Asbestos Reassessment

St. Peter's Hospital
88 Maplewood Avenue,
Hamilton, Ontario

Prepared for:

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

December 30, 2024

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Primary Pinchin Contact:	**Emily Balfour, Project Manager**
	ebalfour@pinchin.com

Author: Adam Altena
Project Technologist

Reviewer: Leslie Heywood, BEngMgt
Senior Project Manager

EXECUTIVE SUMMARY

Hamilton Health Sciences (Client) retained Pinchin Ltd. (Pinchin) to conduct an asbestos building materials reassessment of St. Peter's Hospital located at 88 Maplewood Avenue, Hamilton, Ontario. The reassessment was performed on November 20, 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:

- Pipe insulation;
- Plaster (presumed);
- Drywall joint compound;
- Vinyl floor tiles;
- Levelling compound;
- Firestopping;
- Caulking;
- Refractory brick (presumed); and
- Sink mastic.

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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APPENDICES

1.0 INTRODUCTION AND SCOPE

Hamilton Health Sciences (Client) retained Pinchin Ltd. (Pinchin) to conduct an asbestos building materials reassessment at St. Peter's Hospital, located at 88 Maplewood Avenue, Hamilton, Ontario.

Pinchin performed the reassessment on November 20, 2024. The surveyor was accompanied by a representative from Hamilton Health Sciences 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 4 storeys plus 1 level below grade.
Year of Construction	Boiler Plant/Steam Tunnel constructed in approximately 1938, East and West Wings constructed in the 1970's, and Alexander Pavilion renovated/constructed in 2007
Structure	Structural steel, concrete
Exterior Cladding	Pre-cast concrete, masonry, glass curtain wall, wood
HVAC	Rooftop AC units, boiler, and hot water heating to radiators
Roof	Built-up roofing
Flooring	Vinyl tile, vinyl sheet flooring, linoleum sheet flooring, carpet, ceramic tiles, terrazzo
Interior Walls	Drywall, concrete block, plaster
Ceilings	Drywall, acoustic ceiling tiles

3.2 Existing Reports

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

- Asbestos-Containing Materials Reassessment – St. Peter's Hospital, June 13, 2017, Prepared By ECOH, Project No. 17429.
- Bulk Sample Analysis Report – St. Peter's Hospital, May 12, 2017, Prepared By ECOH, Project No. 17429.
- Bulk Sample Analysis Report – Vinyl Floor Tile – St. Peter's Hospital, November 3, 2017, Prepared By ECOH, Project No. 18439.

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

- "Asbestos Reassessment – St. Peter's 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 SPH 88 Maplewood Avenue HHS December 30, 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 Boiler House and Steam Tunnel

4.1.1 Pipe Insulation

Parging cement, containing chrysotile asbestos (photo 1), is present on pipe fittings (elbows, valves, tees, hangers, etc.) within the Boiler House and Steam Tunnel (samples 0005A, lab reference no. 11802273, and S0011A-C, lab reference no. 71958653). Parging cement is jacketed with canvas.

Sweatwrap and tar paper insulation, present on straight sections of chilled water return system pipes in the Steam Tunnel (Location 1) does not contain asbestos (samples S0003A-C, lab reference no. b230230, and S0012A-C, lab reference no. 71958653).

Remaining pipes in the Boiler House and Steam Tunnel 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.

Photo 1

4.1.2 Duct Insulation

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

4.1.3 Mechanical Equipment Insulation

Preformed block insulation, present on a tank in the Upper Mechanical Area in the Boiler House (Location 1007), does not contain asbestos (samples S0002A-C, lab reference no. b218646).

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

4.1.4 Acoustic Ceiling Tiles

The following types of acoustic ceiling tile are present in the Boiler House and Steam Tunnel:

Size, Type, Pattern	Sample Number, lab ref no.	Asbestos Type
24"x48", lay-in, pinhole with large fleck	S0004A-C, b230230	None detected
24"x48", lay-in, pinhole with length-wise fissure	S0005A-C, b230230	None detected

4.1.5 Plaster

Plaster present over masonry brick on the Exterior (Location 1000) does not contain asbestos (samples S0009A-C, lab reference no. 71958653).

4.1.6 Drywall Joint Compound

Drywall joint compound present on wall finishes throughout the Boiler House does not contain asbestos (samples S0001A-C; lab reference no. b218646).

4.1.7 Vinyl Floor Tile and Mastic

Vinyl floor tiles and mastic present in the Boiler House were presumed to be non-asbestos based on historical knowledge of the date of installation (post-1992).

4.1.8 Firestopping

Firestopping present at pipe and conduit penetrations in the Steam Tunnel does not contain asbestos (samples S001a-c, lab reference no. 1207419).

4.1.9 Levelling Compound

Levelling compound was not observed during the assessment. Leveling compound is often used in random and isolated areas and without removing all flooring may not always be detected.

4.1.10 Caulking

Exterior caulking was sampled during Pinchin project 269453.052 in January 2021. Refer to the report posted on the HMIS 2.0 online database for details outlining the locations where asbestos-containing and non-asbestos caulking were identified. All other caulking within the wing was excluded from the assessment and remains presumed asbestos-containing.

4.1.11 Other Building Materials

Refractory brick (photo 1), presumed to contain asbestos, is present in the redundant chimney within the Storage Room (Location 2).

Gold undercoating (photo 2), presumed to contain asbestos, is present on stored sinks within a basement Storage Room (Location 12).

Photo 1

Photo 2

4.2 Alexander Pavilion

All known asbestos-containing materials were abated from the Alexander Pavilion during the renovation and partial demolition of the one storey Day Hospital. The renovation and partial demolition were completed by Greenspoon Specialty Contracting in 2007/08 and monitored by Pinchin during asbestos abatement and renovation to convert the Wing into the Alexander Pavilion.

4.2.1 Spray-Applied Insulation

Fibrous spray-applied fireproofing and overspray is present on the structure in the throughout the Alexander Pavilion and is presumed to be non-asbestos based on the date of installation (2008).

4.2.2 Pipe Insulation

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

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

4.2.3 Duct Insulation

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

4.2.4 Mechanical Equipment Insulation

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

4.2.5 Acoustic Ceiling Tiles

All ceiling tiles are presumed to be non-asbestos based on the age of the materials determined from the date of the building construction (2008). The tiles were manufactured after asbestos stopped being used in acoustic ceiling tiles.

4.2.6 Drywall Joint Compound

Drywall joint compound, containing chrysotile asbestos, is present in the Resource Centre (Location 1002) and Office 124 (Location 1003) as a wall and column finish in limited locations (samples S0015F, S0016A-B, and S0017E, lab reference no. b306351). Areas of asbestos-containing drywall joint compound is limited to walls and columns directly adjoining the East and West Wing.

Remaining drywall walls and partition walls were constructed during the 2008 renovations and therefore the joint compound is presumed to be non-asbestos. This was confirmed by sampling performed by HHS

(HHS samples S11a-g), by Pinchin (S0001A-G, lab reference no. 7124865), and ECOH in 2017. Refer to the Asbestos Analytical Results Report on the HMIS 2.0 online database.

4.2.7 Sheet Flooring

Sheet flooring present throughout the Alexander Pavilion is presumed to be non-asbestos based on historical knowledge of the date of installation (2008) and the type of flooring (linoleum without paper backing layer).

4.2.8 Vinyl Floor Tile and Mastic

The following types of vinyl floor tiles are present throughout the Alexander Pavilion:

Size, Colour/Pattern	Sample Number, Lab ref no.	Asbestos Type (tile)	Asbestos Type (mastic)
12"x12", beige with black and blue streaks	S0002A-C, 71924865	None detected	None detected
12"x12", beige with black and white speck	S0003A-C, 71924865	None detected	None detected
12"x12", red with black and white speck	S0004A-C, 71924865	None detected	None detected

4.3 East and West Wing

4.3.1 Spray-Applied Insulation

Non-asbestos fireproofing and overspray is present on the structure within the West Wing (previous sampling conducted by HHS).

Fibrous spray-applied fireproofing present in the East Wing does not contain asbestos (samples S0022A-C, lab ref no. b312730, samples S0013A-C, lab ref no. R7645025, and samples S0041A-C, lab ref no. b328092)

4.3.2 Pipe Insulation

Parging cement (photo 1), containing chrysotile asbestos, is present on pipe fittings (elbows, valves, tees, hangers etc.) on domestic hot water systems throughout the East and West Wing (sample 0001A, lab reference no. 11802139). Parging cement is jacketed with canvas.

Parging cement (photo 2), presumed to contain asbestos is present on pipe fittings (elbows) on the rainwater leader system within the Elevator Mechanical Room (Location 5004).

Sweatwrap and tar paper insulation, present on rainwater leaders within the East and West Wing, does not contain asbestos (samples 0002A-C, lab reference no. 11802139).

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

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.

Photo 1

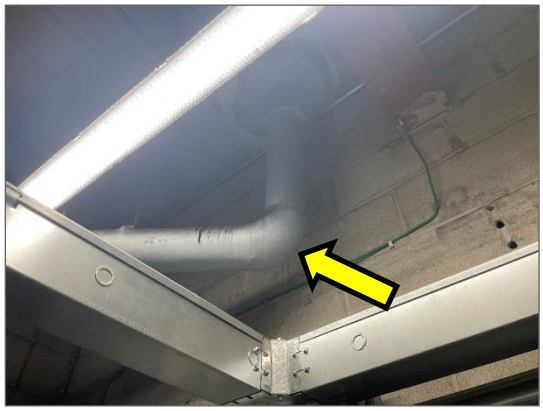

Photo 2

4.3.3 Duct Insulation and Mastic

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

Red duct mastic, present in the Corridor (Location 2002) and the Corridor (Location 2040) does not contain asbestos (samples S0012A-C, lab ref no. R7645025)

4.3.4 Mechanical Equipment Insulation

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

4.3.5 Acoustic Ceiling Tiles

The 12" x 24" acoustic ceiling tiles with a large fissure pattern located within the Easy Street areas were determined to be non-asbestos by analysis (HHS samples S04a-c, March 22, 2013). Sampling by ECOH in 2017 also determined these ceiling tiles to be non-asbestos (ECOH samples 174-SPH-EW1-03A-C). A non-asbestos coating is present on the surface of these tiles, and the tiles are installed in a splined manner with no associated mastic.

All remaining 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 (post-1992). The tiles were manufactured after asbestos stopped being used in acoustic ceiling tiles.

4.3.6 Plaster

Plaster present as a wall finish on the basement level of the West Stairwell (Location 76) does not contain asbestos (samples S0011A-C, lab reference no. b260416).

Plaster present as a wall finish in the Corridor (Location 1011) and Food Storage (Location 1005) does not contain asbestos (ECOH samples 17429-SPH-ASB-13A-C).

Plaster present as a single layer wall finish in the Family Room (Location 3032) does not contain asbestos (samples S0023A-C, lab reference no. b312730).

Textured plaster, presumed to contain asbestos, is present as a ceiling finish in the Men's Locker Room (Location 46).

4.3.7 Drywall Joint Compound

Drywall joint compound, containing chrysotile asbestos, is present on wall and ceiling finishes throughout the East and West Wing. Additional sampling conducted by HHS confirmed drywall joint compound to contain chrysotile asbestos in at least one sample collected from each floor (HHS samples S03a-g, S05a-g, S07a-g, S14a-g, and S15a-g, and Pinchin samples 0017A and 0018A-F, lab reference no. b183065, sample S0010A-C , lab reference no. b244478, sample S0021A, lab ref b312730, and samples S0025A-E, lab ref no. b322633, samples S0027A-C, S0030A-E). Assume *all* drywall joint compound to contain chrysotile asbestos unless project specific sampling proves otherwise.

4.3.8 Vinyl Sheet Flooring

The following types of vinyl sheet flooring are present throughout the East and West Wing:

Pattern, Colour	Sample Number	Asbestos Type
Stone, white, blue, and brown	HHS S06a-c	None detected
Multi, blue	HHS S13a-c	None detected

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

4.3.9 Vinyl Floor Tile and Mastic

Vinyl floor tiles are present as follows:

Size, Pattern/Colour, Photo #	Sample Number, lab ref no.	Asbestos Type (tile)	Asbestos Type (mastic)
12"x12", white with grey specks, photo 1	S002a-c, 1207419 HHS S10a	Chrysotile	None detected
12"x12", red with white streak	S003a-c, 1207419 ECOH 18439-02A-C HHS S01a-c	None detected	None detected
12"x12", purple	ECOH 18439-05A-C	None detected	None detected
12"x12", green[1]	ECOH 18439-03A-C HHS S08a-c	None detected	None detected
12"x12", yellow/orange	ECOH 18439-04A-C HHS S09a-c	None detected	None detected
12"x12", white with blue and pink streaks	ECOH 18439-01A-C HHS S02a-c	None detected	None detected

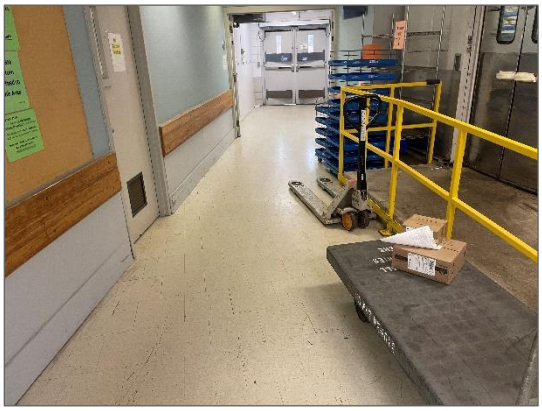

Photo 1

4.3.10 Firestopping

Firestopping (photo 1), containing chrysotile asbestos, is present at conduit penetrations in electrical closets throughout the East and West Wing (sample S0001A; lab reference no. b218647).

[1] Refer to section 4.3.12 – Levelling compound

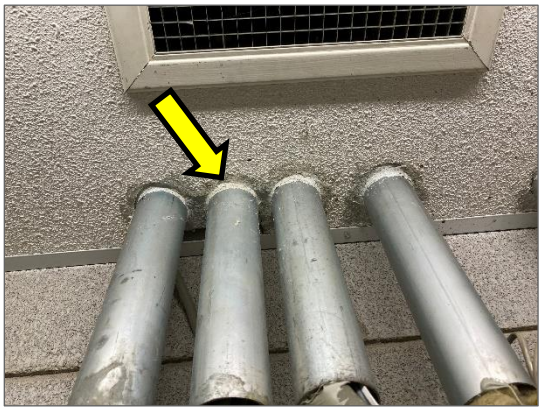

Photo 1

4.3.11 Levelling Compound

Levelling compound, containing chrysotile asbestos (HHS Sample S08a), is present associated with the 12" x 12" green and purple vinyl floor tiles on the Second Floor (photo 1).

Photo 1

4.3.12 Other Building Materials

Gold mastic (photo 1), containing chrysotile asbestos, is present as a sink undercoating throughout the East and West Wing (sample S0002A, lab reference no. b218647).

Silver mastic, containing chrysotile asbestos, is present as a sink undercoating in Easy Street (Location 1025, sample S0039A, lab ref no. R8256844).

Baseboard mastic present in the Biomedical Waste Storage Room (Location 1001) and Stores (Location 1) does not contain asbestos (samples S0004A-C, lab reference no. b232171, and sample S0009A-C, lab reference no. b244478).

Paint present on concrete block walls in the Corridor (Location 1004) does not contain asbestos (samples S0008A-C, lab reference no. b242446).

Paint present on concrete block walls in the Corridor (Location 30) and the Hair Salon (Location 41) does not contain asbestos (samples S0025A-C, lab ref no. R8256844).

Thin-set under ceramic tiles on the walls in the Hair Salon (Location 41) does not contain asbestos (samples S0026A-C, lab reference no. R8256844).

Brown puck mastic, present on mirror and wall surface in the office, room B0038 (Location 40) does not contain asbestos (samples S0038A-C, lab reference no. R8256844).

Photo 1

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
- Insulation under metal clad boilers and vessels
- Mechanical packing, ropes, and gaskets
- Vermiculite
- Adhesives and duct mastics
- Caulking and putties (where not sampled)
- Fibre-reinforced paints and coatings
- Paper products
- Soffit and fascia boards
- Fire resistant doors
- Stucco, plaster or other cementitious parge coatings
- Vibration dampers on HVAC equipment
- Terrazzo
- Ropes and gaskets in cast-iron bell and spigot joints
- 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

Client: Hamilton Health Sciences | **Site: 88 Maplewood Avenue, Hamilton, ON** | **Building Name: East And West Wing** | **Surveyor:** | **Survey Date: 2024-11-15**

Location #: 4 | **Location Name: Electrical Room** | **Floor: B** | **Room #: 0005** | **Square ft: 40**

ASBESTOS											
System	**Component**	**Material**	**Friable**	**Item**	**Covering**	**Access**	**Visible**	**Fair**	**Poor**	**Unit**	**Recommended Procedure**
Other	Fire Stop	Parging Cement	F			C	Y	()	10 (3)	SF	Remove in accordance with Type 2 asbestos procedures

Client: Hamilton Health Sciences | **Site: 88 Maplewood Avenue, Hamilton, ON** | **Building Name: East And West Wing** | **Surveyor:** | **Survey Date: 2024-11-15**

Location #: 70 | **Location Name: Electrical Closet** | **Floor: B** | **Room #: 0061** | **Square ft: 22**

ASBESTOS											
System	**Component**	**Material**	**Friable**	**Item**	**Covering**	**Access**	**Visible**	**Fair**	**Poor**	**Unit**	**Recommended Procedure**
Other	Fire Stop	Parging Cement	F			C	Y	()	7 (3)	SF	Remove in accordance with Type 2 asbestos procedures

Client: Hamilton Health Sciences | **Site: 88 Maplewood Avenue, Hamilton, ON** | **Building Name: East And West Wing** | **Surveyor:** | **Survey Date: 2024-11-15**

Location #: 1007 | **Location Name: Kitchen And Rear Elevator Lobby** | **Floor: 1** | **Room #:** | **Square ft: 6509**

ASBESTOS											
System	**Component**	**Material**	**Friable**	**Item**	**Covering**	**Access**	**Visible**	**Fair**	**Poor**	**Unit**	**Recommended Procedure**
Wall		Drywall and joint compound	NF			A	Y	1 (7)	()	%	Type 1/Repair

Client: Hamilton Health Sciences | **Site: 88 Maplewood Avenue, Hamilton, ON** | **Building Name: East And West Wing** | **Surveyor:** | **Survey Date: 2024-11-15**

Location #: 1044 | **Location Name: Electrical Closet** | **Floor: 1** | **Room #:** | **Square ft: 40**

ASBESTOS											
System	**Component**	**Material**	**Friable**	**Item**	**Covering**	**Access**	**Visible**	**Fair**	**Poor**	**Unit**	**Recommended Procedure**
Other	Fire Stop	Parging Cement	F			C	Y	()	9 (3)	SF	Remove in accordance with Type 2 asbestos procedures

Client: Hamilton Health Sciences | **Site: 88 Maplewood Avenue, Hamilton, ON** | **Building Name: East And West Wing** | **Surveyor:** | **Survey Date: 2024-11-15**

Location #: 2003 | **Location Name: Corridor** | **Floor: 2** | **Room #:** | **Square ft: 942**

ASBESTOS											
System	**Component**	**Material**	**Friable**	**Item**	**Covering**	**Access**	**Visible**	**Fair**	**Poor**	**Unit**	**Recommended Procedure**
Wall		Drywall and joint compound	NF			A	Y	1 (7)	()	%	Type 1/Repair

Client: Hamilton Health Sciences | **Site: 88 Maplewood Avenue, Hamilton, ON** | **Building Name: East And West Wing** | **Surveyor:** | **Survey Date: 2024-11-15**

Location #: 2005 | **Location Name: Electrical Closet** | **Floor: 2** | **Room #: W220** | **Square ft: 27**

ASBESTOS											
System	**Component**	**Material**	**Friable**	**Item**	**Covering**	**Access**	**Visible**	**Fair**	**Poor**	**Unit**	**Recommended Procedure**
Other	Fire Stop	Parging Cement	F			C	Y	()	4 (3)	SF	Remove in accordance with Type 2 asbestos procedures

Client: Hamilton Health Sciences | **Site: 88 Maplewood Avenue, Hamilton, ON** | **Building Name: East And West Wing** | **Surveyor:** | **Survey Date: 2024-11-15**

Location #: 2015 | **Location Name: Corridor** | **Floor: 2** | **Room #:** | **Square ft: 756**

ASBESTOS											
System	**Component**	**Material**	**Friable**	**Item**	**Covering**	**Access**	**Visible**	**Fair**	**Poor**	**Unit**	**Recommended Procedure**
Wall		Drywall and joint compound	NF			A	Y	()	1 (3)	%	Type 1/Repair

Client: Hamilton Health Sciences | **Site: 88 Maplewood Avenue, Hamilton, ON** | **Building Name: East And West Wing** | **Surveyor:** | **Survey Date: 2024-11-15**

Location #: 2016 | **Location Name: Corridor** | **Floor: 2** | **Room #:** | **Square ft: 731**

ASBESTOS											
System	**Component**	**Material**	**Friable**	**Item**	**Covering**	**Access**	**Visible**	**Fair**	**Poor**	**Unit**	**Recommended Procedure**
Wall		Drywall and joint compound	NF			A	Y	()	1 (3)	%	Type 1/Repair

Client: Hamilton Health Sciences | **Site: 88 Maplewood Avenue, Hamilton, ON** | **Building Name: East And West Wing** | **Surveyor:** | **Survey Date: 2024-11-15**

Location #: 2067 | **Location Name: Electrical Closet** | **Floor: 2** | **Room #:** | **Square ft: 0**

ASBESTOS											
System	**Component**	**Material**	**Friable**	**Item**	**Covering**	**Access**	**Visible**	**Fair**	**Poor**	**Unit**	**Recommended Procedure**
Other	Fire Stop	Parging Cement	F			C	Y	()	8 (3)	SF	Remove in accordance with Type 2 asbestos procedures

Client: Hamilton Health Sciences | **Site: 88 Maplewood Avenue, Hamilton, ON** | **Building Name: East And West Wing** | **Surveyor:** | **Survey Date: 2024-11-15**

Location #: 3003 | **Location Name: Electrical Closet** | **Floor: 3** | **Room #: W320** | **Square ft: 27**

ASBESTOS											
System	**Component**	**Material**	**Friable**	**Item**	**Covering**	**Access**	**Visible**	**Fair**	**Poor**	**Unit**	**Recommended Procedure**
Other	Fire Stop	Parging Cement	F			C	Y	()	7 (3)	SF	Remove in accordance with Type 2 asbestos procedures

Client: Hamilton Health Sciences | **Site: 88 Maplewood Avenue, Hamilton, ON** | **Building Name: East And West Wing** | **Surveyor:** | **Survey Date: 2024-11-15**

Location #: 3031 | **Location Name: Storage** | **Floor: 3** | **Room #: W300B** | **Square ft: 192**

ASBESTOS											
System	**Component**	**Material**	**Friable**	**Item**	**Covering**	**Access**	**Visible**	**Fair**	**Poor**	**Unit**	**Recommended Procedure**
Wall		Drywall and joint compound	NF			A	Y	()	2 (3)	SF	Type 1/Repair

Client: Hamilton Health Sciences | **Site: 88 Maplewood Avenue, Hamilton, ON** | **Building Name: East And West Wing** | **Surveyor:** | **Survey Date: 2024-11-15**

Location #: 3064 | **Location Name: Electrical Closet** | **Floor: 3** | **Room #: E319** | **Square ft: 28**

ASBESTOS											
System	**Component**	**Material**	**Friable**	**Item**	**Covering**	**Access**	**Visible**	**Fair**	**Poor**	**Unit**	**Recommended Procedure**
Other	Fire Stop	Parging Cement	F			C	Y	()	7 (3)	SF	Remove in accordance with Type 2 asbestos procedures

Client: Hamilton Health Sciences | **Site: 88 Maplewood Avenue, Hamilton, ON** | **Building Name: East And West Wing** | **Surveyor:** | **Survey Date: 2024-11-15**

Location #: 4002 | **Location Name: Electrical Closet** | **Floor: 4** | **Room #: W420** | **Square ft: 27**

ASBESTOS											
System	**Component**	**Material**	**Friable**	**Item**	**Covering**	**Access**	**Visible**	**Fair**	**Poor**	**Unit**	**Recommended Procedure**
Other	Fire Stop	Parging Cement	F			C	Y	()	7 (3)	SF	Remove in accordance with Type 2 asbestos procedures

Client: Hamilton Health Sciences | **Site: 88 Maplewood Avenue, Hamilton, ON** | **Building Name: East And West Wing** | **Surveyor:** | **Survey Date: 2024-11-15**

Location #: 4061 | **Location Name: Electrical Closet** | **Floor: 4** | **Room #: E419** | **Square ft: 28**

ASBESTOS											
System	**Component**	**Material**	**Friable**	**Item**	**Covering**	**Access**	**Visible**	**Fair**	**Poor**	**Unit**	**Recommended Procedure**
Other	Fire Stop	Parging Cement	F			C	Y	()	5 (3)	SF	Remove in accordance with Type 2 asbestos procedures

Client: Hamilton Health Sciences | **Site: 88 Maplewood Avenue, Hamilton, ON** | **Building Name: Boiler House And Steam Tunnel** | **Surveyor:** | **Survey Date: 2024-11-15**

Location #: 1 | **Location Name: Steam Tunnel** | **Floor: B** | **Room #:** | **Square ft: 2136**

ASBESTOS											
System	Component	Material	Friable	Item	Covering	Access	Visible	Fair	Poor	Unit	Recommended Procedure
Piping		Parging Cement	F	Fitting		C	Y	2 (6)	()	EA	Type 2/Repair

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.
L	The material is partially visible to view when standing on the floor of the room and requires the removal of a building component (e.g. ceiling system or access panels) to view completely and access. Includes partially viewed access points to crawlspaces, attic spaces, etc. without entering. Observations are 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				