Asbestos Reassessment

Hamilton General Hospital
237 Barton Street East,
Hamilton, Ontario

Prepared for:

Hamilton Health Sciences
1200 Main Street West
Hamilton, Ontario, L8N 1H4

January 13, 2025

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EXECUTIVE SUMMARY

Hamilton Health Sciences (Client) retained Pinchin Ltd. (Pinchin) to conduct an asbestos building materials reassessment of Hamilton General Hospital located at 237 Barton Street East, Hamilton, Ontario. The reassessment was performed on November 28, 2024 and November 29, 2024.

The objective of the reassessment was to evaluate the condition and quantity of previously reported asbestos-containing materials (ACM) and develop corrective action plans as required for the purposes of long-term management. The results of this assessment are not intended for construction, renovation, demolition or project tendering purposes.

SUMMARY OF FINDINGS

Asbestos-containing materials (ACM) are present as follows:

- Spray-applied fireproofing
- Texture finishes
- Pipe insulation
- Acoustic ceiling tiles
- Ceiling tile mastic (presumed)
- Plaster
- Drywall joint compound
- Asbestos cement products (Transite)
- Vinyl sheet flooring (presumed)
- Vinyl floor tiles
- Floor mastic
- Caulking
- Window putty
- Sink undercoating
- Tar
- Roofing (presumed)

SUMMARY OF RECOMMENDATIONS

The following is a summary of significant recommendations; refer to the body of the report for detailed recommendations.

1. Remediate any materials listed in the Remedial Recommendation Report in Appendix II.
2. Continue to apply the policies and procedures as outlined in the building's Asbestos Management Program (AMP).
3. Perform a reassessment of asbestos materials on an annual basis.
4. Prior to renovations or demolition, perform a pre-construction assessment to identify any hazardous materials that may be disturbed by the work.
5. Follow appropriate safe work procedures when handling or disturbing asbestos.

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

Hamilton Health Sciences (Client) retained Pinchin Ltd. (Pinchin) to conduct an asbestos building materials reassessment at Hamilton General Hospital, located at 237 Barton Street East, Hamilton, Ontario.

Pinchin performed the reassessment on November 28, 2024 and November 29, 2024. The surveyor was unaccompanied during the reassessment. The assessed area was occupied at the time of the assessment.

The objectives of the reassessment were to document the locations, quantities and conditions of previously identified asbestos-containing building materials (ACM) and develop corrective action plans as required. This reassessment is only to be used for the purposes of long-term management and routine maintenance. The results of this reassessment are not to be used for construction, renovation, demolition or project tendering purposes.

1.1 Scope of Assessment

The objective of the reassessment was to evaluate the condition and quantity of previously reported ACM, and develop corrective action plans as required.

Additional objectives included the following:

- Assessment of any rooms/areas that were inaccessible during the previous assessment (if access could be obtained).

2.0 METHODOLOGY

Pinchin conducted an assessment of previously identified ACM to evaluate the current condition of all accessible materials identified in the most recent assessment. The surveyor made reference to any existing assessment or abatement reports (as provided by the Client).

As per the original scope of work, ceiling spaces were not assessed, and concealed locations such as shafts and chases were accessed via existing access panels. Our investigation did not include demolition of drywall or plaster walls to view concealed conditions. Structural items or exterior building finishes were not removed to determine the presence of concealed materials.

Please refer to Appendix I for a detailed description of the methodology used for this assessment.

3.0 BACKGROUND INFORMATION

3.1 Building Description

Description Item	Details
Use	Hospital
Number of Floors	The building is seven storeys plus one level below grade.
Year of Construction	East Wing was constructed in 1953, with three storeys added in 1961, North Wing was constructed in 1951, Main Building was constructed in 1988 with an addition in 2005, Intern's Residence was constructed in 1922, McMaster Wing was constructed in 1942, Victoria Street Parking Garage was constructed prior to 1980, Cogen was constructed in 2005, Regional Rehabilitation Centre was constructed in 2008, David Braley Research Institute was constructed in 2008, and Ron Joyce Centre was constructed in 2012.
Structure	Structural steel, concrete, concrete block
Exterior Cladding	Pre-cast concrete, glass curtain wall, wood, and masonry
HVAC	Forced air and boiler and hot water heating to radiators
Roof	Built-up roofing
Flooring	Vinyl tile, vinyl sheet flooring, wood, carpet, terrazzo, terracotta, ceramic tiles
Interior Walls	Drywall, concrete block, plaster, poured concrete
Ceilings	Drywall, plaster, acoustic ceiling tiles

3.2 Existing Reports

Pinchin was provided with and instructed to rely upon, the following reports:

- Asbestos-Containing Materials Reassessment – General Hospital, June 15, 2017, Prepared By ECOH, Project No. 17429.
- Bulk Sample Analysis Report – Hamilton General Hospital, May 24, 2017, Prepared By ECOH, Project No. 17429.

Pinchin most recently prepared the following reports which were used for reference:

- Asbestos Reassessment Report – Hamilton General Hospital", dated February 1, 2024 (Pinchin File: 320566.054).
- HMIS 2.0 Online Database.

3.3 Inaccessible Locations

Inaccessible locations (rooms or areas), if any, are indicated in the HMIS 2.0 online database. These locations within the assessed areas were not accessible to the surveyor and are therefore not included in the report.

4.0 FINDINGS

The following section summarizes the findings of the reassessment and provides a general description of the asbestos materials identified and their general locations.

For details on quantities, condition and locations of ACM; refer to the HMIS 2.0 online database.

The sample numbers referenced below refer to the analytical reports found in “336568.061 Asbestos Analytical Results Letter Hamilton General Hospital HHS Jan 13 2024” on the HMIS 2.0 online database. Laboratory reference numbers have been included where applicable to distinguish sample numbers from previous projects. Sample numbers where “HHS” is present before a sample number indicates that the sample results were provided by HHS.

4.1 East Wing

4.1.1 Spray-Applied Insulation

4.1.1.1 Residual Spray-Applied Fireproofing

Residual asbestos-containing spray-applied fireproofing and debris is present within the East Wing above ceilings, in access hatches along exterior walls, inside terracotta block wall cavities, inside perimeter plaster bulkheads, in column enclosures, and between structural members and decking or walls. Refer to “234905.016 Findings Letter Hamilton General Hospital 237 Barton Street Hamilton HGH January 28, 2020” on the HMIS 2.0 online database for details.

Access above all ceilings in the East Wing should be done using Type 2 asbestos procedures due to the potential for residual spray-applied fireproofing and pipe insulations present as debris or in poor condition.

Air Handling Equipment and Ducts

As per O.Reg. 278/05 (Section 12 (4) 3), air handling equipment and ducts in a building with asbestos-containing spray-applied fireproofing are considered to be asbestos-contaminated. Dust or spray-applied fireproofing within ducts was not sampled. In areas where asbestos-containing spray-applied fireproofing is present, assume ducts to have asbestos-containing spray-applied fireproofing or associated dust present. Ducts may be removed according to procedures determined by developing a varied procedure using Section 23 of the Ontario Asbestos Regulation (O. Reg. 278/05) on a project-by-project basis.

Diffuser Cleaning, Changing Filters, and Entering/Completing Work Inside HVAC Units

As per O.Reg. 278/05 Section 12(4)3, cleaning air handling equipment, including rigid ducting, in a building with asbestos-containing spray-applied fireproofing is a Type 3 operation and asbestos procedures should be followed. At this time, this also applies to cleaning supply air diffusers or return air grilles within the East Wing.

Section 12(3)10 of O. Reg. 278/05 states that removing and disposing of filters in air handling equipment in a building with asbestos-containing spray-applied fireproofing is a Type 2 operation and asbestos procedures are to be followed. Entering/completing maintenance work inside HVAC units is not defined in O. Reg. 278/05. It is the Client's interpretation that this type of work is a Type 2 operation, based on Section 12(3)11 of O. Reg. 278/05, which states that an operation that is not classified as a Type 1, 2 or 3 operation but may expose a worker to asbestos, is a Type 2 operation.

An investigation was performed (Pinchin File No. 234905.040) to determine if the work noted above was eligible to develop varied work procedures using Section 23 of the Ontario Asbestos Regulation (O. Reg. 278/05). Settled dust was sampled on supply air diffusers, return air grilles, and filter media within HVAC units and air samples were collected during the work being completed as part of the investigation. Changing filters and entering/completing work inside HVAC units is to be completed following Varied Type 2 procedures.

4.1.1.2 Spray-Applied Fireproofing (Other)

Fibrous spray-applied fireproofing present on structural steel beams and corrugated metal deck throughout the third and fourth floors of the East Wing does not contain asbestos (HHS samples, EMC Lab Sample No. A9601-1 to 9, and Pinchin samples 0001A-G, lab reference no. b89397).

Spray-applied fireproofing present on exposed steel beams on the second floor does not contain asbestos (ECOH samples 17429-HG-E2-07A-G).

Cementitious sprayed fireproofing present in the first floor Corridor (Location 1017) does not contain asbestos (samples S0010A-C, lab reference no. b250814).

4.1.2 Texture Finishes (Acoustic/Decorative)

Acoustic sprayed texture finish (photo 1), containing chrysotile asbestos (sample S043a, lab reference no. b55013), is present as a ceiling finish on the plaster ceiling above the drywall ceiling in the Housekeeping Closet (Location 1007), the Women's Washroom (Location 1027), and the Men's Washroom (Location 1028), and is suspected to be present above solid ceilings in other areas of the East Wing.

Photo 1

4.1.3 Pipe Insulation

Parging cement (photo 1), containing chrysotile asbestos (sample S0007A, lab reference no. 71961912), is present on pipe fittings (elbows, valves, tees, hangers etc.) in the Crawlspace (Location 1), the Mechanical Penthouse (Location 5001), and is presumed present on insulated pipe fittings and hangers within inaccessible spaces (exterior walls shafts, above ceiling, etc.).

A white corrugated paper insulation (trade name Aircell, photo 2), containing chrysotile asbestos (sample S0006A, lab reference no. 71961912), is present on straight sections of domestic hot water system pipes in the Crawlspace (Location 1) and is presumed to be present on insulated pipe straights within inaccessible spaces (exterior walls, shafts, above solid ceilings, etc.).

Tar, presumed to contain asbestos, is suspected to be present on insulated pipe fittings (elbows, valves, tees, hangers, etc.) within inaccessible spaces (exterior walls, shafts, above solid ceilings, etc.) throughout the East Wing.

A black tar material, containing chrysotile asbestos (sample S011F, phase c, lab reference no. b222571), was found to be present in debris within an access hatch in office 2E-14 (Location 2011). Asbestos-containing tar material (potentially from pipe insulation) is presumed to be present in within inaccessible spaces (exterior walls, shafts, above solid ceilings, etc.) throughout the East Wing.

Sweatwrap insulation, (brown layered paper) present on straight sections of pipes in the Crawlspace (Location 1) does not contain asbestos (samples S0008A-C, lab reference no. 71961912).

Remaining pipes are either uninsulated or insulated with fibreglass or other non-asbestos insulation such as mineral fibre or elastomeric foam insulation.

Pipes insulated with friable and non-friable asbestos insulations may also be present in inaccessible spaces such as above solid ceilings, in chases, in column enclosures and within shafts.

Photo 1

Photo 2

4.1.4 Duct Insulation and Mastic

Ducts are either uninsulated or insulated with non-asbestos fibreglass (foil-faced or canvas).

Non-asbestos grey mastic is present on ducts in the Penthouse Mechanical Room (ECOH samples 16262-GH-02A).

As per O.Reg. 278/05 (Section 12 (4) 3), ducts in a building with asbestos-containing spray-applied fireproofing are considered to be asbestos-contaminated. Refer to Section 4.1.1 for additional details.

4.1.5 Mechanical Equipment Insulation

Mechanical equipment is either uninsulated or insulated with non-asbestos fibreglass.

As per O.Reg. 278/05 (Section 12 (4) 3), air handling equipment in a building with asbestos-containing spray-applied fireproofing is considered to be asbestos-contaminated. Refer to Section 4.1.1 for additional details.

4.1.6 Acoustic Ceiling Tiles

All ceiling tiles are presumed to be non-asbestos based on the date of manufacture determined from the date stamp applied to the top of the tiles (1994-2003). The tiles were manufactured after asbestos stopped being used in acoustic ceiling tiles. Sampling performed by ECOH in 2017 confirmed the acoustic ceiling tiles to be non-asbestos; refer to Appendix II of the Asbestos Analytical Results Report on the HMIS 2.0 online database.

4.1.7 Plaster

Residual stippled plaster base coat, containing chrysotile asbestos (sample S011F, phase a, lab reference no. b222571), was found to be present in an access hatch in Office 2E-14 (Location 2011).

Asbestos-containing plaster is presumed to be present in within inaccessible spaces (exterior walls, shafts, above solid ceilings, etc.) throughout the East Wing.

Plaster present on walls and ceilings throughout the East Wing does not contain asbestos, as per the ECOH bulk sample analysis report in Appendix II of the Asbestos Analytical Results Report on the HMIS 2.0 online database.

Smooth plaster present on the north wall of the elevator shaft does not contain asbestos (samples 0006A-C, lab reference no. b181526).

Plaster present as patching on the ceiling of the Lunchroom (Location 1011) does not contain asbestos (samples S0012A-C, lab reference no. b250814).

4.1.8 Drywall Joint Compound

Drywall joint compound present on wall and ceiling finishes throughout the East Wing does not contain asbestos, as per the ECOH bulk sample analysis report in Appendix II of the Asbestos Analytical Results Report on the HMIS 2.0 online database.

4.1.9 Asbestos Cement Products (Transite)

Transite pipe (photo 1), presumed to contain asbestos based on visual observation, is present as a sanitary drain in the Crawlspace (Location 1).

HHS reports that Transite duct bank, buried outside of the north side of the East Wing under Copeland Avenue, was abated but residual pockets may remain. These pockets remain buried under Copeland Avenue.

Photo 1

4.1.10 Vinyl Sheet Flooring

Vinyl sheet flooring is present as follows:

Pattern, Colour, Photo #	Sample Number, Lab ref no.	Asbestos Type
Speckle, grey-blue, photo 1	S002a-c, b89397	None detected

Remaining sheet flooring present throughout the East Wing is presumed to be non-asbestos based on historical knowledge of the type of flooring (linoleum without a paper backing layer).

Mastic under linoleum sheet flooring throughout the second floor does not contain asbestos (S0013A-C, lab reference no. b250814). Mastic under remaining sheet flooring throughout the East Wing is presumed to contain asbestos until further sampling can prove otherwise.

Photo 1

4.1.11 Vinyl Floor Tile and Mastic

Vinyl floor tiles that have been sampled are present as follows:

Size, Pattern, Colour, Photo #	Sample Number, lab ref no.	Asbestos Type (tile)	Asbestos Type (mastic)
9” x 9”, grey with white and black flecks, photo 1	S0001A-C, 71961912	None detected	None detected
12” x 12”, beige dense fleck	S0002A-C, 71961912	None detected	None detected
12” x 12”, pink dense fleck, photo 2	S0003A-C, 71961912	None detected	None detected
12” x 12”, beige with brown fleck, photo 3	S0004A-C, 71961912	None detected	None detected
12” x 12”, beige with brown and white streaks, photo 4	S0005A-C, 71961912	None detected	None detected
12” x 12”, grey dense fleck	S0009A-C, 71961912	None detected	None detected

Photo 1

Photo 2

Photo 3

Photo 4

4.1.12 Levelling Compound

Levelling compound associated with the non-asbestos linoleum sheet flooring in the Second Floor Work Station Area (Location 2016) does not contain asbestos (samples S0014A-C, lab reference no. b250814).

Levelling compound is often used in random and isolated areas and without removing all flooring may not always be detected.

4.2 North Wing

4.2.1 Spray-Applied Fireproofing and Thermal Insulation

Fibrous sprayed fireproofing (photo 1) present on structural steel throughout the main floor of the North Wing does not contain asbestos (samples S034A-C, lab reference no. b54880).

Cementitious sprayed fireproofing (photo 2) present on structural steel throughout the North Wing does not contain asbestos (samples S0007A-E, lab reference no. b229350 and samples S0002A-C, lab reference no. 71961910).

Photo 1

Photo 2

4.2.2 Texture Coat (Acoustic/Decorative)

Texture coat (photo 1), containing chrysotile asbestos, is present on plaster walls in select areas of the North Wing (samples S0001A-C, lab reference no. 71961910).

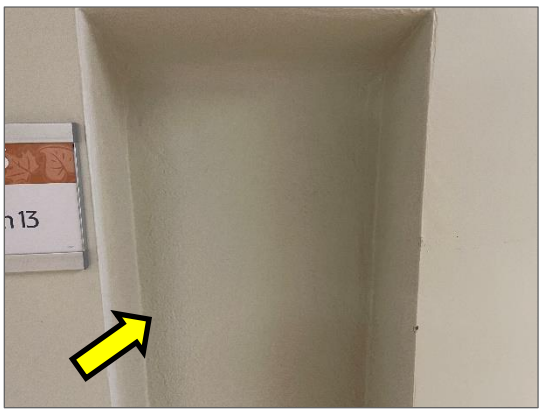

Photo 1

4.2.3 Pipe Insulation

Pipes are either uninsulated or insulated with non-asbestos fibreglass.

Pipes insulated with friable asbestos insulations may be present in inaccessible spaces such as above solid ceilings, in chases, in column enclosures and within shafts.

4.2.4 Duct Insulation and Mastic

Ducts are either uninsulated or insulated with non-asbestos fibreglass (foil-faced or canvas).

Grey duct mastic present on seams / joints on ducts throughout the assessed area does not contain asbestos (samples S0014A-C, lab ref no. R8153497).

4.2.5 Mechanical Equipment Insulation

Mechanical equipment is either uninsulated or insulated with non-asbestos fibreglass.

4.2.6 Acoustic Ceiling Tiles

Brown puck mastic from former glue-on ceiling tiles (photo 1) does not contain asbestos (samples S0015A-C, lab ref no. R8153497).

All ceiling tiles are presumed to be non-asbestos based on the date of manufacture determined from the date stamp applied to the top of the tiles. The tiles were manufactured after asbestos stopped being used in acoustic ceiling tiles. Sampling performed by ECOH in 2017 confirmed the acoustic ceiling tiles to be non-asbestos (refer to the ECOH bulk sampling report in Appendix II of the Asbestos Analytical Results Report on the HMIS 2.0 online database).

Photo 1

4.2.7 Plaster

Plaster present on walls and ceilings throughout the North Wing does not contain asbestos (samples S032A-G, lab reference no. b54880, and S0009A-C, lab ref no. 8153497). Sampling performed by ECOH in 2017 confirmed the plaster to be non-asbestos (refer to the ECOH bulk sampling report in Appendix II of the Asbestos Analytical Results Report on the HMIS 2.0 online database).

4.2.8 Drywall Joint Compound

Drywall joint compound present on wall and ceiling finishes throughout the North Wing does not contain asbestos (samples S033A-C, S035A-C, S036A-C, lab reference no. b54880, and samples S037A-C, S038A-C, S039A-C, S040A-C, S041A-C, S042A-C, lab reference no. b54881). Sampling performed by ECOH in 2017 confirmed the drywall joint compound to be non-asbestos (refer to the ECOH bulk sampling report in Appendix II in the Asbestos Analytical Results Report on the HMIS 2.0 online database).

4.2.9 Sheet Flooring

Pattern, Colour	Sample Number, Lab ref no.	Asbestos Type (sheet flooring)	Asbestos Type (mastic)
Brown pebble	S0008A-C, 10027254	None detected	Presumed

Remaining sheet flooring present throughout the North Wing is presumed to be non-asbestos based on the type of flooring (linoleum without paper backing layer).

4.2.10 Vinyl Floor Tile and Mastic

Vinyl floor tiles that have been sampled are present as follows:

Size, Pattern, Colour, Photo #	Sample Number, lab ref no.	Asbestos Type (tile)	Asbestos Type (mastic)
12” x 12”, beige with white and brown flecks	S0004A-C, 71961910	None detected	None detected

4.2.11 Other Building Materials

Gold mastic (photo 1), containing chrysotile asbestos, is present as an undercoating on sinks throughout the North Wing (sample S0003A, lab reference no. 71961910).

Photo 1

4.3 Main Building

4.3.1 Spray-Applied Insulation

Spray-applied fibrous fireproofing present on the structure throughout the Main Building does not contain asbestos based on the date of installation (1989) and based on sampling (samples S0001A-E, lab reference no. b243974, and 0001A-E, lab reference no. b180918).

4.3.2 Pipe Insulation

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

4.3.3 Duct Insulation and Mastic

Ducts are either uninsulated or insulated with non-asbestos fibreglass.

Duct mastic that has been sampled in the Main Building is present as follows:

Colour	Sample Number, Lab ref no.	Asbestos Type
Grey	S0017A-C, b265087 S0025A-C, 71993845	None detected
Red	S0026A-C, 71993845	None detected
Green	S0033A-C, R7380038	None detected

4.3.4 Mechanical Equipment Insulation

Mechanical equipment is either uninsulated or insulated with non-asbestos fibreglass.

4.3.5 Acoustic Ceiling Tiles

All ceiling tiles are presumed to be non-asbestos based on the age of the materials determined from the age of the building construction (1989). The tiles were manufactured after asbestos stopped being used in acoustic ceiling tiles.

4.3.6 Plaster

Plaster present on walls and ceilings on the First Floor of the Main Building (Locations 1001-1005) does not contain asbestos (samples S0004A-C, lab reference no. 71962359).

Plaster over drywall in the Level 2 ED (Location 2068) does not contain asbestos (samples S0057A-C, lab ref no. R8324446).

4.3.7 Drywall Joint Compound

Asbestos in drywall joint compound was banned in Canada in 1980. Drywall joint compound in the Main Building was installed after 1986 (1980 plus a reasonable non-compliance period based on our experience) and is assumed to contain no asbestos.

Additional sampling also confirmed that the drywall joint compound is non-asbestos (samples 0002A-C, lab reference no. b180918 and S0002A-E, lab reference no. b243974).

4.3.8 Asbestos Cement Products (Transite)

Transite pipe (photo 1), presumed to contain asbestos based on visual observation, is present as a sanitary drain in the Maintenance Shops (Location 14).

Transite board (photo 2), presumed to contain asbestos based on visual observation, is present in fume hoods and associated shelving throughout the Main Building.

Photo 1

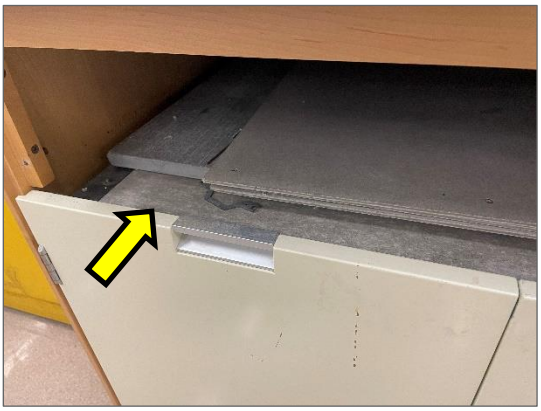

Photo 2

4.3.9 Vinyl Sheet Flooring

Vinyl sheet flooring (pink and blue specks, photo 1) and mastic does not contain asbestos (samples S0035A-C, lab reference no. 10013905).

Remaining sheet flooring present throughout the Main Building is presumed to be non-asbestos based on the type of flooring (linoleum without paper backing layer).

Mastic under sheet flooring throughout the Main Building does not contain asbestos (samples S0010A-C, S0011A-C, S0012A-C, S0013A-C, S0014A-C, S0015A-C, and S0016A-C, lab reference no. b260248).

Photo 1

4.3.10 Vinyl Floor Tile and Mastic

Vinyl floor tiles that have been sampled are present as follows:

Size, Pattern, Colour, Photo #	Sample Number, lab ref no.	Asbestos Type (tile)	Asbestos Type (mastic)
12” x 12”, beige with brown fleck, photo 1	S0001A-C, 71962359	None detected	None detected
12” x 12”, white with black streaks, photo 2	S0002A-C, 71962359	None detected	None detected
12” x 12”, pink with dense fleck, photo 3	S0005A-C, 71962359	None detected	None detected
12” x 12”, light grey with dense fleck, photo 4	S0006A-C, 71962359	None detected	None detected
12” x 12”, pink, photo 5	S0007A-C, 71962359	None detected	None detected
12” x 12”, grey with dense fleck, photo 6	S0008A-C, 71962359	None detected	None detected
12” x 12”, blue with dense fleck, photo 7	S0009A-C, 71962359	None detected	None detected

Photo 1

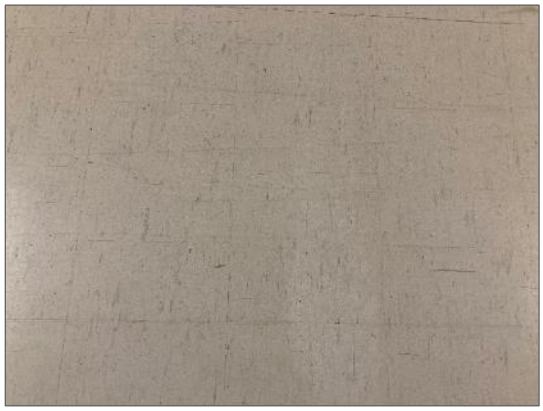

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

Photo 7

4.3.11 Caulking and Putty

Grey putty (photo 1), containing chrysotile asbestos (sample S0023A, lab reference no. 71985679 and sample S0032A, lab reference no. R7380038), is present between the frames and windows of interior viewing windows throughout the Main Building.

Grey putty (photo 2), containing chrysotile asbestos (sample S0022A, lab reference no. R6994291, sample S0030A, lab reference no. b275753, and S0034A, lab reference no. 10013905), is present between the frames and windows of interior doors throughout the Main Building.

The HMIS 2.0 Online Database shows the locations where asbestos-containing grey window putty has been sampled during project specific assessments, however all other grey window putty should be presumed to contain asbestos if present.

White caulking present around interior door frames throughout the Main Building does not contain asbestos (samples S0018A-C, lab reference no. b265087, samples S0019A-C, lab reference no. R6994291, and samples S0031A-C, lab reference no. b275753).

Photo 1

Photo 2

4.3.12 Roofing Materials

Black tar, containing chrysotile asbestos (sample 0002B, lab reference no. b178346), is present at wire penetrations on the Roof (Location 10004).

Tars and adhesives in roofing are presumed to contain asbestos until further sampling can prove otherwise.

4.3.13 Other Building Materials

Gold mastic (photo 1), containing chrysotile asbestos, is present as an undercoating on sinks throughout the Main Building (sample S0003A, lab reference no. 71962359).

Paint on concrete block walls throughout the Main Building does not contain asbestos (samples S0046A-C, lab ref no. 299112).

Terrazzo, present in the Level 2 ED (Location 2068) does not contain asbestos (samples S0055A-C, lab ref no. R8324446).

Photo 1

4.4 Intern's Residence/Nurse's Residence/HIU

4.4.1 Pipe Insulation

Pipes are either uninsulated or insulated with non-asbestos fibreglass.

Pipes insulated with friable asbestos insulations may be present in inaccessible spaces such as above solid ceilings, in chases, in column enclosures and within shafts.

4.4.2 Duct Insulation

Ducts are either uninsulated or insulated with non-asbestos fibreglass.

4.4.3 Mechanical Equipment Insulation

Mechanical equipment is either uninsulated or insulated with non-asbestos fibreglass.

4.4.4 Acoustic Ceiling Tiles

Acoustic ceiling tiles in the Intern's Residence do not contain asbestos based on previous sampling (refer to the ECOH bulk sampling report in Appendix II of the Asbestos Analytical Results Report on the HMIS 2.0 online database).

4.4.5 Plaster

Plaster, containing chrysotile asbestos in the finish layer, is present on walls and ceilings throughout the Intern's Residence (refer to the ECOH bulk sampling report in Appendix II of the Asbestos Analytical Results Report on the HMIS 2.0 online database). Plaster is also presumed to be present behind non-asbestos drywall.

4.4.6 Drywall Joint Compound

Drywall joint compound present on wall and ceiling finishes in limited areas throughout the assessed area does not contain asbestos (samples S015A-C, lab reference no. b54512). Sampling performed by ECOH in 2017 confirmed the drywall joint compound to be non-asbestos (refer to the ECOH bulk sampling report in Appendix II of the Asbestos Analytical Results Report on the HMIS 2.0 online database).

4.4.7 Vinyl Sheet Flooring

Vinyl sheet flooring is present as follows:

Pattern, Colour	Sample Number, Lab ref no.	Asbestos Type
Light grey pebbles	2018-0001A-C, 51821456	None detected
Beige	2018-0003A-C, 51821456	None detected

The adhesive adhered to the flooring backing does not contain asbestos.

Remaining sheet flooring present throughout the Intern's Residence is presumed to be non-asbestos based on the type of flooring (linoleum without paper backing layer). Mastic under sheet flooring throughout the Intern's Residence is presumed to contain asbestos until further sampling can prove otherwise.

4.4.8 Vinyl Floor Tile and Mastic

Vinyl floor tiles that have been sampled are present as follows:

Size, Pattern, Colour, Photo #	Sample Number, lab ref no.	Asbestos Type (tile)	Asbestos Type (mastic)
9" x 9", green/grey checker pattern, photo 1	2018-0004A, 51821456	Chrysotile	Chrysotile
12" x 12", grey with dense fleck, photo 2	S0001A-C, b247688	None detected	None detected

Photo 1

Photo 2

4.4.9 Other Building Materials

Gold mastic (photo 1), containing chrysotile asbestos (sample S0002A, lab reference no. b247688), is present as an undercoating on a sink in the Kitchen (Location 1003).

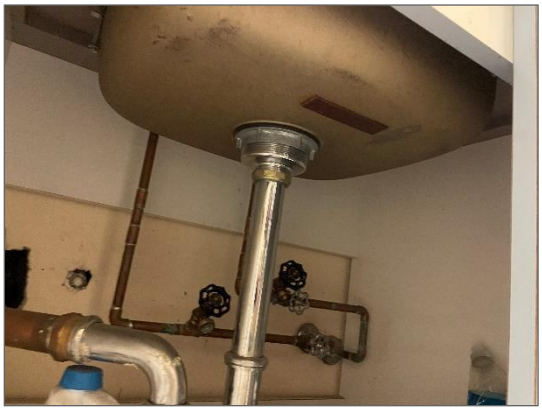

Photo 1

4.5 McMaster Wing

4.5.1 Spray-Applied Fireproofing

Cementitious sprayed fireproofing is present on structural steel beams and the corrugated metal deck in the Mechanical Room (Location 1). Sampling performed in 2008 (samples 021A-C, lab reference no. b54869) found trace amounts of actinolite (<0.5%) and tremolite asbestos (<0.5%). This small concentration (<0.5%) is present as contamination from vermiculite used in the sprayed fireproofing formulation. Ontario Regulation 278/05 defines an asbestos-containing material as a material that contains 0.5% or more asbestos by dry weight, therefore all sprayed fireproofing present is considered non-asbestos.

4.5.2 Pipe Insulation

Sweatwrap insulation (brown layered paper) present on straight sections of pipes throughout the McMaster Wing does not contain asbestos (samples S025a-c, lab reference no. b54870 and S0006A-C, lab reference no. 71942857).

Parging cement present on pipe fittings (elbows, valves, tees, hangers etc.) throughout the McMaster Wing does not contain asbestos (samples 020A-C, lab reference no. b54869).

Remaining pipes are either uninsulated or insulated with non-asbestos fibreglass.

Pipes insulated with friable asbestos insulations may be present in inaccessible spaces such as above solid ceilings, in chases, in column enclosures and within shafts.

4.5.3 Duct Insulation

Ducts are either uninsulated or insulated with non-asbestos fibreglass.

4.5.4 Mechanical Equipment Insulation

Mechanical equipment is either uninsulated or insulated with non-asbestos fibreglass.

4.5.5 Acoustic Ceiling Tiles

Acoustic ceiling tiles that have been sampled are present in the assessed area, as follows:

Size, Type, Pattern, Photo #	Sample Number, lab ref no.	Asbestos Type (tile)	Asbestos Type (mastic)
12” x 12”, glue-on, scattered dot and fissures, photo 1	023A, b54869	Chrysotile and Amosite	Presumed
12” x 12”, glue-on, medium and small pinholes, photo 2	ECOH samples 17429-HGMC2-04A-C	Amosite	Presumed
24” x 24”, lay-in, pinhole and texture	019A-C, b54869	None detected	N/A

The adhesive present on the backside of the glue-on ceiling tiles is inaccessible for sampling but is presumed to contain asbestos.

Sampling performed by ECOH in 2017 confirmed the remaining patterns of acoustic ceiling tiles to be non-asbestos (refer to the ECOH bulk sampling report in Appendix II of the Asbestos Analytical Results Report on the HMIS 2.0 online database).

All remaining types of acoustic ceiling tile are presumed to be non-asbestos based on the date of manufacture determined from the date stamp applied to the top of the tiles. The tiles were manufactured after asbestos stopped being used in acoustic ceiling tiles.

Photo 1

Photo 2

4.5.6 Plaster

Textured plaster (photos 1 and 2), containing chrysotile asbestos in the finish layer, is present on walls within the McMaster Wing (sample 017B, lab reference no. b54869 and 0001A-C, lab reference no. b181526). These findings were confirmed by sampling performed by ECOH in 2017.

Plaster ceilings in the East and West Stairwells were determined to be non-asbestos by sampling performed by ECOH in 2017 (ECOH samples 17429-HG-MC-02A-G).

Sampling performed by ECOH has indicated that smooth plaster throughout the McMaster Wing is non-asbestos (refer to the ECOH bulk sampling report in Appendix II of the Asbestos Analytical Results Report on the HMIS 2.0 online database).

Photo 1

Photo 2

4.5.7 Drywall Joint Compound

Drywall (gypsum board) is present as a wall and ceiling finish throughout the McMaster Wing. Sampling performed in 2008 showed the drywall joint compound to contain asbestos on the fifth, sixth and seventh

floors (samples S029a, S030b, S031a, lab reference no. b54870, and S001A-C, lab reference no. b174964).

Additional sampling performed by ECOH identified chrysotile asbestos in drywall joint compound throughout the McMaster Wing. Assume *all* drywall joint compound in the wing to contain chrysotile asbestos unless specific sampling proves otherwise (refer to the ECOH bulk sampling report in Appendix II of the Asbestos Analytical Results Report on the HMIS 2.0 online database).

4.5.8 Vinyl Sheet Flooring

Vinyl sheet flooring that has been sampled is present as follows:

Pattern/Colour	Sample Number, Lab ref no.	Asbestos Type
Brown	2018-0005A-C, 51821456	None detected
Green with white and black dots	S0002A-C, 71962345	None detected
Green and black marble	S0003A-C, 7192345	None detected

Remaining sheet flooring throughout the McMaster Wing is presumed to be non-asbestos based on the type of flooring (linoleum without paper backing layer); however, asbestos-containing vinyl floor tiles were reported to be present under. Any breeching of the vinyl sheet flooring should be done under Type 1 procedures at a minimum.

Mastic under sheet flooring throughout the McMaster Wing is presumed to contain asbestos until further sampling proves otherwise.

4.5.9 Vinyl Floor Tiles and Mastic

Vinyl floor tiles that have been sampled are present as follows:

Size, Pattern, Colour, Photo #	Sample Number, lab ref no.	Asbestos Type (tile)	Asbestos Type (mastic)
12” x 12”, beige with black line, photo 1	018A-C, b54869	Chrysotile	None detected
12” x 12”, beige with brown streaks	S0004A-C, 71962345	None detected	None detected
12” x 12”, cream with blue flecks	S0006A-C, 71962345	None detected	None detected
12” x 12”, pink dense fleck	S0007A-C, 71962345	None detected	None detected

Asbestos-containing vinyl floor tiles are present below non-asbestos sheet flooring throughout the Wing. The asbestos-containing tiles should also be assumed to be present under non-asbestos vinyl floor tiles. Mastic below the floor tiles is presumed to contain asbestos.

Photo 1

4.5.10 Firestopping or Smoke Sealant

Cementitious grey firestopping present at penetrations in the Mechanical Room (Location 1) does not contain asbestos (samples 16262-GH-04A-C).

4.5.11 Caulking

Caulking (Photo 1), containing chrysotile asbestos (sample S0013A, lab reference no. 10036723), is present around the interior window frame of the Rooftop Mechanical Penthouse (Location 8001).

Caulking was sampled during a project-specific assessment, and all other caulking in the McMaster Wing should be presumed to contain asbestos until further sampling proves otherwise.

Photo 1 (photo taken during previous assessment)

4.5.12 Other Building Materials

Gold mastic (photo 1), containing chrysotile asbestos (sample S0001A, lab reference no. 71962345), is present as an undercoating on a sink in the Corridor (Location 15).

Silver mastic (photo 2), containing chrysotile asbestos (sample S0005A, lab reference no. 71962345), is present as an undercoating on sinks in the Margaret Charter's Auditorium (Location 1001) and the kitchen in the Corridor (Location 4001).

Photo 1

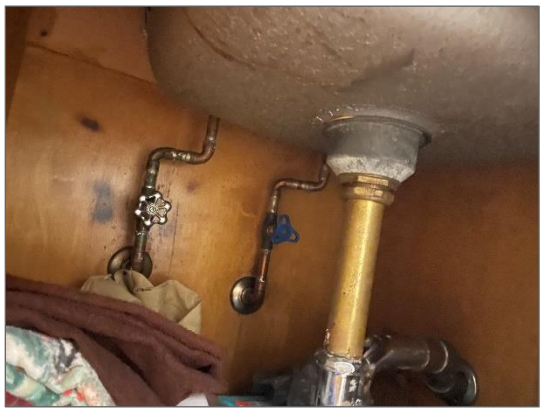

Photo 2

4.6 Cogen

4.6.1 Pipe Insulation

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

4.6.2 Duct Insulation and Mastic

Ducts are either uninsulated or insulated with non-asbestos fibreglass.

4.6.3 Mechanical Equipment Insulation

Mechanical equipment is either uninsulated or insulated with non-asbestos fibreglass.

4.6.4 Drywall Joint Compound

Asbestos in drywall joint compound was banned in Canada in 1980. Drywall joint compound in Cogen was installed on or after 2005 and is presumed to contain no asbestos.

4.6.5 Caulking

The following table presents a summary of caulking sampled:

Material and Colour	Location (Location #)	Sample Number, Lab ref no.	Asbestos Type
Caulking, grey	On metal flashing around exhaust ducts for Cogen engines, Cogen Roof (Location 5)	S0001A-C, b246571	None detected
Caulking, red	Between flanges of exhaust ducts for Cogen engines, Cogen Roof (Location 5)	S0002A-C, b246571	None detected

4.6.6 Roofing Materials

Tar layers within the built-up roofing materials on the Cogen roof do not contain asbestos (samples S0003A-C, lab reference no. b232966).

4.7 Victoria Street Parking Garage

4.7.1 Pipe Insulation

Parging cement (photo 1), containing chrysotile asbestos (sample S0029A-C, lab reference no. 71930755), is present on pipe fittings (elbows) in CRLB Specimen Reception (Location 23).

Remaining pipes are either uninsulated or insulated with non-asbestos fibreglass.

Pipes insulated with asbestos-containing insulations may be present in inaccessible spaces such as above solid ceilings, in chases, in column enclosures and within shafts.

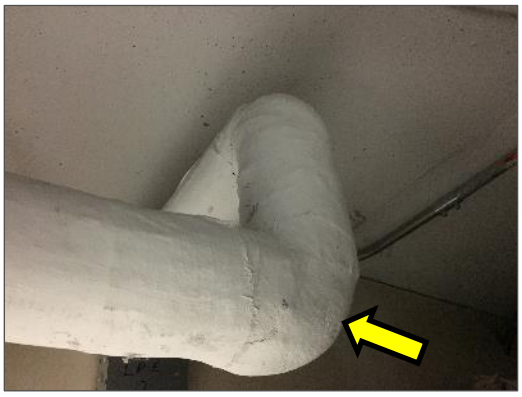

Photo 1

4.7.2 Duct Insulation and Mastic

Ducts are either uninsulated or insulated with non-asbestos fibreglass.

Non-asbestos tar (samples S0018A-C, lab reference no. 71929819) is present over fibreglass on Exterior (Location 21) ducting.

Non-asbestos tar with sparkles (samples S0019A-C, lab reference no. 71929819) is present over fibreglass on Exterior (Location 21) ducting.

Non-asbestos grey duct mastic (samples S0033A-C, lab reference no. 71930755) is present on seams/joints of ducts throughout the Clinical Research Laboratory and Biobank (Locations 23-34).

4.7.3 Mechanical Equipment Insulation

Mechanical equipment is either uninsulated or insulated with non-asbestos fibreglass.

4.7.4 Acoustic Ceiling Tiles

All ceiling tiles in the assessed areas are presumed to be non-asbestos based on the date of manufacture determined from the date stamp applied to the top of the tiles (08/05/10 and 11/10/18). The tiles were manufactured after asbestos stopped being used in acoustic ceiling tiles.

4.7.5 Plaster and Stucco

Plaster present on walls and ceilings does not contain asbestos (samples S002a-c and S003a-c, lab reference no. b54510, and S0024A-E, lab reference no. 71930755).

Stucco present on walls in Level B (Location 7) does not contain asbestos (samples S0010A-C, lab reference no. 71929819).

4.7.6 Drywall Joint Compound

Drywall joint compound present on wall and ceiling finishes in limited areas does not contain asbestos (samples S001a-c, lab reference no. b54510, S0001A-C, lab reference no. 71929819, and S0026A-E, lab reference no. 71930755). These results were confirmed by additional sampling by ECOH (samples 17429-HG-PGLab-01A to C).

4.7.7 Vinyl Floor Tile and Mastic

Vinyl floor tiles that have been sampled are present as follows:

Size, Pattern, Colour, Photo #	Sample Number, lab ref no.	Asbestos Type (tile)	Asbestos Type (mastic)
12” x 12” grey with grey and white fleck	S0023A-C, 71930755 (phase A and B)	None detected	None detected
12” x 12” white (below 12” x 12” grey with grey and white fleck)	S0023A-C, 71930755 (phase C and D)	Chrysotile	None detected

Size, Pattern, Colour, Photo #	Sample Number, lab ref no.	Asbestos Type (tile)	Asbestos Type (mastic)
12” x 12”, beige with black streaks, photo 1	S0025A-C, 71930755	Chrysotile	None detected
12” x 12”, orange, photo 2	S0027A-C, 71930755	Chrysotile	None detected
12” x 12”, beige with brown streaks	S0002A-C, 71929819	None detected	None detected
12” x 12”, grey dense fleck	S0030A-C, 71930755	None detected	None detected
12” x 12”, light grey dense fleck	S0031A-C, 71930755	None detected	None detected
12” x 12”, beige with brown streak	S0032A-C, 71930755	None detected	None detected

Non-asbestos light beige baseboard mastic (samples S0009A-C, lab reference no. 71929819) is present in the Office (Location 4).

Non-asbestos baseboard mastic (samples S0028A-C, lab reference no. 71930755) is present in Electrical, Fire Suppression and Storage (Location 25) and the Electrical Room (Location 30).

Photo 1

Photo 2

4.7.8 Sealants, Caulking, and Putty

The following table presents a summary of caulking, sealants and putties sampled:

Material and Colour	Application	Sample Number, Lab ref no.	Asbestos Type
Putty, black	Window frames	S0004A-C, 71929819	None detected
Caulking, grey	Window frames	S0005A-C, 71929819	None detected
Caulking, white	Door frame	S0006A-C, 71929819	None detected

Material and Colour	Application	Sample Number, Lab ref no.	Asbestos Type
Sealant, black and green	Edges of ramps	S0008A-C, 71929819	None detected
Caulking, grey	Expansion joints	S0011A-C, 71929819	None detected
Caulking, black textured	Perimeter walls	S0012A-C, 71929819	None detected
Putty, grey	Window frames	S0013A-C, 71929819	None detected
Caulking, black	Base of wall	S0014A-C, 71929819	None detected
Caulking, grey	Window frames	S0015A-C, 71929819	None detected
Caulking, white	Door frame	S0017A-C, 71929819	None detected
Caulking, grey	Electrical box	S0020A-C, 71929819	None detected
Caulking, grey	Door frames	S0021A-C, 71929819	None detected
Caulking, light grey	Expansion joints	S0022A-C, 71929819	None detected
Putty, black	Door window frames	S0035A-C, 71930755	None detected

4.7.9 Other Building Materials

Gold mastic (photo 1), containing chrysotile asbestos (sample S0034A-C, lab reference no. 71930755), is present as an undercoating on a sink in Nitrogen Tank Storage (Location 31).

Grey undercoating present on sinks in Waiting and Cashier (Location 2) and the Break Room (Location 24) does not contain asbestos (samples S0003A-C, lab reference no. 71929819).

Fibrous black gasket present between structural expansion joints does not contain asbestos (samples S0007A-C, lab reference no. 71929819).

Tar present on the ramp roof in Level K (Location 16) does not contain asbestos (samples S0016A-C, lab reference no. 71929819).

Photo 1

4.8 Regional Rehabilitation Centre

Pinchin performed a hazardous building materials assessment of the Regional Rehabilitation Centre. Refer to the report located on the HMIS 2.0 online database.

4.9 David Braley Research Centre

Pinchin performed a hazardous building materials assessment of the David Braley Research Centre. Refer to the report located on the HMIS 2.0 online database.

4.10 Ron Joyce Centre

Pinchin performed a hazardous building materials assessment of the Ron Joyce Centre. Refer to the report located on the HMIS 2.0 online database.

5.0 RECOMMENDATIONS

5.1 General

Perform a detailed intrusive assessment prior to building renovation or demolition operations. The assessment should include; destructive testing (e.g. coring and/or removal of building finishes and components), sampling of other hazardous materials (lead, mercury, PCBs, mould, etc.), and materials not tested in this study (e.g. roofing materials, caulking, mastics).

5.1.1 Excluded Asbestos Materials

Materials listed as exclusions in the previous reports remain as exclusions. Sampling, assessment or verification of excluded materials was not conducted.

The following is a list of materials which may contain asbestos, which were not observed and/or not sampled during the assessment; these materials are presumed contain asbestos until otherwise proven by sampling and analysis:

- Roofing felts and tar, mastics
- Floor levelling compound
- Ceramic tile setting compound
- Elevator and lift brakes
- Electrical components
- Moulded plastic components (laboratory bench tops)
- Refractory materials and insulations in boilers, incinerators and stacks
- Insulation under metal clad boilers and vessels

- Mechanical packing, ropes and gaskets
- Vermiculite
- Adhesives and duct mastics
- Caulking and putties
- Fibre-reinforced paints and coatings
- Paper products
- Soffit and fascia boards
- Fire resistant doors
- Metal clad finishes
- Stucco, plaster or other cementitious parge coatings
- Vibration dampers on HVAC equipment
- Terrazzo
- Sealants on pipe threads

5.2 Remedial Work

Refer to the Remedial Recommendation Report in Appendix II for a list of any recommended remedial work.

5.3 On-going Management and Maintenance

The following recommendations are made regarding on-going management and maintenance work involving the asbestos materials identified.

Continue to apply the policies and procedures as outlined in the building's Asbestos Management Program (AMP).

Perform a reassessment of asbestos materials on an annual basis.

Remove asbestos-containing materials (ACM) prior to alteration or maintenance work if ACM may be disturbed by the work. Follow appropriate asbestos precautions for the classification of work being performed.

Update the asbestos inventory report for the building upon completion of any abatement of ACM.

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.

7.0 REFERENCES

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

1. Asbestos on Construction Projects and in Buildings and Repair Operations, Ontario Regulation 278/05.
2. Designated Substances, Ontario Regulation 490/09.
3. Ministry of the Environment Regulation, R.R.O. 1990 Reg. 347 as amended.

APPENDIX I

Methodology

1.0 GENERAL

Pinchin conducted an investigation of previously identified asbestos-containing materials (ACM) to evaluate the current condition of all accessible ACM identified in the most recent assessment.

The surveyor made reference to any existing assessment or abatement reports (as provided by the Client).

Materials listed as exclusions in the previous reports have remained as exclusions. Sampling, assessment or verification of excluded materials was not conducted.

Existing sampling data, where available, was reviewed and relied upon.

Where sampling was conducted, sample collection was conducted in accordance with our Standard Operating Procedures.

A separate set of samples was 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 were determined by visual examination and available information on the phases of construction and prior renovations.

Samples were collected at a rate that is in compliance with the requirements of local regulations and guidelines. The sampling strategy was 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 were visually identified without sample confirmation.

The asbestos analysis for select materials was completed using a stop-positive approach. Only one result meeting the regulated criteria was 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 stopped 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 were analyzed if no asbestos is detected. In some cases, all samples were analyzed in the sample set regardless of result.

The analysis was performed in accordance with Test Method EPA/600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials, July 1993.

Analytical results were compared to the following criteria:

Jurisdiction	Friable	Non-Friable
Ontario	0.5%	0.5%

Where building materials are described in the report as “non-asbestos” or “does not contain 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. Additionally, these terms are used for materials which historically are known to not include asbestos in their manufacturing.

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)
- 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)

For a complete description of the Evaluation Criteria and Basis of Recommendations, refer to Annex A.

Template: Methodology for Asbestos Reassessment, HAZ, January 16, 2024

METHODOLOGY ANNEX A EVALUATION CRITERIA

1.0 EVALUATION CRITERIA AND BASIS OF RECOMMENDATIONS

The detailed asbestos assessment provides information regarding the location, condition, accessibility and friability of the asbestos-containing materials (ACM). In order to make recommendations for compliance with current regulations, Pinchin developed the following criteria.

2.0 EVALUATION OF CONDITION

2.1 Friable Sprayed or Trowelled Fireproofing, Thermal Insulation and Texture Finishes (Surfacing Materials)

To evaluate the condition of ACM sprayed or trowelled on fireproofing, sprayed or trowelled thermal insulation (non-mechanical), or texture, decorative or acoustic finishes, the following criteria are applied:

Good	Surface of material shows no significant signs of damage, deterioration or delamination. Good condition includes unencapsulated or unpainted fireproofing or texture finishes, where no or limited delamination or damage is observed, or encapsulated fireproofing or texture finishes where the encapsulant or paint has been applied after the damage or fallout occurred.
Poor	A sprayed material that shows signs of significant damage or is significantly delaminating or deteriorating. This may be limited to surface delamination or some portion of the substrate may be exposed.

In Locations where damage exists in isolated areas, both good and poor condition may be applicable. The extent of each condition will be recorded. Fair condition is not utilized in the evaluation of ACM sprayed or trowelled fireproofing, sprayed or trowelled thermal insulation (non-mechanical), or texture, decorative or acoustic finishes.

The evaluation of the above products above ceilings may be limited by the number of observations and by building components such as ducts or full height walls that obstruct the above ceiling observations.

2.2 Friable Mechanical or Thermal System Insulation (TSI)

To evaluate the condition of mechanical insulation on vessels, boilers, breeching, ducts, pipes, fan units, equipment etc. the following criteria are applied:

Good	Insulation is completely covered in jacketing and exhibits no evidence of damage or deterioration. No insulation is exposed. Includes conditions where the jacketing has minor damage (i.e. scuffs or stains), but the jacketing is not penetrated.

Fair	Minor penetrating damage to jacketed insulation (cuts, tears, nicks, deterioration or delamination) or undamaged insulation that has never been jacketed. Insulation is exposed but not showing surface disintegration. The extent of missing insulation ranges from minor to none. Damage can be repaired.
Poor	Original insulation jacket is missing, damaged, deteriorated or delaminated. Insulation is exposed and significant areas have been dislodged. Damage cannot be readily repaired. Includes components where insulation may have been removed incompletely.

The evaluation of mechanical insulation may be limited by the number of observations made and building components such as ducts or full height walls that obstruct observations. It is often not possible to observe each foot of mechanical insulation from all angles.

2.3 Potentially Friable Materials and Miscellaneous Friable Materials

Potentially friable ACM are products that are basically non-friable while in place but have the potential to generate friable dust upon removal or if significantly disturbed without appropriate procedures. These products may become friable if damaged. Potentially friable materials include materials such as acoustic ceiling tiles and plaster. To evaluate the condition of potentially friable materials, the following criteria are applied:

Good	No significant damage or deterioration. Still serving its intended use as a building material or finish.
Fair	Showing signs of some cracking or breakage, but is not deteriorating (e.g. cracked plaster, broken but in place ceiling tile, missing tile or section of plaster etc.). The condition is such that it is still serving its intended use as a building material or finish but may require repair for mainly cosmetic purposes.
Poor	Significant deterioration or breaking apart of the material. Material has deteriorated to the point it is not serving its intended use as building material or finish. Material has deteriorated to a point it has become friable. Normally potentially friable ACM in Poor condition is not repairable and requires at least localized removal and replacement.

2.4 Non-Friable Materials

Non-friable ACM cover a wide range of products with a wide variation in their tendency to release dust or asbestos fibres to the air. Many of these materials, (particularly where the matrix is an unweathered bitumen, asphalt or tar material) do not release fibres except in very unusual circumstances or during significant disturbance (e.g. use of abrasive power tools). Others with a cementitious matrix (asbestos-cement products) can more readily release dust due to abrasion, demolition, weathering, etc. The

potential for asbestos release from non-friable ACM is always lower than from friable ACM. To evaluate the condition of non-friable Materials, the following criteria are applied:

Good	No significant damage or deterioration. Still serving its intended use as a building material or finish.
Fair	Showing signs of some cracking or breakage but is not deteriorating (e.g. cracked vinyl floor tile, missing piece of tile or transite, etc.). The condition is such that it is still serving its intended use as a building material or finish but may require repair for mainly cosmetic purposes.
Poor	Significant deterioration or breaking apart of the material to the point at which it cannot be repaired, and it will require at least local removal. Material has deteriorated to the point it is not serving its intended use as building material or finish. Material may have deteriorated to a point where traffic or disturbance may cause it to become friable.

2.5 Evaluation of ACM Debris

The identification of the exact location or presence of debris on the top of ceiling tiles is limited by the number of observations made and the presence of building components such as ducts or full height walls that obstruct observations.

The presence of fallen or dislodged ACM is noted separately from the ACM source and is referred to as Debris. Debris may be friable if from a friable ACM source or a badly deteriorated non-friable ACM source. Debris may also be non-friable (such as fallen pieces of transite sheet or mastic fittings, or broken, dislodged floor tiles).

Debris	Debris may be friable or non-friable but is always identified as “debris” as the component of an observation and quantified as Poor condition.

2.6 Evaluation of Presumed Asbestos-Containing Material (PACM)

Presumed asbestos-containing materials (PACM), are building materials that may contain asbestos but were not sampled or analyzed due to inaccessibility or the need to perform destructive testing to obtain a reasonable sample set. Evaluation of these materials is based on the assumption that these PACM are asbestos-containing.

A list of PACM is provided in the report and they are generally not included in the detailed room by room reports. Typically, they are excluded because they are inaccessible or present in very small quantities. If PACM are evaluated, Pinchin uses the criteria that correspond with the type (and friability) of the material listed above.

3.0 EVALUATION OF ACCESSIBILITY

The accessibility of building materials known or suspected of being ACM is rated according to the following criteria:

Access (A)	Common areas of the building within reach of all building users (approximately 8 ’- 9’ from floor or standard ceiling height). Includes other areas where occupant activities may result in disturbance of material that is not normally within reach from floor level, but may be disturbed by common activities (e.g. gymnasiums, workshops, warehouses.)
Access (B)	Areas of the building accessed primarily by Maintenance/Caretaking/Janitorial Staff and within reach without use of a ladder. Includes areas within reach in Boiler Rooms, Electrical Rooms, Janitors Closets, Elevator Rooms, Mechanical Rooms, etc. Includes materials within reach from fixed ladders or catwalks, mezzanines, and accessible pipe chases.
Access (C) and Visible	Areas of the building above 8' - 9’ where use of a ladder or scaffold is required to reach the ACM. Only includes ACM that are visible to view without the removal or opening of other building components such as ceiling tiles or service access panels.
Access (C) and not Visible / Limited Visibility	Areas of the building above 8' - 9’ where use of a ladder or scaffold is required to reach the ACM. Includes ACM that are not visible or partially visible to view and require the removal of a building component to see, such as ceilings tiles or access panels to view and access. Includes rarely entered crawl spaces, attic spaces, etc. Observations will be limited to the extent visible from the access points.
Access (D)	Areas of the building behind inaccessible solid ceiling systems, walls or equipment etc. where demolition of the ceiling, wall or equipment etc. is required to reach the ACM. Material inaccessible due to height or location or is only accessed under unusual situations. Evaluation of condition and extent of ACM is limited or impossible, depending on the surveyor's ability to visually examine materials in Access D.

4.0 ACTION MATRIX AND DEFINITIONS

Pinchin’s evaluation of the viability of a specific asbestos control option is based on the consideration of the friability, condition, accessibility and visibility of a material. The logic used is that damaged ACM located in an area frequently accessed by all building occupants is of a higher priority than damaged ACM located in an infrequently accessed service area. The action matrix considers the potential for fibre release (primarily from friable ACM) and the possible concerns from regulatory bodies and many building occupants to all damaged ACM (including non-friable).

In any building with asbestos, many current regulations require an Asbestos Management Program be implemented. Depending on the condition and the accessibility, more active measures such as repair or removal may be recommended. The following matrix provides guidance for recommended Actions in the absence of renovation or demolition. In the event of construction or maintenance activity which will disturb ACM more aggressive control or removal will be required.

4.1 Action Matrix

The following tables outline the action decisions based on the relationship of assessed factors. Table I applies to friable ACM. Table II applies to non-friable ACM.

Table I Decision Matrix for Friable ACM

	Condition			
Access	**Good**	**Fair**	**Poor**	**Debris**
(A)	Action 5[1]	Action 5[2]	Action 3	Action 1
(B)	Action 7	Action 6[3]	Action 3	Action 1
(C) Visible	Action 7	Action 6	Action 3	Action 2
(C) Not Visible / Limited Visibility	Action 7	Action 7	Action 4	Action 2
(D)	Action 7	Action 7	Action 7	Action 7

Table II Decision Matrix for Potentially Friable and Non-Friable ACM

	Condition			
Access	**Good**	**Fair**	**Poor**	**Debris**
(A)	Action 7	Action 7[4]	Action 3	Action 1
(B)	Action 7	Action 7	Action 3	Action 1
(C) Visible	Action 7	Action 7	Action 4	Action 2
(C) Not Visible / Limited Visibility	Action 7	Action 7	Action 4	Action 2
(D)	Action 7	Action 7	Action 7	Action 7

[1] If friable ACM in access (A)/Good condition is not proactively removed Action 7 (Manage) is recommended.
[2] If friable ACM in access (A)/Fair condition is not proactively removed repair is recommended.
[3] If friable ACM in access (B)/Fair condition is likely to be disturbed after repair proactive removal is recommended.
[4] Action 7 is recommended for all non-friable ACM in Fair condition however some clients may wish to repair or take some action primarily for cosmetic reasons

4.2 Action Definitions

The following are the definitions in the Action Matrix Table presented above:

Action Definitions	
Action 1	Clean-Up of ACM Debris Restrict access that is likely to cause a disturbance of the ACM Debris and clean up ACM Debris. Utilize appropriate asbestos precautions.
Action 2	Precautions for Access Which may Disturb ACM Debris Use appropriate means to isolate the debris or to limit entry to the area which may disturb the material. At locations where ACM Debris can remain in place in lieu of removal or clean-up (e.g. Debris on top of ceiling tiles or behind lockable door), Utilize appropriate asbestos precautions to enter the area if this will disturb debris. The precautions will be required until the ACM Debris has been cleaned up.
Action 3	ACM Removal Remove ACM. Utilize asbestos procedures appropriate to the scope of the removal work. Until it is removed, restrict access to the material so it is not disturbed.
Action 4	Precautions for Work Which may Disturb ACM in Poor Condition. Utilize appropriate asbestos precautions if ACM may be disturbed by work on or near ACM. This does not require restricting access to the area, only control of work which may contact or disturb the ACM. Removal is the only viable option if work will disturb ACM.
Action 5	Proactive ACM Removal Remove friable ACM where the presence of friable asbestos in Good condition is not desirable. If friable ACM in Fair condition is not removed, then Repair friable ACM.
Action 6	ACM Repair Repair friable ACM in Fair condition which is not likely to be damaged again or disturbed by normal use of the area or room. Pinchin recommends proactive removal if friable ACM is likely to be damaged or disturbed during normal use of the area or room.
Action 7	Asbestos Management Program with Routine Surveillance Implement an Asbestos Management Program, including routine surveillance of ACM. Reassess materials regularly (typically once per year).

Master Template: Methodology Annex A to Appendix I Evaluation Criteria, HAZ, April 3, 2024

APPENDIX II

Remedial Recommendations Report

HMIS
HAZARDOUS MATERIALS INVENTORY SYSTEM

REMEDIAL RECOMMENDATION REPORT

PINCHIN
1.855.PINCHIN www.pinchin.com

Client: Hamilton Health Sciences | **Site: 237 Barton Street East, Hamilton, ON** | **Building Name: McMaster Wing** | **Surveyor:** | **Survey Date: 2024-11-27**

Location #: 8001 | **Location Name: Rooftop Mechanical Penthouse** | **Floor: R** | **Room #:** | **Square ft:**

ASBESTOS											
System	**Component**	**Material**	**Friable**	**Item**	**Covering**	**Access**	**Visible**	**Fair**	**Poor**	**Unit**	**Recommended Procedure**
Other	Debris	Caulking, white	NF			B	Y		2	SF	Clean up using Type 2 asbestos procedures

HMIS
HAZARDOUS MATERIALS INVENTORY SYSTEM

REMEDIAL RECOMMENDATION REPORT

PINCHIN
1.855.PINCHIN www.pinchin.com

Client: Hamilton Health Sciences | **Site: 237 Barton Street East, Hamilton, ON** | **Building Name: East Wing** | **Surveyor:** | **Survey Date: 2024-11-29**

Location #: 1 | **Location Name: Crawlspace** | **Floor: B** | **Room #:** | **Square ft: 1000**

ASBESTOS											
System	**Component**	**Material**	**Friable**	**Item**	**Covering**	**Access**	**Visible**	**Fair**	**Poor**	**Unit**	**Recommended Procedure**
Piping		Parging Cement	F	Fitting		B	N	1 (4)	2 (4)	EA	Precautions for work which may disturb ACM in fair/poor condition
Piping		Aircell	F	Insulation		B	N	5 (4)		LF	
Piping	Debris	Parging Cement, ASSUMED TO BE PRESENT/BURIED IN DIRT	F			B	N	()	100 (4)	%	
Piping	Debris	Aircell, ASSUMED TO BE PRESENT/BURIED IN DIRT	F			B	N	()	100 (4)	%	

Legend:

Sample number	
S####	Asbestos sample collected
V####	Material visually similar to numbered sample collected
V0000	Known non-asbestos material
V9000	Visually identified as an asbestos material
V9500	Material is presumed to be an asbestos material

Units	
SF	Square feet
LF	Linear feet
EA	Each
%	Percentage

Other	
A	Access
V	Visible
AP	Air Plenum
F	Friable material
NF	Non Friable material
PF	Potentially Friable material

Access	
A	Accessible to all building occupants
B	Accessible to maintenance and operations staff without a ladder
C	Accessible to maintenance and operations staff with a ladder. Also rarely entered, locked areas
D	Not normally accessible

Condition	
Good	No visible damage or deterioration
Fair	Minor, repairable damage, cracking, delamination or deterioration
Poor	Irreparable damage or deterioration with exposed and missing material

Visible	
Y	The material is visible when standing on the floor of the room, without the removal or opening of other building components (e.g. ceiling tiles or access panels).
N	The material is not visible to view when standing on the floor of the room and requires the removal of a building component (e.g. ceilings tiles or access panels) to view and access. Includes rarely entered crawlspaces, attic spaces, etc. Observations will be limited to the extent visible from the access points.

Air Plenum	
Yes or No	The material is in a return air plenum or in a direct airstream or there is evidence of air erosion (e.g. duct for heating or cooling blowing directly on or across an ACM). This field is only completed where Air Plenum consideration is required by regulation.

Colour Coding	
	The material is a hazardous material, either by analytical results or by visible identification.
	The material is presumed to be a hazardous material, based on visual appearance, and was not sampled due to limited access or the non-destructive nature of sampling.

Action					
(1)	Clean up of ACM Debris	(2)	Precautions for Access Which may Disturb ACM Debris	(3)	ACM removal
(4)	Precautions for Work Which may Disturb ACM in Poor Condition	(5)	Proactive ACM removal (Minimum repair required for fair condition)	(6)	ACM repair
(7)	Management program and surveillance				