damp cardboard and debris currently on the floor in Storage Room #1 in the Gymnasium.

b. Remove the top 3' x 2' section of drywall on the south wall near the wall/ceiling interface and remove a 2' x 2' section of damaged ceiling above the damaged south wall in Storage Room #3 in the Gymnasium.
c. Remove the water-damaged cupboard at the bottom of the east wall in the Kitchen.
d. Remove a 1' x 1' section of water-damaged drywall above the sink on the west wall in the Kitchen.
e. Remove all the debris and standing water from the floor in the Crawlspace.
f. Remove the damp insulation from around the base of the creosote treated log in the northeast corner of the Electrical Room.
g. Abrasively clean with an appropriate mould disinfectant the water-damaged wood panels along the east and south walls in the Electrical Room.
h. Remove the water-damaged drywall on the south wall above the baseboard heater, on the east wall just above the baseboard, and above the sink on the west wall in the Classroom.
i. Remove the water-damaged drywall on the ceiling around the light fixture in the Janitor's Room.
j. Remove the water-damaged drywall on the bottom of the west wall in the Janitor's Room.
k. Abrasively clean with an appropriate mould disinfectant the water-damaged wood joists at the bottom of the stairwell leading upstairs and the entire wood stairs.
l. Repair the damaged plywood ceiling in the Upstairs Equipment Room.
m. Remove the water-damaged insulation in the north wall cavity in the Girl's Washroom.
n. Conduct further intrusive investigation for mould in the hallway on the wall common with the Girl's Washroom.

6. Following Type 1 asbestos abatement procedures remove the water-damaged insulation in the Attic. Some of the debris on the floor of the attic contains transite, which contains asbestos.
7. Investigate the crawlspace for a decaying animal.
8. Replace all water-stained ceiling tiles in the Gymnasium and the Kitchen.
9. Clean the water-stained door and sink in the Classroom.
10. Implement drying procedures as necessary. Ensure all surfaces are dry before installation of new finishes.

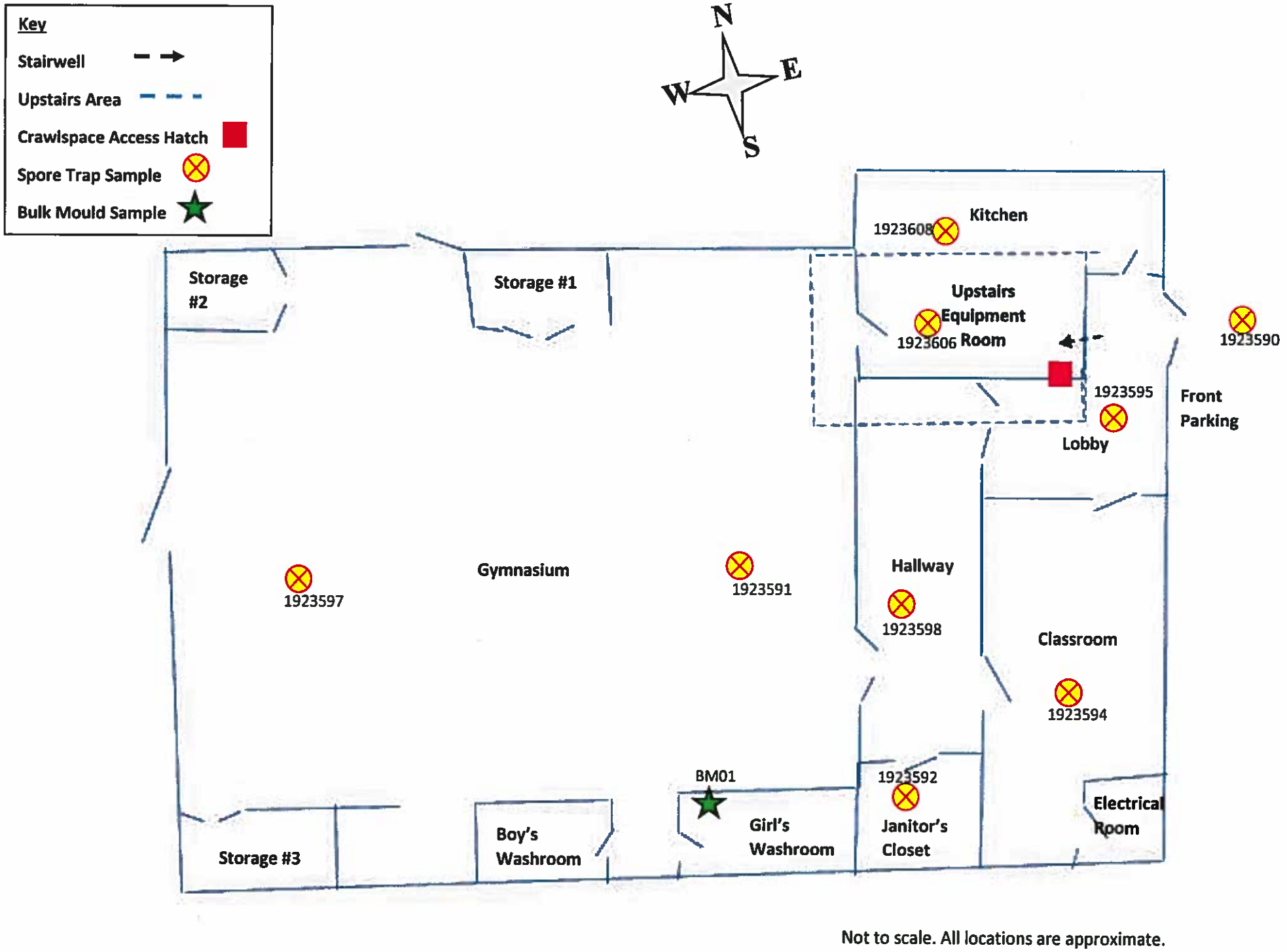
6.0 TERMS AND LIMITATIONS

This work was performed subject to the Terms and Limitations presented or referenced in the proposal for this project.

Information provided by Pinchin is intended for Client use only. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law. Any use by a third party of reports or documents authored by Pinchin 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. Pinchin 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.

APPENDIX I

Drawing(s)



Not to scale. All locations are approximate.

APPENDIX II

Results of Mould Tests

PINCHIN
2470 Milltower Court
Mississauga, ON L5N 7W5
Tel: (905) 363-0678
Fax: (905) 363-0681

Certificate of Analysis

Pinchin Environmental Microbiology Laboratory

Laboratoire d'analyse accrédité par le gouvernement du Québec
Lab ID# 495

CUSTOMER:	Ross O'Keefe	**PROJECT NAME:**	Scout Lodge Mould Assessment		
COMPANY:	Pinchin LeBlanc Environmental Ltd.	**TYPE OF SAMPLES:**	AllergencoD	**PROJECT NO:**	06-03-00187
ADDRESS:	30 Circular Road	**NO. OF SAMPLES:**	9	**LAB REFERENCE NO:**	m181860
	Labrador City, NL A2V 2K3	**DATE COLLECTED:**	December 7, 2017	**ANALYST:**	Partinder Puri, B.Sc. Environmental Microbiologist
		DATE RECEIVED:	December 13, 2017		
		DATE ANALYSED:	December 20, 2017	**REVIEWER:**	Rafic Dulymamode, PhD Laboratory Manager
		DATE REPORTED:	December 20, 2017		

CONDITION OF SAMPLES ON RECEIPT: Acceptable

Method of Analysis: Analysis of Air Samples for Fungal Spores (SOP: DME-SPT-010, Rev 10, January 31, 2017)

This SOP is based on the method described in the AIHA's "Field Guide for the Determination of Biological Contaminants in the Environmental Samples" and also partially on the ASTM method D7391-09. The cassette slide with the trace (area impacted with air) facing upwards is fixed on a clean microscope slide. It is stained with lactophenol cotton blue or lactofuschin, and then scanned under low power magnification to locate the trace and to give the analyst an idea of the diversity of the spores. The final analysis is performed at X630/X600 magnification by counting the different spores along a number of traverses or fields of view to cover at least 25% of the sample. A lower percentage of the sample is counted if it is overloaded. Raw counts are converted to spores/m^3 of air. Counts of fungal fragments and pollens are not computed in the total. Spores lacking unique characteristics for identification are reported as "Unidentified spores". Spores showing features of specific groups are recorded under the respective groups such as "Unidentified Basidiospores or Unidentified Ascospores". Spores occurring in chains are counted individually. Spores of *Aspergillus* and *Penicillium* (and others such as *Acremonium*, *Paecilomyces*) are indistinguishable.

A scale of 0 to 5 is used to rate abundance of non-fungal material, with 5 indicating the largest amount. Large amounts of non-fungal material may obscure small spores. Therefore, counts from samples with 4-5 non-fungal material may be treated as undercounts. Except for blanks, samples with no detected spores are recorded as "less than the detection limit" (DL). Results are not corrected for blanks. Estimation of the measurement of uncertainty is available upon request.

Comments/Observations (if any):

Notes: 1. The result(s) relate only to the sample(s) tested.
2. This test report shall not be reproduced except in full, without written approval of the laboratory.
3. Services are subject to Pinchin Ltd. Standard Terms and Conditions for Laboratory Services.

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Certificate of Analysis

Pinchin Environmental Microbiology Laboratory

Laboratoire d'analyse accrédité par le gouvernement du Québec
Lab ID# 495

DATE ANALYSED: December 20, 2017 **ANALYST:** Partinder Puri, B.Sc.

PROJECT NO: 06-03-00187
LAB REFERENCE NO: m181860

Customer Sample No:	1923597			1923591			1923608			1923595			1923594			1923598			1923592		
Lab Sample ID:	m181860-1			m181860-2			m181860-3			m181860-4			m181860-5			m181860-6			m181860-7		
Description	ST01 - West end of gymnasium			ST02 - East end of gymnasium			ST03 - kitchen			ST04 - lobby			ST05 - classroom			ST06 - hallway			ST07 - janitor closet		
Total Air Volume (L)	150			150			150			150			150			150			150		
% of Sample Counted	25.5			25.5			25.5			25.5			25.5			25.5			25.5		
Fungal spores identified	raw ct.	%	ct./m³	raw ct.	%	ct./m³	raw ct.	%	ct./m³	raw ct.	%	ct./m³	raw ct.	%	ct./m³	raw ct.	%	ct./m³	raw ct.	%	ct./m³
Alternaria																					
Ascospores non- specified				1	2	26				2	2	52	2	3	52	2	2	52	1	1	26
Aspergillus/ Penicillium-like	4	14	110	2	3	52	2	6	52	37	40	970	19	27	500	4	5	110	2	2	52
Basidiospores non- specified	21	72	550	60	92	1600	28	88	730	43	47	1100	37	52	970	79	92	2100	115	97	3000
Botrytis																					
Chaetomium				1	2	26															
Cladosporium	2	7	52							6	7	160	3	4	78	1	1	26	1	1	26
Coprinus																					
Drechslera/Bipolaris Group																					
Epicoccum																					
Fusarium																					
Ganoderma																					
Non-specified spores	1	3	26	1	2	26	2	6	52	3	3	78	10	14	260						
Oidium																					
Periconia/ Myxomycetes																					
Pithomyces																					
Polythrincium																					
Rusts																					
Stachybotrys	1	3	26							1	1	26									
Ulocladium																					
Pollens																					
Fungal fragments	1		26							2		52	1		26						
Non-fungal material	2			2			3			3			3			2			2		
Spores/sample	29			65			32			92			71			86			119		
TOTAL SPORES/M³			760			1700			830			2400			1900			2300			3100
D.L. (SPORES/M³)			26			26			26			26			26			26			26

Note: 1. Samples analysed at 630X or 600X magnification. 2. D.L. = Detection Limit
3. Total spores/m³ and counts/m³ reported to two significant figures where applicable

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Certificate of Analysis

Pinchin Environmental Microbiology Laboratory

Laboratoire d'analyse accrédité par le gouvernement du Québec
Lab ID# 495

DATE ANALYSED: December 20, 2017 **ANALYST:** Partinder Puri, B.Sc.

PROJECT NO: 06-03-00187
LAB REFERENCE NO: m181860

Customer Sample No:	1923606			1923590																
Lab Sample ID:	m181860-8			m181860-9																
Description	ST08 - upstairs equipment room			ST09 - outside building exterior																
Total Air Volume (L)	150			150																
% of Sample Counted	25.5			25.5																
Fungal spores identified	raw ct.	%	ct./m³	raw ct.	%	ct./m³	raw ct.	%	ct./m³	raw ct.	%	ct./m³	raw ct.	%	ct./m³	raw ct.	%	ct./m³	raw ct.	%	ct./m³
Alternaria																				
Ascospores non- specified																				
Aspergillus/ Penicillium-like				2	33	52														
Basidiospores non- specified	14	88	370	3	50	78														
Botrytis																				
Chaetomium																				
Cladosporium				1	17	26														
Coprinus																				
Drechslera/Bipolaris Group																				
Epicoccum																				
Fusarium																				
Ganoderma																				
Non-specified spores	1	6	26																	
Oidium																				
Periconia/ Myxomycetes																				
Pithomyces																				
Polythrincium																				
Rusts																				
Stachybotrys																				
Ulocladium	1	6	26																	
Pollens																				
Fungal fragments	1		26																	
Non-fungal material	3			3																
Spores/sample	16			6																
TOTAL SPORES/M³			420			160														
D.L. (SPORES/M³)			26			26														

Note: 1. Samples analysed at 630X or 600X magnification. 2. D.L. = Detection Limit
3. Total spores/m³ and counts/m³ reported to two significant figures where applicable

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Lab ID 495

Pinchin Environmental Microbiology Laboratory

Certificate of Analysis

CUSTOMER: Ross O'Keefe
COMPANY: Pinchin LeBlanc Environmental Ltd.
ADDRESS: 30 Circular Road
Labrador City, NL A2V 2K3

PROJECT NAME: Scout Lodge Mould Assessment
PROJECT NO.: 06-03-00187
LAB REFERENCE NO.: m181861
TYPE OF SAMPLE(S): BULK
SAMPLE CONDITION: Acceptable
DATE COLLECTED: December 7, 2017
DATE RECEIVED: December 13, 2017
DATE ANALYSED: December 20, 2017
DATE REPORTED: December 20, 2017
ANALYST: Rafic Dulymamode, PhD
TITLE: Laboratory Manager
REVIEWER: Partinder Puri, B.Sc.
TITLE: Environmental Microbiologist

Method of Analysis: Analysis of Bulk and Tape-lift Samples by Direct Microscope Examination (SOP: DME-BLK-005, January 31, 2017)

This SOP is based on methods described in: "AIHA's Field Guide for Determination of Biological Contaminants in Environmental Samples", "Samson et al's Food and Indoor Fungi", and the "IRRST method 360". Bulk samples are scanned under a stereomicroscope for the presence of mould growth; cellotape samples taken from these are mounted on glass slides and examined under light microscope at X400, X600 (630) or X1000 magnifications as appropriate. Moulds are identified to the genus using keys in relevant books and literature. Mould growth is assessed as Heavy, Moderate or Slight by examining the mycelium cover on the sample and/or the slide preparations. Some moulds may be difficult to identify from bulk samples and these are reported as "Unidentified mould". Spores observed in the absence of an established mycelium are identified whenever possible and rated as "few" for 5-50 spores or "masses" for >50 spores. Results are not corrected for blanks. Estimation of uncertainty is provided upon request.

COMMENTS/OBSERVATIONS (IF ANY):

Notes: 1. The result(s) relate only to the sample(s) tested.
2. This test report shall not be reproduced except in full, without written approval of the laboratory.
3. Services are subject to Pinchin Ltd. Standard Terms and Conditions for Laboratory Services.

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Laboratoire d'analyse accrédité par le gouvernement du Québec
Lab ID# 495

Pinchin Environmental Microbiology Laboratory

Certificate of Analysis

CUSTOMER: Ross O'Keefe
PROJECT NAME: Scout Lodge Mould Assessment
LAB REFERENCE NO: m181861
DATE ANALYSED: December 20, 2017
PROJECT NO.: 06-03-00187
ANALYST: Rafic Dulymamode, PhD

RESULTS FOR BULK DME ANALYSIS

Customer Sample No.	Lab Sample ID.	Description	Mould Identified, in Rank Order	Comments (if any)
BM-01	m181861-1	Drywall paper - behind North wall in girl's washroom	*Stachybotrys* sp *Ulocladium* sp	Heavy growth

Signature of Analyst:

APPENDIX III

Results of Asbestos Tests

PINCHIN LEBLANC ENVIRONMENTAL

MEMBER OF PG THE PINCHIN GROUP

Pinchin LeBlanc Environmental Asbestos Laboratory

Certificate of Analysis

December 20, 2017

Pinchin LeBlanc Environmental
30 Circular Road, Labrador City, NL

Attention:	**Ross O'Keefe**
Lab Reference No.:	**NLb2996-2017**
Project Name:	**ACM Bulk Samples Scout Lodge**
Project No.:	**06-02-00444**
Date Received:	**December 11, 2017**
Date Analyzed:	**December 20, 2017**
Analyst(s):	**Matt Sweeney**
# Samples submitted:	**21**
# Samples analyzed:	**20**
# Phases analyzed:	**28**

Method of Analysis:

EPA 600/R-93/116 - Method for the Determination of Asbestos in Bulk Building Materials dated July, 1993

Bulk samples are checked visually and scanned under a stereomicroscope. Slides are prepared with representative portions of material and observed under a Polarized Light Microscope (PLM) at magnifications of 40X, 100X or 400X as appropriate. Asbestos fibres are identified by a combination of morphology, colour, refractive index, extinction, sign of elongation, birefringence, and dispersion staining colours. A visual estimate is made of the percentage of asbestos present. A reported concentration of less than (<) the regulatory threshold (see chart below) indicates the presence of confirmed asbestos in trace quantities, limited to only a few fibres or fibre bundles in an entire sample. This method complies with all provincial regulatory requirements (NIOSH 9002, I.R.S.S.T. 244-3). Multiple phases within a sample are analyzed and reported separately.

Provincial Jurisdiction	Regulatory Threshold	Provincial Jurisdiction	Regulatory Threshold
Nova Scotia	0.5%, presence/absence in vermiculite	Newfoundland and Labrador, PEI, New Brunswick, NWT, Alberta, Yukon, Nunavut	1%
Quebec	0.1%	Saskatchewan, Manitoba	0.1% friable, 1% non-friable
Ontario, British Columbia	0.5%		

All bulk samples submitted to this laboratory for asbestos analysis are retained for a minimum of three months. Samples may be retrieved, upon request, for re-examination at any time during that period.

Pinchin LeBlanc Environmental Limited adheres to the 'EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials' for sample analysis.

This report relates only to the items tested. If you have any questions, please feel free to contact me.

Yours truly,

Digital Signed by Matthew Sweeney
msweeney@pinchinleblanc.com
Environmental Asbestos Services
Pinchin LeBlanc Environmental Limited

PINCHIN LEBLANC ENVIRONMENTAL

MEMBER OF PG THE PINCHIN GROUP

Pinchin LeBlanc Environmental Asbestos Laboratory

Certificate of Analysis

Project Name: ACM Bulk Samples Scout Lodge

Project No.: 06-02-00444
Prepared For: Ross O'Keefe

Lab Reference No.: NLb2996-2017
Date Analyzed: December 20, 2017

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
SP001 12x12 Floor tile along South wall of the gymnasium	2 phases: a) Homogeneous, tan, consolidated material (tile) b) Homogeneous, black tar	None detected None detected	Cellulose 1-5% Non-fibrous material >75% Cellulose 1-5% Non-fibrous material >75%
SP002 Drywall joint compound from post next to South wall in gymnasium	Homogeneous, tan, soft, cementitious material	None detected	Cellulose 1-5% Non-fibrous material >75%
SP003 Drywall joint compound from West wall in gymnasium	Homogeneous, tan, soft, cementitious material	None detected	Cellulose 1-5% Non-fibrous material >75%
SP004 Drywall joint compound South West corner of gymnasium	Homogeneous, tan, soft, cementitious material	None detected	Cellulose 1-5% Non-fibrous material >75%
SP005 Drywall joint compound of South wall above ceiling tile in gymnasium	Homogeneous, tan, soft, cementitious material	None detected	Cellulose 1-5% Non-fibrous material >75%
SP006 2x4 pin hole fissure ceiling tile from gymnasium	N/A	Not analyzed	
Note: No sample with this designation was included with the sample package.			
SP007 Drywall joint compound in Kitchen above sink	Homogeneous, tan, soft, cementitious material	None detected	Cellulose 1-5% Non-fibrous material >75%

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SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
SP008 12x12 floor tile along South wall of Kitchen	2 phases: a) Homogeneous, grey, consolidated material (tile) b) Homogeneous, black tar	None detected None detected	Cellulose 1-5% Non-fibrous material >75% Cellulose 1-5% Non-fibrous material >75%
SP009 2x4 pin hole flex ceiling tile by archway in Kitchen	Homogeneous, tan, layered, compressed fibrous material	None detected	Cellulose 10-25% Glass fibres 10-25% Non-fibrous material 50-75%
SP010 Drywall joint compound North West corner of Janitors closet	Homogeneous, tan, soft, cementitious material	None detected	Cellulose 1-5% Non-fibrous material >75%
SP011 12x12 floor tile along North wall in first stall of Boys Bathroom	2 phases: a) Homogeneous, blue, consolidated material (tile) b) Homogeneous, black tar	None detected None detected	Cellulose 1-5% Non-fibrous material >75% Cellulose 1-5% Non-fibrous material >75%
SP013 Vinyl flooring along North wall of Girls Bathroom behind door	Homogeneous, white, fibrous material on the back of vinyl sheet flooring	None detected	Cellulose 50-75% Non-fibrous material 25-50%
SP014 Drywall joint compound North West corner of Girls Bathroom behind door	Homogeneous, tan, soft, cementitious material	None detected	Cellulose 1-5% Non-fibrous material >75%

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		ASBESTOS	OTHER
SP015 12x12 floor tile in Classroom by Electrical room	2 phases: a) Homogeneous, tan, consolidated material (tile) b) Homogeneous, amber, adhesive	None detected None detected	Cellulose 1-5% Non-fibrous material >75% Cellulose 1-5% Non-fibrous material >75%
SP016 Drywall joint compound North East corner of Classroom by Chaulkboard	Homogeneous, tan, soft, cementitious material	None detected	Cellulose 1-5% Non-fibrous material >75%
SP017 12x12 floor tilealong East wall in Hallway by Clasroom doorway	2 phases: a) Homogeneous, blue, consolidated material (tile) b) Homogeneous, black tar	None detected None detected	Cellulose 1-5% Non-fibrous material >75% Cellulose 1-5% Non-fibrous material >75%
SP019 Drywall joint compound South West corner behind doorway to Hallway	Homogeneous, tan, soft, cementitious material	None detected	Cellulose 1-5% Non-fibrous material >75%
SP021 Transite sheeting from exterior North wall	Homogeneous, grey, hard, cementitious material	Chrysotile 10-25%	Non-fibrous material >75%
SP022 Debris(transite sheeting) from attic above gymnasium	Homogeneous, grey, hard, cementitious material	Chrysotile 10-25%	Non-fibrous material >75%

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SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)		
		ASBESTOS	OTHER	
SP023 Floor debris from attic above gymnasium	2 phases: a) Homogeneous, red, consolidated material (tile) b) Homogeneous, black, tar impregnated paper	None detected None detected	Cellulose Non-fibrous material Cellulose Non-fibrous material	1-5% >75% 25-50% 50-75%
SP024 Insulation from attic above gymnasium	2 phases: a) Homogeneous, yellow, fibrous material b) Homogeneous, yellow, fibrous material	None detected None detected	Glass fibres Non-fibrous material Glass fibres Non-fibrous material	1-5% >75% 1-5% >75%

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