



PROJECT SPECIFICATIONS

November, 2020

Meadowvale Village Hall
New Belfry & Restoration

6970 Second Line West, Mississauga, Ontario



<u>DIVISION</u>	<u>SECTION</u>	<u>TITLE</u>
-----------------	----------------	--------------

01	GENERAL INSTRUCTIONS	
-----------	-----------------------------	--

01010	Summary of Work
01021	Cash Allowances
01022	Unit Prices
01300	Submittals
01800	Make Good

02	SITE WORK	
-----------	------------------	--

02060	Selective Demolition
-------	----------------------

06	WOOD	
-----------	-------------	--

06100	Rough Carpentry
-------	-----------------

07	THERMAL AND MOISTURE PROTECTION	
-----------	--	--

07610	Copper Roofing
07620	Metal Flashings
07900	Sealants

08	DOORS & WINDOWS	
-----------	----------------------------	--

08611	Conservation of Wood Windows
08612	Wood Epoxy Consolidation

09	FINISHES	
-----------	-----------------	--

09900	Painting
-------	----------

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- .1 The extent of the work is shown on the drawings, photographs and notes, as well as in all sections of the Specification.

1.2 INTENT AND SCHEDULE

The intent of the project is to carry out the construction and installation of the new belfry, as well as exterior restoration work as confirmed during our site investigations, utilizing repair methods and materials that are compatible with the physical characteristics of the existing materials and which follow established restoration practices and methods and meet current code requirements. The scope of work is delineated on drawings A1 - A3, as well as the project specifications.

1.3 SUMMARY OF THE WORK (to be read in conjunction with and be complemented by the drawings)

- .1 Description of Site: Meadowvale Village Hall, 6970 Second Line West, Mississauga, Ontario
- .2 The Work includes all, but is not limited to, the following for all areas:
 - .1 Mobilisation/Protection/Temporary Facilities
 - .1 Provide temporary protection, to provide a safe working environment. Be responsible for any damage caused or clean-up required by dispersion of dust generated by the work. Protect all adjacent landscaping and make good if damaged.
 - .2 Provide all barricades and signs necessary to direct traffic around construction areas at all times.
 - .3 Protect existing services from damage.
 - .2 Hazardous materials
 - .1 Hazardous materials

The presence of lead and asbestos have been confirmed in the areas of work (Report by Pinchin is attached to this specification section). All work is to comply with the following legal requirements as listed in the Guideline for Lead on Construction Projects issued by the Occupational Health and Safety Branch of the Ministry of Labour, Ontario:

 - .1 Occupational Health and Safety Act (OHSA)
 - .2 Workplace Hazardous Materials Information System (WHMIS) Regulation R.R.O. 1990, Reg. 860.
 - .3 Regulation for Construction Projects. O. Reg. 213/91

- .4 Regulation Respecting Lead, R.R.O. 1990, Reg.843
- .3 Removal and demolition as required for the installation of the new belfry, as well as for the restoration of the existing wood siding.
For all demolition/removals also see Section 02060 Selective Demolition.
- .4 New belfry:
 - .1 Fabricate the new belfry as per drawings and specifications.
 - .2 Prepare the existing roof structure, including all specified new structure, to receive the installation of the new belfry.
 - .3 Install the new belfry, including all specified waterproofing membranes, flashings and make-good of the existing asphalt shingle roof, for a weather tight installation.
- .5 Exterior restoration:
 - .1 Restoration of all windows and exterior doors on the building (numbered on the drawings) and some frame and sill repairs as identified on the drawings and in Section 08611 Conservation of Wood Windows
 - .2 Restoration of the existing board and batten siding of the original building, as well as the horizontal wood siding of the 1950's addition, as described on the drawings and all other specification sections.

1.4 QUALITY ASSURANCE

- .1 Window Restoration Contractor: Work shall be performed by a firm having not less than five years successful experience in comparable restoration projects and employing personnel skilled in the processes and operations indicated and required.
- .2 Woodwork Contractor: Work shall be performed by a firm having not less than five years successful experience in comparable restoration projects.

1.5 FIELD MOCK-UPS AND SHOP DRAWINGS

- .1 Prepare detailed shop drawings of the new belfry for review and approval. Do not start fabrication prior to approval of these shop drawings.
- .2 Prepare a mock-up of one corner of the belfry roof, in order to illustrate the construction of the double curve. The mock-up, once accepted, can become part of the final installation. Also see Section 01300 for submittal of samples.

1.6 SUBSTITUTIONS

- .1 If alternative methods and materials to those indicated are proposed for any phase of restoration work, provide written description, including evidence of at least 10 years' successful use on other, comparable projects, and program of testing to demonstrate effectiveness for use on this project. Provide documentation showing compliance with the requirements for substitutions and the following information:
 - .1 Coordination information, including a list of changes needed to other work that will be necessary to accommodate the substitution.
 - .2 A comparison of the substitution with the specified products and methods, including performance, weight, size, durability, and visual effect.
 - .3 Product data, including specifications for products and installation procedures. Samples, where applicable, or as requested.
 - .4 A statement indicating the effect on the Contractor's Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the substitution on Contract completion time. Cost information, including a proposal of the net change, if any, in the contract sum.
 - .6 Certification that the substitution conforms to the contract documents and is appropriate for the applications indicated. Material substitution requests must be accompanied by independent laboratory test reports from a lab designated by the architect to establish equivalent performance levels and specification compliance. Testing shall be paid for by the submitting party.
 - .7 The Contractor's waiver of rights to additional payment or time that may become necessary because of the failure of the substitution to perform adequately.

1.7 PROTECTION

- .1 Protect persons, motor vehicles, building site and surrounding areas from injury resulting from the restoration work.
- .2 The building will remain in operation for the duration of the construction. The Contractor is to provide a protected walkway to the main entrance (including the ramp).

1.8 COORDINATION

- .1 All work (especially noise-generating activities) is to be coordinated with possible events in the building.

END OF SECTION 01010

PART 1 GENERAL

1.1 SECTION INCLUDES

Cash allowances

1.2 CASH ALLOWANCES

- .1 Include in the Contract Price, cash allowances stated herein.
- .2 Cash allowances, unless otherwise specified, cover the net cost to the Contractor of services, products, construction machinery and equipment, freight, handling, unloading, storage, installation and other authorized expenses incurred in performing the Work.
- .3 The Contract Price will be adjusted by written order to provide for an excess or deficit to each cash allowance.
- .4 Progress payments on accounts of work authorized under cash allowances shall be included in the Architect's monthly certificate for payment.
- .5 A schedule shall be prepared jointly by the Architect and Contractor to show when items called for under cash allowances must be authorized by the Architect for ordering purposes so that the progress of the Work will not be delayed.
- .6 The amount of each allowance, for Work specified in the respective specification sections:

.1 Contingency for unforeseen conditions	\$6,000
--	---------

END OF SECTION 01021

PART 1 GENERAL

1.1 GENERAL

Conform to the requirements of Division 1.

1.2 SECTION INCLUDES

Schedule of Unit Prices (to be valid for the duration of the specified construction related to the Scope of Work delineated on the Drawings and in the Specification and to serve as basis for all applicable Change Orders or Change Directives).

Unit prices to be submitted on the Pricing Sheet

Item	Descriptions	Units	Unit Price
1.	Repair of wood fascia	Per Lin. Ft.	
2.	Wood consolidation not specified on the drawings	Per Lin. Ft.	
3.	Replacement of wood siding not specified on the drawings	Per Lin. Ft.	
4.	Re-putty of wood window glazing	Per Lin. Ft.	

END OF SECTION 01022

PART 1 GENERAL

1.1 REQUIREMENTS INCLUDED

- .1 Shop drawings and product data.
- .2 Samples.
- .3 Record drawings.
- .4 Certificates and transcripts.
- .5 Warranties

1.2 ADMINISTRATIVE

- .1 Submit to Architect submittals listed for review. Submit with reasonable promptness and in orderly sequence so as to not cause delay in the Work. Allow minimum of 7 working days for Architect review of submittals. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Work affected by the submittal shall not proceed until review is complete.
- .3 Verify that field measurements and affected adjacent Work are coordinated.
- .4 Contractor's responsibility for errors and omissions in submission is not relieved by Architect's review of submittals.
- .5 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Architect's review.
- .6 Keep one reviewed copy of each submission on site.

1.3 SHOP DRAWINGS AND PRODUCT DATA

- .1 Indicate materials, design, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of the Section under which the adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .2 Adjustments made on shop drawings by the Architect are not intended to change the Contract Price. If adjustments affect the value of Work, state such in writing to the Architect prior to proceeding with the work.
- .3 Submit electronic PDF file and two sets of prints of product data sheets or brochures for requirements requested in specification Sections and as the Architect may reasonably request where shop drawings will not be prepared due to standardized manufacture of product.

- .4 The Architect will review and return shop drawings in accordance with a previously agreed schedule. The Architect's review will be for conformity to the design concept and for general arrangements only. Such review shall not relieve the Contactor of responsibility for errors or omissions in the shop drawings or of responsibility for meeting all requirements of the Contract Documents unless a deviation on the shop drawings has been approved in writing by the Architect.

1.4 SAMPLES

- .1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples as to origin and intended use in the Work.
- .2 Deliver samples prepaid to the Architect's office.
- .3 Notify the Architect in writing, at the time of submission of deviations in samples from requirements of Contract Documents.
- .4 Adjustments made on samples by the Architect are not intended to change the Contract Price. If adjustments affect the value of the Work, state such in writing to the Architect prior to proceeding with the Work.
- .5 Make changes in samples which the Architect may require, consistent with Contract Documents.

1.5 AS-BUILT DRAWINGS

- .1 After award of Contract the Architect will provide a set of prints to the Contractor for the purpose of maintaining record drawings. Accurately and neatly record deviations from Contract Documents caused by site conditions and changes ordered by the Architect.
- .2 Identify drawings as "Project Record Copy". Maintain in new condition and make available for inspection on site by Architect.
- .3 On completion of Work and prior to final inspection, submit record documents to Architect.

END OF SECTION 01300

PART I GENERAL

1.1 SECTION INCLUDES

- .1 Compliance with all sections of Division 1, Ontario Building Code, By-laws, Ordinances, Environmental Requirements.
- .2 Comply with General Conditions and Supplementary Conditions for Public and Invitational Tender Calls which form part of this specification.
- .3 Scope of Work

This section of the Contract relates to all sections of the specifications and includes all work called for or implied, for reconstruction, alterations and making good, as required by the drawings and specifications. The Contractor shall provide all, labour, materials, plant, tools, equipment, services and supervision together with all necessary incidentals whether referred to or not, as will be required to complete the work to the full intent and meaning of the drawings and specifications. The work includes, but is not limited to, the following:

- a) Making good existing work.
- b) Connections between new and existing work.
- c) Services.

1.2 NEW WORK CONNECTED TO EXISTING WORK

- .1 Where new work connects with existing work and where existing work is altered, carry out all necessary cutting and fitting required to make satisfactory connections with the existing work under this Contract so as to leave the entire work in a finished and professional condition.
- .2 Unless otherwise specified or required by Codes or By-Laws to meet a certain requirement or both, make good new work to match existing work.
- .3 Where existing work is to be made good, the new work shall match exactly the old work in material, construction and finish, unless otherwise noted or specified.
- .4 This section does not apply to the heritage finishes of the project without due consideration to the heritage status of the building. The Architect is to be consulted where heritage work requires repairs.

1.3 EXISTING SERVICES

- .1 Notify Public Utility companies of work proceeding on the site and have location of all services staked out on site. Any claims for damages are the Contractor's responsibility.
- .2 Existing services shall be disconnected and relocated where necessary, and reconnected as required to complete the work. This work shall include, without being limited to, plumbing, drainage, fire protection, heating, ventilating and electrical services.

- .3 Wherever it becomes necessary to cut or interfere with existing equipment or service lines in any manner for short periods of time, do such work at times agreed upon with the Owner. Notify the Owner at least 48 hours in advance of any necessary interruption.

1.4 CO-ORDINATION

- .1 Co-ordinate the work of the various trades, taking into account the existing installation to assure the best arrangement of services, and mechanical, electrical and other equipment in the available space.
- .2 If required, in critical locations, interference or installation drawings or both shall be prepared showing the work of the various trades as well as the existing installations, and shall be submitted to the Owner for approval before the commencement of the work.

END OF SECTION 01800

PART 1 GENERAL

1.1 SECTION INCLUDES

- .1 Demolition work related to the existing roof, required for the installation of the new belfry.

1.2 REFERENCES

- .1 CSA S350-M1980, Code of Practice for Safety in Demolition of Structures.

1.3 EXISTING CONDITIONS

- .1 Structures to be demolished to be based on their condition on date that tender is accepted.
- .2 Before commencing work, inspect all building components within the area of work and adjacent areas, and provide a written report and photographs in duplicate to the Architect, of any existing damage or items not functioning.

1.4 PROTECTION

- .1 Take precautions to support affected structures and, if safety of structures or services appear to be endangered, cease operations and notify the Architect.
- .2 Prevent debris from blocking building entrances which must remain in operation.
- .3 Ensure that demolition procedures do not interrupt mechanical and electrical systems without due consideration to their ongoing operation.
- .5 Protect the existing roof from damage during the installation of the belfry and make good with same materials as existing if any damage occurs.

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

3.1 EXAMINATION

- .1 Verification of conditions
 - .1 Examine existing property. Determine nature and extent of materials to be removed.
 - .2 Examine site of proposed work and obtain all information that may be required for proper execution of work.

- .3 Examine adjacent areas. Determine extent of protection required.
- .2 Preparation
 - .1 Protection
 - .1 Conform to requirements of related sections, and General Requirements.
 - .2 Do not interfere with use and activities of the building. Maintain free and safe passage to and from the building. Maintain integrity of existing fire exits.
 - .3 Protect adjacent areas against damage which might occur from falling debris or other causes due to work of this Section.
 - .4 Shore up or otherwise securely support and protect all parts of the building as required, which may be endangered or which may cause injury during the Work.
 - .5 If articles of historical interest should be uncovered present these to the Owner's representative or the Architect for review.
 - .6 Protect public from injury. Undertake Work and effect all arrangements required by Authorities having Jurisdiction for protection of public. Disconnect mechanical and electrical services as required before commencing demolition.
 - .7 Provide a competent, experienced supervisor who shall be on Site at all times while Work is in progress.

3.2 DEMOLITION

- .1 At the end of each day's work, leave work in safe condition ensuring that no parts of structure are in danger of collapsing.
- .2 Carry out demolition in accordance with requirements of CSA S350-M. Demolish required portions of existing structure and remove materials from Site to accommodate new work.
- .3 Remove and dispose of demolished materials except where noted otherwise and in accordance with Authorities having Jurisdiction.

3.3 DISPOSAL AND CLEAN-UP

- .1 All materials shall be removed from site and legally disposed of at municipally approved disposal sites, and to the approval of the Ministry of the Environment.
- .2 If, by any chance, an artifact of historical interest should become uncovered, notify the Architect and Owner and stop work in the area of the finding until the significance of the item can be confirmed.

- .3 Environmental
 - .1 Remove contaminated or dangerous materials as defined by Authorities having Jurisdiction, relating to environmental protection, from site and dispose of in safe manner to minimize danger at site or during disposal.
 - .2 Do not sell or burn materials on site.
- .4 Upon completion, leave in neat condition to approval of the Architect.

END OF SECTION 02060

PART 1 GENERAL

1.1 Related Sections

- .1 Metal flashings and trim Section 07620

1.2 Source quality control

- .1 Identify lumber by grade stamp of an agency certified by Canadian Lumber Standards Administration Board.

PART 2 PRODUCTS

2.1 Lumber material

- .1 Except as indicated or specified otherwise lumber shall be softwood, SAS, moisture content (MC) not greater than 19% at time of installation, in accordance with following standards.
- .2 CSA 0141-1970
- .3 NLGA Standard Grading rules of Canadian Lumber
- .4 Machine stress-rated lumber is acceptable for all purposes.
- .5 Furring, blocking, nailing strips, grounds, rough bucks:
- .1 Use S4S material
- .6 Board: Eastern spruce species, NLGA construction grade, para. 122.

2.2 Panel material

- .1 Panels material shall be of type, grade and thickness as indicated in accordance with the following standards:
- Douglas fir plywood (DFP): to CSA 0121-M1978.
 - Canadian softwood plywood (CSP): to CSA 0151-M1978

2.3 Building papers

- .1 Exterior wall sheathing paper: to CAN 2-51.32-M77 single ply, perforated.

2.4 Damproof membrane

- .1 Polyethylene: to CAN2-51.33-M77, type 1, 0.15mm thickness.

2.5 Fastenings and hardware

- .1 In accordance with OBC as supplemented by following requirements except where specific type is indicated.
- .2 Nails, spikes and staples: to OBC except: Use common spiral nails and spiral spikes except where indicated otherwise.
- .3 Use hot galvanized finish steel for exterior work
- .4 Bolt, nut, washer, screw and pin type features: With hot-dip galvanized finish for exterior work, elsewhere with primer paint finish where installed on sight exposed surfaces.
- .5 Use surface fastenings of following types, except where specific type is indicated.

PART 3 EXECUTION

3.1 Furring, strapping and blocking

- .1 Install furring, strapping and blocking as required and as indicated on the drawings.
- .2 Align and plumb faces of furring and blocking to tolerance of 1:600.

END OF SECTION 06100

PART 1 GENERAL

1.1 Summary

Section Includes:

- .1 Lead Coated Copper roof for the new belfry consisting of batten-seam copper roofing (for the hips) and S-Lock seam for the remainder of the roof.

1.2 Related sections:

- .1 Section 07620 Metal Flashings
- .2 Section 07900 Sealants

1.3 Coordination

- .1 Coordinate copper roofing with rain drainage work, flashing, trim and construction of decks and other adjoining work to provide permanently watertight, secure, and noncorrosive installation.

1.3 Performance requirements

- .1 Installation Requirements: Fabricator is responsible for installing system, including anchorage to substrate and necessary modifications to meet specified and drawn requirements and maintain visual design concepts in accordance with Contract Documents and following installation methods as stipulated in the "Copper in Architecture" handbook published by the Copper Development Association Inc. (CDA)
 - .1 Drawings are diagrammatic and are intended to establish basic dimension of units, sight lines, and profiles of units.
 - .2 Make modifications only to meet field conditions and to ensure fitting of system components.
 - .3 Obtain Architect's approval of modifications.
 - .4 Provide concealed fastening wherever possible.
 - .5 Attachment considerations: Account for site peculiarities and expansion and contraction movements so there is no possibility of loosening, weakening and fracturing connection between units and building structure or between components themselves.
 - .6 Obtain Architect's approval for connections to building elements at locations other than indicated in Drawings.
- .2 Performance Requirements:

- .1 System shall accommodate movement of components without buckling, failure of joint seals, undue stress on fasteners, or other detrimental effects when subjected to seasonal temperature changes and live loads.
- .2 Design system capable of withstanding building code requirements for negative wind pressure.
- .3 Interface With Adjacent Systems:
 - .1 Integrate design and connections with adjacent construction.
 - .2 Accommodate allowable tolerances and deflections for structural members in installation.

1.4 Submittals

- .1 General: Submit the following in accordance with Conditions of Contract and Specification Section 01300.
- .2 Product data including metal manufacturer's specifications, installation instructions, and general recommendations for roofing applications. Include certification or other data substantiating that materials comply with requirements.
- .3 Shop drawings showing manner of forming, joining, and securing copper roofing, and pattern of seams. Show expansion joint details and waterproof connections to adjoining work and at obstructions and penetrations.
- .4 Samples consisting of 6-inch (150 mm) or 12-inch (300 mm) square specimens of specified copper roofing material.

1.5 Quality assurance

- .1 Fabricator's Qualifications: Company specializing in copper sheet metal roofing work with three years experience in similar size and type of installations (suggested fabricator - Heather & Little Ltd.)
- .2 Installer: A firm with 3 years of successful experience with installation of copper roofing of type and scope equivalent to Work of this Section (suggested installer - Heather & Little Ltd.)
- .3 Industry Standard: Except as otherwise shown or specified, comply with applicable recommendations and details of the "Copper in Architecture" handbook published by the Copper Development Association Inc. (CDA). Conform to dimensions and profiles shown.
- .4 Wind Uplift: Provide roof assemblies meeting wind uplift ratings as required by code.
- .5 Mock-Up: Before proceeding with final purchase of materials and fabrication of copper roofing components, prepare a mock-up of work. Incorporate materials and methods of fabrication and installation identical with project requirements. Install mock-up at roof area location directed by Architect. Retain accepted

mock-up as quality standard for acceptance of completed copper roofing. If accepted, mock-up may be incorporated as part of copper roofing work.

- .1 Provide mock-up of sufficient size and scope to show typical pattern of seams, fastening details, edge construction, and finish texture and color.

1.6 Delivery, storage and handling

- .1 Packing, Shipping, Handling, and Unloading: Protect finish panel faces.
- .2 Acceptance at Site: Examine each panel and accessory as delivered and confirm that finish is undamaged. Do not accept or install damaged panels.
- .3 Storage and Protection:
 - .1 Stack pre-formed material to prevent twisting, bending, and abrasions.
 - .2 Provide ventilation.
 - .3 Prevent contact with materials which may cause discoloration or staining.

1.7 Warranty

- .1 Warrant installed system and components to be free from defects in material and workmanship for period of 2 years.
- .2 Include coverage against leakage and damages to finishes.

PART 2 PRODUCTS

2.1 Available Manufacturers:

Subject to compliance with requirements, manufacturers offering materials that may be incorporated in the Work include, but are not limited to, the following:

- .1 Hussey Copper, Ltd.
- .2 Luvata, Inc.
- .3 PMX Industries Inc.
- .4 Revere Copper Products, Inc.

2.2 Materials

- .1 Lead Coated Copper Roofing Sheets: Weight: 16 oz. per sq. ft. unless otherwise indicated.
- .2 Miscellaneous Materials: Provide materials and types of fasteners, solder, protective coatings, separators, sealants and accessory items as recommended by copper sheet manufacturer for lead coated copper roofing work, except as otherwise indicated.
- .3 Accessories: Except as indicated as work of another specification Section, provide components required for a complete roof system,

including trim, cleats, seam covers, battens, flashings, sealants, gaskets, and closure strips. Match materials and finishes of roof.

- .1 Sealing Tape: Pressure-sensitive 100 percent solids polyisobutylene compound sealing tape with release paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape.
- .2 Joint Sealant: One-part, copper compatible elastomeric polyurethane, polysulfide, butyl or silicone rubber sealant as tested by sealant manufacturer for copper substrates.
- .3 Cleats:
 - .1 Concealed type as indicated in the "Copper in Architecture" handbook published by the Copper Development Association Inc. (CDA) for batten seam spaced on 12-inch (300-mm) centers.
 - .2 Fabricate cleats to allow thermal movement of copper roof panels while preventing copper panel distortion due to wind uplift forces.
- .4 Trim, Closure Pieces, and Accessories:
 - .1 Same material and finish as adjacent copper roof panels, brake formed to required profiles.
 - .2 Comply with standards conforming to recognized industry standard sheet metal practice.
- .5 High Temperature Grade Water Barrier Underlayment: Cold applied, self-adhering membrane composed of a high density, cross laminated polyethylene film coated on one side with a layer of butyl rubber or high temperature asphalt adhesive. Provide primer when recommended by water barrier manufacturer.
 - .1 Minimum Thickness: 30 mil.
 - .2 Tensile Strength: ASTM D 412 (Die C Modified); 250 psi.
 - .3 Membrane Elongation: ASTM D412 (Die C Modified); 250%.
 - .4 Permeance (Max): ASTM E96; 0.05 Perms.
 - .5 Acceptable Products:
 - .1 Blueskin PE 200 HT, Henry.
 - .2 Ultra, W.R. Grace Company.
 - .3 CCW MiraDRI WIP 300 High Temperature, Carlisle Coatings and Waterproofing.
- .6 Nails for Wood Substrates: Copper or hardware bronze, 0.109-inch minimum not less than 7/8-inch (22-mm) long barbed with large head.

- .7 Screws & Bolts: Copper, bronze, brass, or passivated stainless steel (300 Series) of sufficient size and length to sustain imposed stresses
- .8 Cleats: 16 or 20 oz ounce cold rolled copper, as required to sustain loads 2-inch (50 mm) wide x 3-inch (75-mm) long.
- .9 Solder: ASTM B32; Provide 50-50 tin/lead or lead free alternative of similar or greater strength solder. Killed acid flux.
- .10 Flux: Muriatic acid neutralized with zinc or approved brand of soldering flux.
- .11 Rivets:
 - .1 Pop Rivets: 1/8-inch (3-mm) to 3/16-inch (4.5-mm) diameter, with solid brass mandrels.
 - .2 Provide solid copper rivet (tinner's rivets) where structural integrity of seam is required.

2.3 Fabrication

- .1 General Metal Fabrication: Shop-fabricate work to greatest extent possible. Comply with details shown and with applicable requirements of the "Copper in Architecture" handbook published by the Copper Development Association (CDA) and other recognized industry practices. Fabricate for waterproof and weather-resistant performance with expansion provisions for running work, sufficient to permanently prevent leakage, damage, or deterioration of the work. Form work to fit substrate. Comply with material manufacturer's instructions and recommendations for forming material. Form exposed copper/lead coated copper work without excessive oil-canning, buckling, and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.
 - .1 Fabricate to allow for adjustments in field for proper anchoring and joining.
 - .2 Form sections true to shape, accurate in size, square, free from distortion and defects.
 - .3 Cleats: Fabricate cleats and starter strips of same material as sheet, interlockable with sheet in accordance with CDA recommendations.
 - .4 Tin edges of copper sheets and cleats at soldered joints for flat lock and soldered system.
- .2 Seams: Fabricate non-moving seams in copper sheet with flat-lock seams. Tin edges and cleats to be soldered, form seams, and solder.
- .3 Expansion Provisions: Where lapped or bayonet-type expansion provisions in work cannot be used, or would not be sufficiently water/weatherproof, form expansion joints of intermeshing hooked flanges, not less than 1-inch (25-mm) deep, filled with mastic sealant (concealed within joints).

- .4 Sealant Joints: Where movable, non-expansion-type joints are indicated or required for proper performance of work, form copper to provide for proper installation of elastomeric sealant, in compliance with the "Copper in Architecture" handbook published by the Copper Development Association Inc.
- .5 Separations: Provide for separation of copper from noncompatible metal or corrosive substrate by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.
- .6 Solder:
 - .1 Solder and seal non-moving copper joints on slopes up to 3:12, except those indicated or required to be expansive type joints.
 - .2 After soldering, remove flux. Wipe and wash solder joints clean. Refer to CLEANING Article in PART 3.

2.4 Finishes

- .1 Natural weathering lead coated copper. No applied finish.

PART 3 EXECUTION

3.1 Examination

- .1 General: Examine conditions and proceed with work when substrates are ready.
- .2 Confirm that substrate system is even, smooth, sound, clean, dry, and free from defects.

3.2 Preparation

- .1 Clean surfaces to receive copper/lead coated copper roofing. Substrate to be smooth and free of defects. Drive all projecting nails or other fasteners flush with substrate.
- .2 Water Barrier Underlayment:
 - .1 Install high temperature grade water barrier on clean, dry roof substrate.
 - .2 Remove dust, dirt, and loose fasteners.
 - .3 Remove protrusions from the deck area.
 - .4 Verify substrate has no voids, damaged, or unsupported areas.
 - .5 Repair voids or unacceptable areas before installing membrane.
 - .6 Prime substrates with manufacturer's approved primer if required for proper installation of membrane over substrate.
 - .7 Install membrane in strict accordance with manufacturer's printed application procedures, precautions, and limitations.
 - .8 Start application at low points and lap membrane shingle fashion to prevent water penetration.

- .9 Membrane Underlayment: Apply horizontally, lapping preceding layer not less than 4-inches (100 mm). End lap membrane not less than 6-inches (150-mm) .
 - .10 Maximize adhesion to substrate by brooming or rolling membrane in place after placement.
 - .11 Center membrane at valleys, hips, and ridges.
- .3 Install underlayment on substrate under copper roofing to greatest extent possible unless otherwise recommended by manufacturer of sheet metal.

3.3 Installation

- .1 Manufacturer's Recommendations: Except as otherwise shown or specified, comply with recommendations and instructions of manufacturer of copper being fabricated and installed.
- .2 General:
 - .1 Roof panels should be horizontally oriented and be not more than 24" vertically by the full width of the belfry side. Installation of panels should begin at the uppermost panel and work downward.

Horizontal or transverse seams should utilize an S-lock seam on the lower edge. Install a continuous edge strip along the eave for the last panel to hook onto.

Hips to utilize a traditional standing seam. All fasteners to be concealed within the horizontal s-locks.
 - .2 Separate dissimilar metals by painting each metal surface in area of contact with a bituminous coating, by applying rubberized asphalt or butyl underlayment to each metal surface, or by other permanent separation as recommended by manufacturers of dissimilar metals.
 - .3 Form and fabricate sheets, seams, strips, cleats, valleys, ridges, edge treatments, integral flashings, and other components of copper/lead coated copper roofing to profiles, patterns, and drainage arrangements shown and as required for permanently leakproof construction. Provide for thermal expansion and contraction of the work, as indicated. Seal joints as shown and as required for leakproof construction. Shop-fabricate materials to greatest extent possible.
 - .4 Sealant-Type Joints: Where sealant-filled joints are used, embed hooked flanges of joint members not less than 1 inch (25 mm) into sealant. Form joints to conceal sealant completely.
 - .5 Fabricate and install work with lines and corners of exposed units true and accurate. Form exposed faces flat and free of buckles, excessive waves, and avoidable tool marks considering temper and reflectivity of metal. Provide uniform, neat seams with minimum exposure of solder, and sealant. Except as otherwise shown, fold back sheet metal to form a hem on concealed side of exposed edges.

- .5 Conceal fasteners and expansion provisions where possible in exposed work, and locate so as to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.
- .6 Tin uncoated copper surfaces and cleats at edges of sheets to be soldered, for a width of 1-1/2 inch (38 mm), using solder recommended for copper work.

3.4 Cleaning

- .1 Remove protective film (if any) from exposed surfaces of copper roofing promptly upon installation. Strip with care to avoid damage to finishes.
- .2 Upon completion of each area of soldering, carefully remove flux and other residue from surfaces. Neutralize acid flux by washing with baking soda solution, and then flushing clear water rinse. Use special care to neutralize and clean crevices.
- .3 Clean exposed metal surfaces of substances that would interfere with uniform oxidation and weathering.

3.5 Protection

- .1 Provide final protection in a manner acceptable to installer that ensures that copper/lead coated copper roofing is without damage or deterioration at time of Substantial Completion.

END OF SECTION 07610

PART 1 - GENERAL

1.1 Summary

- .1 This Section includes shop and field formed lead coated copper (LCC) roofing accessories, flashings, trim, as indicated on the Drawings as:
 - 1. Counter flashing and base flashing.
 - 2. Cap flashing and drip flashing
 - 3. Miscellaneous accessories.

1.2 Related Work Specified Elsewhere

- .1 Section 06100: Rough Carpentry
- .2 Section 07900: Sealants

1.3 Submittals

- .1 General: Submit the following in accordance with Conditions of Contract and Section 01300 Submittals.
- .2 Product data for flashing, metal, and accessories: Manufacturer's technical product data, installation instructions and general recommendations for each specified sheet material and fabricated product.
- .3 6 or 12-inch-long samples of fabricated products exposed as finished work. Provide complete with specified finish.
- .4 Shop drawings showing layout, profiles, methods of joining, and anchorage details. Provide layouts at 1/4-inch scale and details at 3-inch scale.

1.4 Project Conditions

- .1 Coordinate work of this section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance and durability of work and protection of materials and finishes.

PART 2 - PRODUCTS

2.1 Materials

2.1.1 Lead Coated Copper (LCC) - flashings

- .1 Lead-coated copper complying with ASTM B 101, temper designation H00, consisting of cold-rolled copper sheet coated both sides with lead weighing not less than 12 lbs. nor more than 15 lbs. per 100 sq. ft. of copper sheet (one half of total weight of lead applied each side).
- .2 Weight of Coated Sheet: Not less than 17.1 oz. per sq. ft. (nominal weight of bare copper sheet, 16 oz.), unless otherwise indicated.
- .3 Solder: Provide 50 - 50 tin/lead solder (ASTM B 32), with rosin flux.

2.1.2 Accessories

- .1 Fasteners: Same metal as flashing/sheet metal or other non-corrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened.
- .2 Bituminous Coating: SSPC - Paint 12, solvent-type bituminous mastic, nominally free of sulfur, compounded for 15-mil dry film thickness per coat.
- .3 Expansion Joint Bellows Materials: 60 mil cured and calendared neoprene sheet.
- .4 Mastic Sealant: Polyisobutylene; non-hardening, non-skinning, non-drying, non-migrating sealant.
- .5 Elastomeric Sealant: Generic type recommended by manufacturer of metal and fabricator of components being sealed and complying with requirements for joint sealants as specified in section 07900: Sealants.
- .6 Epoxy Seam Sealer: 2-part noncorrosive metal seam cementing compound, recommended by metal manufacturer for exterior/interior nonmoving joints including riveted joints.
- .7 Adhesives: Type recommended by flashing sheet manufacturer for waterproof/weather-resistant seaming and adhesive application of and compatibility with flashing sheet.
- .8 Roofing felt: asphalt or coal tar saturated felt weighing not less than 30 lbs per 100 square feet.
- .9 Paper Slip Sheet: 4 to 6-lb. rosin-sized building paper.
- .10 Reglets: Units of type and profile indicated, compatible with copper, non-corrosive.
- .11 Metal Accessories: Provide clips, straps, anchoring devices, and similar required for installation of work, noncorrosive, size and gauge required for performance.

2.2 Fabricated LCC Units

- .1 General Metal Fabrication: Shop-fabricate work to greatest extent possible. Comply with details shown and with applicable requirements of Copper Development Association (CDA) "Copper in Architecture Handbook" and other recognized industry practices. Fabricate for waterproof and weather-resistant performance, with expansion provisions for running work, sufficient to permanently prevent leakage, damage, or deterioration of the work. Form work to fit substrates. Comply with material manufacturer instructions and recommendations for forming material. Form exposed copper work without excessive oil-canning, buckling, and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.

- .2 Seams: Fabricate non-moving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder. Rivet joints for additional strength where required.
- .3 Expansion Provisions: Where lapped or bayonet-type expansion provisions in work cannot be used or would not be sufficiently water/weatherproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).
- .4 Sealant Joints: Where movable, non-expansion type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant, in compliance with CDA standards.
- .5 Separations: Provide for separation of metal from non-compatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.

PART 3 - EXECUTION

3.1 Installation Requirements

- .1 General: Except as otherwise indicated, comply with manufacturer's installation instructions and recommendations and with CDA "Copper in Architecture Handbook". Anchor units of work securely in place by methods indicated, providing for thermal expansion of units; conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weatherproof.
- .2 Underlayment: Where installation is to be directly on cementitious or wood substrates, install a slip sheet of red rosin paper on a course of asphalt saturated felt.

3.2 Cleaning and Protection

- .1 Clean exposed surfaces, removing substances that might cause discoloration of metal.
- .2 Caulk all joints in flashing. Do caulking at through roof openings, and all reglets using caulking as specified.
- .3 Dissimilar metals in contact, or metals in contact with adjacent surfaces shall be separated from one another to prevent corrosion, staining, or electrolysis by use of approved methods and materials.
- .4 Caulking compound shall be applied in strict accordance with the manufacturer's application instructions. Use proper surface primers where necessary.
- .5 Colour of caulking compound shall be the integral colour of the abutting material.

END OF SECTION 07622

PART 1 GENERAL

1.1 RELATED WORK

- .1 Section 07620 Metal Flashings

1.2 REFERENCES

- .1 CAN2 - 19.24M - Sealing compound: Multi component, chemical curing.
- .2 CAN2 - 19.13M - Sealing compound: One part, neutral curing.

1.3 SUBMITTALS

- .1 Submit manufacturer's printed technical data for all materials used, including cleaners and primers.
- .2 Submit letter from manufacturer certifying that the existing conditions, surface preparation and application techniques conform with their specifications.
- .3 Submit duplicate samples of each type of material and colour to be used in accordance with Division 1. Cure samples under conditions anticipated at job site during application.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver all materials in original containers and packing.
- .2 Do not remove manufacturer's labels and seals until reviewed by the Architect.
- .3 Store materials in a waterproof enclosure. Keep materials dry until use.
- .4 Do not store materials in unheated enclosure when temperatures are less than 5°C.

1.5 ENVIRONMENTAL CONDITIONS

- .1 Sealant and substrate materials to be minimum 5°C when applied.
- .2 Should it become necessary to apply sealant below 5°C, consult sealant manufacturer's technical representative and follow written recommendations.
- .3 Apply sealant only to completely dry surfaces.

1.6 WARRANTY

- .1 Contractor hereby warrants that sealant work will not leak, crack, crumble, melt, shrink, run, lose adhesion or stain adjacent surfaces.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Sealant

- .1 The colour of sealant shall match the sheet metal or substrate to be sealed and shall be selected by the Owner from standard colour charts.
- .2 Ensure all materials of sealant system are compatible, and that they will not adversely affect adjacent materials.
- .3 Polyurethane Sealant: Multi-component chemical curing polyurethane sealant shall conform to CAN2-19.24M:
 - Tremco, Dymeric
- .4 Silicone Sealant: One part neutral cure silicone sealant shall conform to CAN2-19.13-M:
 - Tremco, Spectrum 2
- .5 Primers shall be recommended by the sealant manufacturer for the surfaces to be adhered to and not injurious to the surface to which it comes in contact.

.2 Cleaners

- .1 Solvent cleaners shall be as recommended by sealant manufacturer and be compatible with the surfaces to receive the cleaner:
 - Xylol
 - Methylethylketone (MEK)

The contractor should note that these products are highly flammable and take necessary precautions.

.3 Sundries

- .1 Backer rod shall have a diameter 25% larger than joint width:
 - Sof-Rod as distributed by Tremco
- .2 Bond breaker tape shall be pressure sensitive fibre reinforced adhesive tape which will resist adhesion by sealant.
- .3 Voids filler shall be loose mineral wool insulation.

Note: Ensure that all materials of sealant system are compatible, and that they will not adversely affect adjacent materials.

PART 3 EXECUTION

3.1 EXAMINATION

- .1 Apply sealant only to surfaces which are structurally sound and completely dry, at air temperatures within acceptable range established by manufacturer's specifications.
- .2 Verify that the specified site conditions exist before commencing work.

3.2 PREPARATION

- .1 Remove all dust, dirt, oil and grease to expose a sound substrate, without damaging finishes.
- .2 Do not allow cleaners, primers, or sealant to cover or spot surfaces outside of joints. Protect adjacent surfaces with approved masking material if necessary.
- .3 Clean and prime surfaces to receive sealant as required by substrate and manufacturer's specifications to ensure positive and permanent adhesion and to prevent staining.
- .4 As minimum requirements, clean all metal or glass surfaces of grease and latency by wiping with a clean rag saturated with cleaning solvent. Wipe cleaned surfaces a second time with a clean dry rag to remove any remaining residue.
- .5 Use compressed air to blow and remove all dust from concrete or masonry surfaces that have been sawcut or repaired.
- .6 Tightly install backing rod, set at depth appropriate for sealant. Install backer rod without stretching, twisting, braiding or puncturing its outer skin.
- .7 Install bond breaker tape in bottom of joints instead of backer rod where proper depth could not be obtained with sealant installed and at thin metal components.
- .8 Do not allow cleaners, primers, or sealant to cover or spot surfaces outside of joints. Use masking tape if necessary.

3.3 APPLICATION

- .1 Fill joints with sealant using equipment approved by manufacturer and finish joints with a full bead so that they are smooth and free from ridges, air pockets and embedded foreign materials. Tool surface to a slightly concave profile.
- .2 Minimum bite onto adjacent surfaces of 1/4" when needle beading.
- .3 Ensure drainage holes are not blocked by the new sealant.
- .4 Apply silicone sealant prior to other materials.

3.4 CLEAN-UP

- .1 Remove excess sealant, smears, droppings and masking tape immediately on completion of sealant in affected area. Do not use chemicals, scrapers or other tools which affect the finished surface. Replace finished surfaces damaged due to this work to Architect's approval at no extra cost to the Owner.
- .2 Cleaning methods to be approved in advance by Architect.

END OF SECTION 07900

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- .1 Comply with requirements of Division 1

1.2 SCOPE OF WORK

- .1 General: Provide all labor, materials, equipment, and services required to complete wood window restoration as specified herein, and required by existing conditions and authorities having jurisdiction.
- .2 Wood window restoration may include, but is not limited to, the following:
 - 1. Remove windows identified on the drawings with numbers for off-site restoration (number and indentify by location during removal). Secure the window openings with plywood panels to secure the building for the duration of the restoration.
 - 2. Consolidate and repair/dutchman deteriorated wood sills, framing members, sash rails and stiles and parting strips as identified on the drawings.
 - 3. Clean, scrape and repaint all wood elements as necessary to match original finishes.
 - 4. Replace window putty as noted on the drawings (exterior of windows).
 - 5. Clean, scrape and repaint the windows sills & frames in situ.
 - 6. Reinstall windows. Restore all window trim disturbed from work of this Section to sound condition and existing appearance.
- .3 This Section also includes for the restoration of the frames and trim of the exterior doors (D1, D2 & D3).

1.3 RELATED WORK

- | | | |
|----|---------------|--------------------------|
| .1 | Section 07900 | Sealants |
| .2 | Section 08612 | Wood Epoxy Consolidation |
| .3 | Section 09900 | Painting |

1.3 QUALITY ASSURANCE

- .1 Craftspeople: Wood window restoration shall be carried out by a steady crew of skilled craftspeople who are thoroughly experienced with materials and methods specified.
- .2 Laws, Codes, and Regulations: All work of this Section shall comply with all applicable national provincial, and local laws, codes, and regulations.

- .3 Knowledge of Site: Bidders shall visit site prior to bid and carefully examine Project scope and conditions that may affect proper execution of work of this Section and determine or verify dimensions and quantities. Contractor's submission of bid shall be acknowledgment that s/he is thoroughly familiar with Project scope and site conditions.
- .4 Access for Inspection, Documentation and Approvals: Provide Architect access on a regular basis to all locations on which mockups are being carried out, on which work is ongoing, and where work has been completed to allow for inspections, documentation and approvals. Provide means of access and safety precautions required to facilitate inspections and approvals.

1.5 INTENT

The intent of this Work includes:

- .1 Conserve the original fabric (including original finishes and patinas where indicated).
- .2 Repair components where indicated duplicating original details.
- .3 To ensure that all operating windows are well fitted and easy to operate, planing and sanding as required.

1.6 SUBMITTALS

- .1 Provide samples of the following for review prior to the start of construction or fabrication in accordance with section 01300 Submittals:
 - 1. Submit one 12 inch length of each wood profile required for replacements (if such replacements are necessary).
- .2 Submit manufacturer's product literature to architect for all proprietary products specified for treatment. Product literature shall include specification data, Material Safety Data Sheets and instructions for storage, handling and use.

1.7 PROJECT CONDITIONS

- .1 Protection of Persons: Take all necessary precautions to protect all persons, whether engaged in work of this Section or not, from all hazards of any kind associated with the work of this Section.
- .2 Protection of Window Opening: After removal of the sash, all window openings shall be closed with plywood panels fitted to each individual window and secured by non-destructive anchoring system. The panel shall be adequately weathertight and not permit any moisture to enter the building.
- .3 Protection of Building: Protect building elements and finishes from damage or deterioration caused by work of this Section. Repair any damage to materials or finishes to Architect's satisfaction at no additional cost.
 - 1. Take all necessary precautions to prevent fire and spread of fire.

2. Take all necessary precautions to protect building elements and finishes from damage by precipitation during work of this Section. Protect openings at all times. Repair or replace to Architect's satisfaction all building elements and materials damaged by weather resulting from window openings that did not sufficiently exclude weather at no additional cost.
- .4 Coordination: Coordinate work of this Section with work specified in other sections to ensure proper completion of the Work.

1.8 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store, and handle all products and materials to prevent damage, deterioration, or degradation and intrusion of foreign material.
- .2 Discard and remove from site deteriorated or contaminated materials and products that have exceeded their expiration dates. Replace with fresh materials.

PART 2 PRODUCTS

2.1 GENERAL

- .1 Grade and Quality: Materials shall conform to requirements of this Section and shall be new, free from defects, and of recent manufacture.
- .2 Manufacturer's Instructions: Comply with material manufacturers' instructions for use of products (including surface preparation, mixing, applying, drying, etc.). In case of conflict with requirements of this Section, the more stringent requirements shall govern.

2.2 WOOD

- .1 Wood for Repairs of Existing Elements shall match profile and grade of existing windows in species, quality, cut, and grain pattern in kind. Any wood used for repairs must be old growth.
- .2 Wood shall be free from defects or blemishes on surfaces exposed to view that will show after paints and finishes have been applied. Materials that do not comply with specifications for quality and grade, are in any way defective, or are otherwise not in proper condition will be rejected.
- .3 Preservative treatment shall be used for new wood after machining.

2.3 ADHESIVES

- .1 Adhesive for Dutchman repairs, member replacement, and fabrication of new Sash: Exterior: Resorcinol™ resin adhesive (CSA 0112.7-M1977 Class II Type 1) or 2 Part Epoxy, G2 by Industrial Formulators of Canada Ltd. or approved equivalent. Do not use polyvinyl acetate—"carpenter's glue".

2.4 HARDWARE AND ACCESSORIES

- .1 All existing hardware is to be reused (ensure its proper operation)

2.5 PUTTY

- .1 Glazing Putty: Putty is to be best quality pure linseed oil from manufacturer approved by Architect.

PART 3 EXECUTION

3.1 SAFETY

- .1 Protection: Protect people, adjoining building surfaces, collections and landscape elements, et al from injury resulting from window restoration work. Use drop cloths or other coverings as necessary to protect interior finishes, floor and collections and exterior landscape material from dust and debris, etc.

3.2 INSPECTION

- .1 Examine the areas and conditions where window and door restoration is to be executed. Take all necessary field measurements. Notify the Architect of conditions detrimental to the proper and timely completion of Work. Do not proceed until unsatisfactory conditions are corrected.

3.3 REMOVALS

- .1 All windows may be removed for restoration with approved window protection during the period of restoration. Alternatively, restoration can be done in-situ if all required environmental conditions can be met.
- .2 Identify and label each component that is to be removed and repaired for reinstallation with window opening designator and location in jamb. Record numbers and locations of components.
- .3 Remove adjacent elements as required to modify or replace elements of window jambs, heads, and sills that must be altered. Use all care necessary to prevent damage or deterioration of elements removed and elements remaining in place. Restore or replace all elements damaged during work of this Section to Architect's satisfaction at no additional cost.
- .4 Store removed elements in a secure location safe from theft, damage, and deterioration.
- .5 Remove all face glazing compound from each window sash using steam, infrared heat or other approved method.
- .6 Cracked glass if noted is only to be replaced with prior approval of Architect. Fractured panes should be glued if at all possible, rather than replaced. Any replacement of glass in to be done in kind.

- .7 Paint Removal: All paint will be removed from sash as needed in order to ensure successful adhesion of new paint. Steam or heat will be used to carefully remove the paint while limiting the damage to the wood substrate.
- .8 Hardware Removal: All hardware will be labeled and removed as needed in order to restore sash and hardware.
 - 1. Scribe paint around hardware so that removal of hardware does not splinter adjacent wood.
 - 2. Remove paint from hardware so that any screws may be loosened.
 - 3. Tag and retain all hardware and screws.
 - 4. Allow Architect to review all hardware so that a determination may be made as to whether hardware will be reinstalled.
- .9 Care must be taken not to destroy or mar the visible fabric and to avoid crushing, denting, splitting, scoring or scuffing any part or component of the windows during disassembly, moving or construction. Extreme caution should be used with pry bars, hammers or other tools and equipment. If necessary or feasible, nails which have to be removed should be snapped off on the back side of the component rather than driven back through the face.

3.4 RE-GLAZING (if cracked panes are identified during windows' removal)

- .1 Contractor shall carefully remove any damaged panes identified on the drawings
- .2 Where possible find replacement glazing from existing inventory, or that failing, find replacements which match the quality, thickness, and colour as the original.
- .3 All glazing compound is to be carefully removed.
- .4 Deteriorated glazing putty can be easily removed with chisels. Hard putty can be softened with paint stripper, linseed oil or an electric putty knife to make removal easier.

3.5 REPLACEMENT MULLIONS, MOULDINGS, STOPS, ETC.

- .1 Replacement material shall be the same species as original.
- .2 Each new piece is to match exactly the size and profile of the item to be replaced.
- .3 Prepare sample of each item for review by Architect prior to milling the material..
- .4 Back prime all new material prior to installation.
- .5 Direction, spacing/width and orientation of the grain is to match the existing.
- .6 Joints shall match existing and shall be tight so that after finishing they are only visible from close inspection.

3.6 RE-INSTALLATION OF RESTORED SASH

- .1 Reinstall as noted on general notes for typical windows
- .2 Reinstall interior stops. Fill holes in jambs to ensure good purchase for screws.

3.7 DUTCHMAN REPAIRS (if required)

- .1 Dutchman repairs shall provide continuous smooth surfaces matching planes and profiles of wood members being repaired. dutchman shall be of old growth wood, matching the wood being repaired in specie and cut. In wood for clear finish, grain pattern of dutchman shall match grain pattern of wood into which it is inserted.
- .2 Preparation: Neatly cut out existing opening as required to provide a prismatic void. Wherever possible create voids that will provide mechanical attachments as in dovetails. The amount of wood removed should be minimized but the amount should include all damaged wood and extend just past damaged wood to prevent spread of any fungus contained therein. Cut away area will provide ample glue surface.
- .3 Dutchman: Cut dutchman to exactly fit void, with exposed portion matching original profile of woodwork and just slightly proud of original surface. Orient grain of dutchman parallel to grain of element being patched. Where deterioration or loss at end of component requires dutchman repair, use a diagonal scarf joint for end-to-end joint between dutchman and remaining portion of component.
- .4 Installation: Clean glue surfaces with acetone or denatured alcohol. Insert dutchman using specified adhesive and clamp in place until glue is set. Where clamping is not feasible, use small brads; remove brads and fill holes after adhesive has set.
- .5 Surfacing: Plane or scrape dutchman to provide smooth continuous surface coplanar with adjacent wood. Do not damage or alter profile or finish of adjacent wood.

3.8 RESTORATION OF HISTORIC WINDOW HARDWARE (N/A)

- .1 Existing hardware is to be reinstalled at its original location.

END OF SECTION 08611

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- .1 Conform to all Sections of Division 1 as applicable.

1.2 SCOPE OF WORK

- .1 The work in this section consists of epoxy consolidation of deteriorated wood.
- .2 The intention is to consolidate the severely damaged, weathered and checked wood surfaces of windows, siding, trim, board & batten, where indicated on the drawings.

1.3 RELATED WORK

- .1 Section 08610 Conservation of Wood Windows
- .2 Section 09900 Painting

1.4 QUALIFICATIONS

- .1 Work of this section shall be completed by a company with a minimum of five (5) years proven experience in this type of work.

1.5 PRODUCT HANDLING AND STORAGE

- .1 Deliver epoxies in manufacturer's original, unopened containers and store inside at room temperature or as recommended by manufacturer.
- .2 Do not use epoxies which have exceeded manufacturer's shelf life.
- .3 Epoxies which have frozen since their manufacture are not to be used and are to be removed from site.
- .4 Follow safety precautions of epoxy as defined by product manufacturer. Observe good housekeeping practices when working with epoxies.
- .5 Flammable solvents may not be stored in or brought within 20 feet of historic building.

1.6 SUBMITTALS AND MOCK-UP

- .1 Provide sample of epoxy consolidant for review by Architect.
- .2 Contractor shall complete the work described in this section on one sample window identified beforehand by the Project Architect. This work shall be executed under direct review by the Architect. Acceptance of the completed sample by the Architect shall be necessary before additional consolidation work proceeds.

- .3 Provide Architect five (5) working days notice prior to undertaking work on this sample.

1.7 PROJECT CONDITIONS

- .1 Epoxy applications are to be performed in favorable weather conditions as defined herein and by manufacturer. The temperature range within the work area shall be between 15 to 32 degrees C. Construct temporary heated enclosures if required.
- .2 Wood to be consolidated must be dry and have a moisture content below 18% by weight. Polyethylene tents, installed after paint removal (See "Surface Preparation" 1.5.6) shall be maintained throughout this work.
- .3 Epoxy consolidant must be within a temperature range of 15 to 32 degrees C at the time of application. Wood within 3 inches of the consolidation area is to be within the temperature range of 7 to 32 degrees C. at the time of application. Use of a heated enclosure around the work area is acceptable. Shade mixing and application area from direct sunlight. Provide shade to application area for minimum of 8 hours following application.
- .4 Area is to be secured from public during epoxy application. Secure areas as necessary.
- .5 Mask or otherwise protect surrounding or adjacent historic fabric from all activities associated with this work.

PART 2 PRODUCTS

- .1 LiquidWood consolidant by Abatron Inc. Liquid Wood (262) 653-2000
info@ abatron.com
- .2 WoodEpoxy structural adhesive putty by Abatron Inc.
- .3 Fumed Silica: Fumed silica or equal may be used to thicken the patch to enhance tooling and application

PART 3 EXECUTION

3.1 INSPECTION

- .1 Wood deteriorating from fungal attack must be removed before the area for treatment can be accurately defined. Actual parameters for epoxy consolidation may vary for each situation. Verify conditions and proposed treatment with Project Architect.

3.2 PREPARATION

- .1 All loose wood and soft wood decay must be removed prior to application of

epoxy consolidant. Attempt to remove decay down to sound wood. Remove all loose wood fragments and thoroughly vacuum out all dust.

- .2 Remove paint from areas being treated with the careful use of heat guns, scraping and sanding. No chemical paint strippers or open flame devices shall be permitted.
- .3 Protect decayed area from moisture until consolidant has been applied and has completely set. Wood to be consolidated must be dry and have a moisture content of less than 18% within 3 inches of decay area.
- .4 Protect vegetation and all building fabric from damage, spills or drips.

3.3 APPLICATION

- .1 Mix a volume of Liquid Wood A with an equal volume of Liquid Wood B for at least one minute with blade or paddle.
- .2 Apply Liquid Wood mix to deteriorated wood by brushing, pouring or injecting.
- .3 For deeper penetration into wood, drill small holes through side grain and across end grain, and pour Liquid Wood into holes. Repeat process until wood is saturated.
- .4 Mix thoroughly a volume of WoodEpoxy A with an equal volume of WoodEpoxy B.
- .5 Apply WoodEpoxy to wood primed with LiquidWood while LiquidWood is still "tacky" to fill cracks, holes and replace missing wood.
- .6 Sand, plane and shape wood as desired. Priming and painting covered under Section 09900 Painting.

END OF SECTION 08612

PART 1 GENERAL

1.1 WORK INCLUDED

- .1 With the exceptions specified in other Sections of the Specification, all paintwork is included in the scope of this Section of the Specification.
- .2 Painting includes:
 - .1 All new wood related to the new belfry (woodwork exposed to the outside only)
 - .2 All window frames, sashes and sills (windows numbered on the drawings), as well as the three exterior doors (including frames and trim)
 - .3 The two signage panels on the front (north/east) elevation
 - .4 All board & batten siding of the original building, as well as the horizontal siding of the addition.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- | | | |
|----|------------------------------|---------------|
| .1 | Rough Carpentry | Section 06100 |
| .2 | Conservation of wood windows | Section 08611 |
| .3 | Wood Epoxy Consolidation | Section 08612 |

1.3 REFERENCE STANDARDS

- .1 Do painting and finishing to CGSB-85-GP series standards and to material manufacturer's instructions and/or to Ontario Painting Contractor's Association except where specifically specified otherwise.

1.4 SUBMITTALS

- .1 Submit a sample panel of each type of paint finish specified. Panel shall be of same material as that on which sample coatings are to be applied in the field where possible.

1.5 SIGNS

- .1 Provide legible signs throughout the work reading "WET PAINT" in prominent positions during painting and while paint is drying.

1.6 TEMPORARY COVERS AND PROTECTION

- .1 Protect the exterior masonry, as well as the adjacent sidewalk and landscaping with temporary covers such as polyethylene film or tarpaulins.
- .2 Infinite care must be taken inside the building to protect all adjacent surfaces and artifacts from any spillage of paint or spattering.

3. All walking paths through the building between the exterior and locations of work, must be protected with clean tarpaulins.
- .4 Clean surfaces soiled by spillage of paint, paint spattering and the like. If such cleaning operations damage the surface, repair and replace damaged work at no cost to the Owner.

1.7 RETOUCHING

- .1 Do all retouching, etc. to ensure that the woodwork may be handed over to the Owner in perfect condition, free of splatter, fingerprints, rust, watermarks, scratches, blemishes of other disfiguration.

1.8 LEAD-CONTAINING PAINT (LCP)

- .1 Perform all work that disturbs lead-containing paint (LCP), handle all material that involves lead-containing paint, and transport and dispose of all lead-containing paint and residue in compliance with all applicable federal, state, and local laws and regulations for identification, removal, labeling, handling, containerization, transportation, and disposal of lead-containing material.

* Refer to the Hazardous Materials Report by Pinchin (dated November 23, 2020), attached to this specification.

PART 2 PRODUCTS

- .1 Paint shall be of premium quality and match existing color exactly unless otherwise specified and shall comply with requirements of contract document. Primer shall be an alkyd primer and finish paint shall be 100% acrylic.

The following manufacturers are acceptable:

- .1 Benjamin Moore Co.
 - .2 Glidden Company, Division of S.C.M. (Canada) Ltd.
 - .3 Para Paints Ltd.
 - .4 Pratt & Lambert Inc.
 - .5 PPG Paints
- .3 Thinners, Cleaners – type and brand recommended by the paint manufacturer.
 - .4 Only products manufactured by paint manufacturer stated at time of submission of samples will be allowed on Site unless other materials specifically specified herein. No painting to be performed until paint manufacturer identified and acceptance received from the Architect.
 - .5 Deliver materials to Site in original unbroken containers bearing brand and maker's name. The presence of any unauthorized material or containers for such, on Site shall be of sufficient cause for rejection of ALL paint materials on Site at that time.

PART 3 EXECUTION

3.1 INSPECTION

- .1 Inspect all surfaces requiring painting and notify the Architect in writing of any defects or problems, prior to commencement of the work, or after prime coat reveals defects in the substrate.
- .2 Check all surfaces with electric moisture meter and do not proceed if reading is higher than 12% for gypsum board, concrete or masonry, and 15% for woodwork without written permission from Consultant.
- .3 Proceed with work only when surfaces and conditions are satisfactory for production of a first class job.
- .4 Remove dust, grease, rust and extraneous matter from all surfaces (except that rust occurring on items specified to be primed under other Sections shall be removed and work reprimed under those Sections).

3.2 PREPARATION OF SURFACES

- .1 Prepare Surfaces in accordance with the following standards unless otherwise specified:
 - .1 Surfaces to be cured to 12-14% range of moisture content before painting. Remove dirt, mortar and other contaminants
 - .2 Prepare wood surfaces to CGSB 85-GP-1a. Use CGSB 1-GP-125b vinyl sealer over knots and resinous areas. Use CGSB 1-GP-103b wood paste filler for nail holes. Tint filler to match for stained woodwork.

Test previously painted surfaces for compatibility with the new specified paint finish.

3.3 APPLICATION

- .1 Finishes and number of coats specified in 3.4 are intended to cover surfaces completely. If they do not, apply further coats until complete coverage is achieved as required.
- .2 Any areas exhibiting incomplete or unsatisfactory coverage shall have the entire plane painted. Patching will not be acceptable.
- .3 Spraying will not be allowed without written permission.
- .4 Apply materials in strict accordance with manufacturer's directions and specifications and be familiar with those directions and specifications.
- .5 Apply primer-sealer coats by brush. Permit paint to dry before applying succeeding coats, touch up suction spots and sand between coats with No. 00 sand paper.

- .6 Prime woodwork designated for painting as soon as possible after woodwork is delivered to Site. Prime all surfaces of such woodwork, whether exposed or not, before installation.
- .7 Where two coats of the same paint are to be applied, tint the first coat to differentiate from the final coat. Sand lightly between coats to achieve an anchor for the required finish.
- .8 Apply final coats on smooth surfaces by brush. Do NOT use roller.
- .9 Paint shall be uniform in sheen, colour and texture, free from brush or roller marks, sags, runs or other defects.

3.4 PAINT SYSTEMS

- .1 Previously painted exterior woodwork
 - 1st Coat Zinsser Bulls Eye 1-2-3® PLUS Primer, by Rust-Oleum
 - 2nd Coat Alkyd semi gloss
 - 3rd Coat Alkyd semi gloss

* Use Tremclad primer over any rusting nails, to prevent rust from bleeding onto the newly painted surfaces (applicable mainly to the horizontal siding of the addition)

- .2 New exterior woodwork:
 - 1st Coat Zinsser Bulls Eye 1-2-3® PLUS Primer, by Rust-Oleum
 - 2nd Coat Alkyd semi gloss
 - 3rd Coat Alkyd semi gloss

END OF SECTION 09900



Hazardous Building Materials Assessment

Meadowvale Village Community
Hall

6970 Second Line West,
Mississauga, Ontario

Prepared for:

City of Mississauga

300 City Centre Drive
Mississauga, Ontario, L5C 3B1

November 23, 2020

Pinchin File: 283113.000



Hazardous Building Materials Assessment

Meadowvale Village Community Hall, 6970 Second Line West, Mississauga, Ontario
City of Mississauga

8.4

November 23, 2020
Pinchin File: 283113.000

Issued to:	City of Mississauga
Issued on:	November 23, 2020
Pinchin File:	283113.000
Issuing Office:	Mississauga, ON

Author:	Anthony Rakic, PMP, EP
	Senior Project Manager
	905.363.1370
	arakic@pinchin.com

Reviewer:	Scott Cryer, P.Geo.
	Operations Manager – Hazardous Materials/Radon
	905.363.1311
	scryer@pinchin.com



EXECUTIVE SUMMARY

City of Mississauga (Client) retained Pinchin Ltd. (Pinchin) to conduct a hazardous building materials assessment in the Meadowvale Village Community Hall located at 6970 Second Line West, Mississauga, Ontario. Pinchin performed the assessment on November 5, 2020.

The objective of the assessment was to identify specified hazardous building materials in preparation for building renovation. The proposed renovations as identified by the Client include; construction of a new belfry on top of the existing roof and complete repainting of existing exterior features such as the exterior cladding, door and window frames

The results of this assessment are intended for use with a properly developed scope of work and performance specification.

SUMMARY OF FINDINGS

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

- Friable, cementitious firestopping

Lead: Lead is present as follows:

- Paints containing elevated lead concentrations are present as follows:
 - White paint on exterior wood siding
 - Green paint on plaster walls in the Attic space
- Batteries of emergency lights.

Silica: Crystalline silica is present in concrete, mortar, masonry, and plaster.

Mercury: Mercury vapour is present in light tubes.

Polychlorinated Biphenyls (PCBs): Based on the date of construction, PCBs may be present in light ballasts.

Mould and Water Damage: Visible mould and water damage was not observed in the assessed area.



SUMMARY OF RECOMMENDATIONS

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

1. Prepare specifications for the hazardous material removal required for the planned work.
2. Conduct further investigation of the following items, which could not be completed during this assessment due to limitations on scope, occupancy, or being in service at the time of the assessment:
 - a. Any materials listed as exclusions in this report, prior to disturbance.
3. Do not disturb suspected hazardous building materials discovered during the planned work, which have not been identified in this report and arrange for further evaluation and testing.
4. Remove and dispose of asbestos-containing materials if disturbed by the planned renovation work.
5. Recycle mercury-containing light tubes when removed from service.
6. Follow appropriate safe work procedures when handling or disturbing silica and lead.

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.



TABLE OF CONTENTS

1.0	INTRODUCTION AND SCOPE	1
1.1	Scope of Assessment	1
2.0	BACKGROUND INFORMATION	2
2.1	Building Description	2
2.2	Existing Reports	2
3.0	FINDINGS	3
3.1	Asbestos	3
3.2	Lead	6
3.3	Silica	7
3.4	Mercury	8
3.5	Polychlorinated Biphenyls	8
3.6	Mould	8
4.0	RECOMMENDATIONS	8
4.1	General	8
4.2	Building Renovation Work	9
5.0	TERMS AND LIMITATIONS	10
6.0	REFERENCES	10

APPENDICES

APPENDIX I	Drawings
APPENDIX II-A	Asbestos Analytical Certificates
APPENDIX II-B	Lead Analytical Certificates
APPENDIX III	Methodology



1.0 INTRODUCTION AND SCOPE

City of Mississauga (Client) retained Pinchin Ltd. (Pinchin) to conduct a hazardous building materials assessment in the Meadowvale Village Community Hall located at 6970 Second Line West, Mississauga, Ontario.

Pinchin performed the assessment on November 5, 2020. The surveyor was accompanied by a representative of the City of Mississauga during the assessment. The assessed area was vacant at the time of the assessment.

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

The proposed renovations as identified by the Client include; construction of a new belfry on top of the existing roof and complete repainting of existing exterior features such as the exterior cladding, door and window frames

1.1 Scope of Assessment

The assessment was performed to establish the location and type of specified hazardous building materials incorporated in the structure and its finishes. This assessment is intended to be used for renovation purposes only, and may not provide sufficient detail for long term management of hazardous materials as required by Health and Safety regulations.

The assessed area was limited to the parts of the building within the area to be renovated including:

- Roof, exterior cladding, interior ceiling space, and attic of the building. Flooring and wall finishes not affected by the proposed renovations were not assessed.

The extent of the assessed area was defined by the Client and is shown on the appended drawing.

For the purpose of the assessment and this report, hazardous building materials are defined as follows:

- Asbestos
- Lead
- Silica
- Mercury
- Polychlorinated Biphenyls (PCBs)
- Mould

The following Designated Substances are not typically found in building materials in a composition/state that is hazardous and were not included in this assessment:

- Arsenic
- Acrylonitrile
- Benzene
- Coke oven emissions
- Ethylene oxide
- Isocyanates
- Vinyl chloride monomer

2.0 BACKGROUND INFORMATION

2.1 Building Description

Assessed Area Description Item	Details
Use	Community Hall
Number of Floors	The building is one storey.
Total Area	The total area of the building is 1,000 square feet. The assessed area is 200 square feet.
Year of Construction	The building was constructed in 1872.
Structure	Wood framing
Exterior Cladding	Wood siding
HVAC	Forced air cooling, perimeter induction units
Roof	Asphalt shingles
Flooring	Vinyl floor tiles, vinyl sheet flooring, wood
Interior Walls	Plaster, drywall
Ceilings	Plaster

2.2 Existing Reports

Pinchin relied on the following report, which have been reviewed as part of this assessment:

- “HMIS Asbestos Assessment, Meadowvale Village Community Hall – MEH1” dated August 11, 2009, Pinchin File Number 48689.

3.0 FINDINGS

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

3.1 Asbestos

3.1.1 Pipe Insulation

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



Uninsulated pipe and pipe insulated with fibreglass insulation, Attic space.

3.1.2 Duct Insulation and Mastic

Ducts are uninsulated. Duct mastic was not observed on ducts in the assessed area.



Uninsulated duct, Attic space.

3.1.3 Mechanical Equipment Insulation

Mechanical equipment (furnace and hot water tank) is either uninsulated or insulated with non-asbestos fibreglass.

3.1.4 Vermiculite

Loose fill vermiculite debris was not observed within the attic space. Destructive testing was not performed, and vermiculite may be present within other void spaces.

3.1.5 Plaster

Plaster present on walls and ceilings throughout the assessed area does not contain asbestos (samples A0004A-C and A0005A-C).



Non-asbestos plaster on wall, Attic space.

3.1.6 Drywall Joint Compound

Drywall joint compound present on wall finishes throughout the assessed area does not contain asbestos (samples A0006A-C).

3.1.7 Acoustic Ceiling Tiles

Glued-on ceiling tiles are present on ceilings in the Main Hall area and considered outside of the assessed area and scope of renovations. The ceiling tiles were previously determined to be non-asbestos during the 2009 assessment. It should be noted that the glue adhesive holding the tiles in place have not been sampled and may potentially contain asbestos.



Non-asbestos glued-on ceiling tiles on ceiling, Main Hall, 1st Floor.

3.1.8 Vinyl Floor Tiles

Vinyl floor tiles are present within the building however not present in the assessed area or expected to be impacted by the proposed renovations.

3.1.9 Firestopping

Firestopping (cementitious), **containing chrysotile asbestos**, is present at one exhaust pipe penetration within the Attic space at the east facing exterior wall (samples A0003A-C). There is approximately 20 square feet of firestopping present. The firestopping is a friable material and is in fair condition on the basis of being unjacketed (exposed).

3.1.10 Roofing Products

According to the Client, the roof was replaced within the last 10 years and is not expected to have ACMs present associated with the roof.



Non-asbestos asphalt shingles and associated roofing products, Roof.

3.1.11 Other Building Materials

Blown-in attic insulation is present between wood joists in the Attic space and found to contain no asbestos (samples A0002A-C)

Mortar present between vertical wood framing panels in the Attic space does not contain asbestos (samples A0001A-C).



Non-asbestos blown-in attic insulation.



Non-asbestos mortar, Attic space.

3.1.12 Presumed Asbestos Materials

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 to contain asbestos until otherwise proven by sampling and analysis:

- Floor levelling compound
- Electrical components
- Mechanical packing, ropes and gaskets
- Vermiculite
- Adhesives
- Caulking and putties
- Paper products
- Fire resistant doors
- Vibration dampers on HVAC equipment

3.2 Lead

3.2.1 Paints and Surface Coatings

Refer to the lab report in Appendix II-B for details on paints sampled and their locations.

The following table summarizes the analytical results for paints sampled.

Sample Number	Colour, Substrate Description	Location	Lead (%)
L001	Burgundy paint, wood window frame	Exterior	0.022
L002	White paint, wood siding	Exterior (South side)	2.7
L003	White paint, wood siding	Exterior (North side)	0.69
L004	Green paint, plaster wall	Attic	1.9
L005	White paint, drywall wall	Ground Floor Entrance	<0.0066

Results less than or equal to 0.1% are considered low-level lead paints or surface coatings in accordance with the EACO guideline.

Results above 0.1% are considered elevated (i.e., greater than the EACO guideline of 0.1%).

Paints with elevated levels of lead was flaking/peeling in the following areas on the following items:

- Plaster walls in the Attic space.



Green paint (flaking) with elevated levels of lead on plaster walls, Attic space.

3.2.2 Lead Products and Applications

Lead-containing batteries are present in emergency lighting.



Emergency lighting with lead-containing batteries, Front Entrance Vestibule.

3.2.3 Presumed Lead Materials

Lead may be present in a number of materials which were not assessed and/or sampled. The following materials, where found, should be considered to contain lead.

- Electrical components, including wiring connectors, grounding conductors, and solder
- Solder on pipe connections

3.3 Silica

Crystalline silica is a presumed component of the following materials:

- Poured or pre-cast concrete
- Masonry and mortar
- Plaster

3.4 Mercury

3.4.1 Lamps

Mercury vapour is present in fluorescent lamps.

3.4.2 Mercury-Containing Devices

Mercury-containing devices were not found during the assessment.

3.5 Polychlorinated Biphenyls

3.5.1 Lighting Ballasts

The building has not been comprehensively re-lamped with new energy efficient light ballasts and lamps, and as such, a percentage of light ballasts may be manufactured prior to 1980 and may contain PCBs.

3.5.2 Transformers

Transformers were not found in the assessed area.

3.6 Mould

Visible mould growth and water damage was not found during the assessment.

4.0 RECOMMENDATIONS

4.1 General

1. Prepare plans and performance specifications for hazardous material removal required for the planned work. The specifications should include the scope of work, safe work practices, personal protective equipment, respiratory protection, and disposal of waste materials.
2. If suspected hazardous building materials are discovered during the planned work, which are not identified in this report, do not disturb and arrange for further testing and evaluation.
3. Conduct further investigation of the following items, which could not be completed during this assessment due to limitations on scope, occupancy, or being in service at the time of the assessment.
 - a. Any materials listed as exclusions in this report, prior to disturbance.
4. Provide this report and the detailed plans and specifications to the contractor prior to bidding or commencing work.

5. Retain a qualified consultant to specify, inspect and verify the successful removal of hazardous materials.
6. Update the asbestos inventory upon completion of the abatement and removal of asbestos-containing materials.

4.2 Building Renovation Work

The following recommendations are made regarding renovation involving the hazardous materials identified.

4.2.1 Asbestos

Remove asbestos-containing materials (ACM) prior to renovation, alteration, or maintenance if ACM may be disturbed by the work.

If the identified ACM will not be removed prior to commencement of the work, any potential disturbance of ACM must follow asbestos precautions appropriate for the type of work being performed.

Asbestos-containing materials must be disposed of at a landfill approved to accept asbestos waste.

4.2.2 Lead

For paints identified as having elevated levels of lead (i.e., greater than the EACO guideline of 0.1% for lead-containing paints), construction disturbance may result in over-exposure to lead dust or fumes. The need for work procedures, engineering controls and personal protective equipment should be assessed on a site-specific basis to comply with provincial standards or guidelines.

For paints identified as having low levels of lead (i.e., less than the EACO guideline of 0.1% for lead-containing paints but above 0.009%). Special precautions are not recommended unless aggressive disturbance (grinding, blasting, torching) is planned.

Items painted with paints containing elevated levels of lead may be a hazardous waste. Test lead-painted materials for leachable lead prior to disposal.

Lead-containing items lead-acid batteries should be recycled when taken out of service.

4.2.3 Silica

Construction disturbance of silica-containing products may result in excessive exposures to airborne silica, especially if performed indoors and dry. Cutting, grinding, drilling or demolition of materials containing silica should be completed only with proper respiratory protection and other worker safety precautions that comply with provincial standards or guidelines.



4.2.4 Mercury

Do not break lamps or separate liquid mercury from components. Recycle and reclaim mercury from fluorescent lamps when taken out of service. Mercury is classified as a hazardous waste and must be disposed of in accordance with local regulations.

4.2.5 PCBs

When light fixtures are removed, examine light ballasts for PCB content. If ballasts are not clearly labelled as “non-PCB” or are suspected to contain PCBs; package and ship ballasts for destruction at a federally permitted facility.

4.2.6 Mould

No mould was observed; if mould is uncovered inside wall cavities during hand demolition, use appropriate precautions and protect workers using methods that comply with provincial guidelines.

5.0 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.

6.0 REFERENCES

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

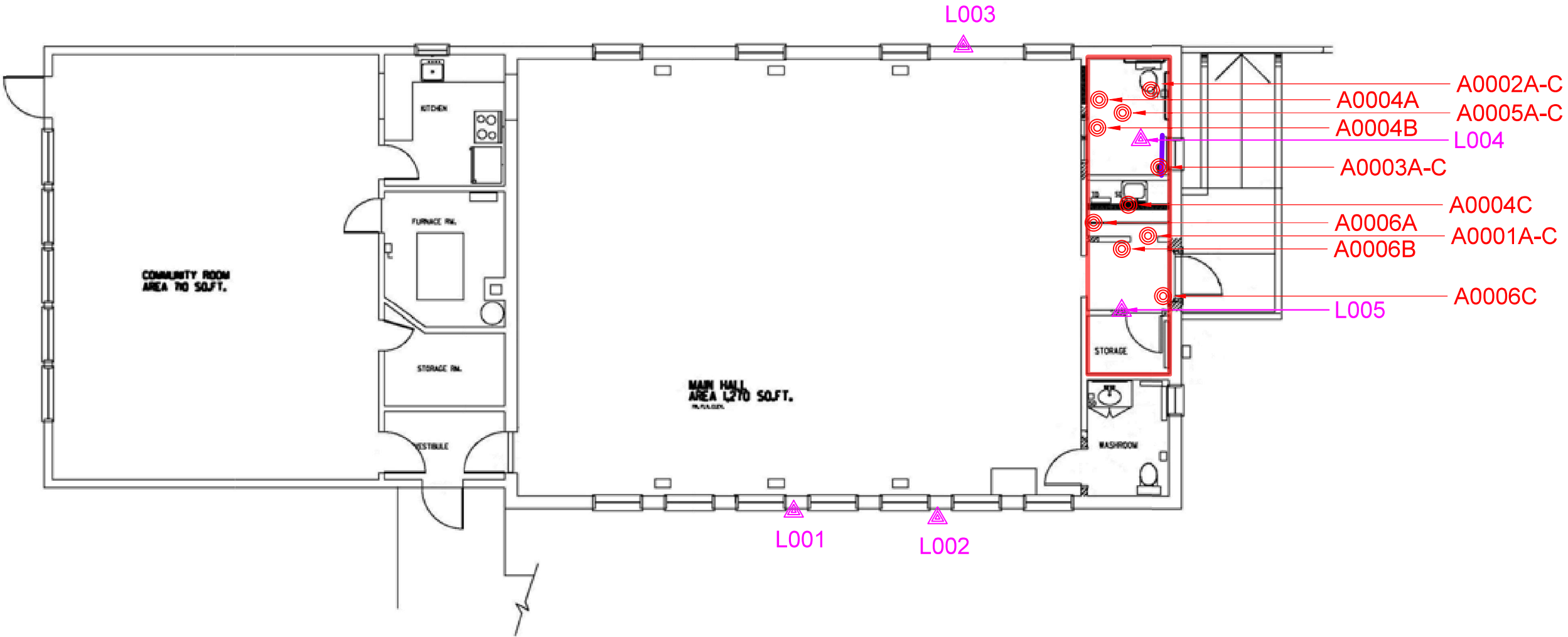
1. Asbestos on Construction Projects and in Buildings and Repair Operations, Ontario Regulation 278/05.
2. Designated Substances, Ontario Regulation 490/09.
3. Lead on Construction Projects, Ministry of Labour Guidance Document.
4. The Environmental Abatement Council of Ontario (EACO) Lead Guideline for Construction, Renovation, Maintenance or Repair.
5. Ministry of the Environment Regulation, R.R.O. 1990 Reg. 347 as amended.
6. Silica on Construction Projects, Ministry of Labour Guidance Document.
7. Alert – Mould in Workplace Buildings, Ontario Ministry of Labour.

APPENDIX I
Drawings



LEGEND

- SURVEY BOUNDARY/ASSESSED AREA
- ⊙ ASBESTOS BULK SAMPLE
- ▲ LEAD BULK SAMPLE
- ASBESTOS-CONTAINING MATERIALS:
 - CEMENTITIOUS FIRESTOPPING



NOT ALL KNOWN OR SUSPECTED HAZARDOUS BUILDING MATERIALS MAY BE DEPICTED ON THE DRAWING. REFER TO THE HAZARDOUS BUILDING MATERIALS ASSESSMENT REPORT FOR A COMPLETE LIST OF KNOWN AND SUSPECTED HAZARDOUS BUILDING MATERIALS.

LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.

DATE: 11/11/2020



PROJECT NAME:	
HAZARDOUS BUILDING MATERIALS ASSESSMENT	
CLIENT NAME:	
CITY OF MISSISSAUGA	
PROJECT LOCATION:	
6970 SECOND LINE WEST MISSISSAUGA, ON	
FIGURE NAME:	
MEADOWVALE VILLAGE HALL	
PROJECT NUMBER:	SCALE:
283113	NOT TO SCALE
DRAWN BY:	REVIEWED BY:
SR	AR
DATE:	FIGURE NUMBER:
NOVEMBER 2020	1 OF 1

APPENDIX II-A
Asbestos Analytical Certificates



Pinchin Ltd. Asbestos Laboratory *Certificate of Analysis*

Project Name:	City of Mississauga, 6970 Second Line West, Mississauga, Ontario		
Project No.:	0283113.000		
Prepared For:	A. Rakic	Date Received:	November 5, 2020
Lab Reference No.:	b241201	Date Analyzed:	November 12, 2020
Analyst(s):	A. LeBar Vertolli	# Samples submitted:	18
		# Phases analyzed:	23

Method of Analysis:

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

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

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

The Pinchin Ltd. Mississauga asbestos laboratory is accredited by the National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program (NVLAP Lab Code 101270-0) for the 'EPA – 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples,' and the 'EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials'; and meets all requirements of ISO/IEC 17025:2017.

This report relates only to the items tested.

NOTE: *This test report may not be reproduced, except in full, without the written approval of the laboratory. The client may not use this report to claim product endorsement by NVLAP or any agency of the U.S. Government. This report is valid only when signed in blue ink by the analyst. Vinyl asbestos floor tiles contain very fine fibres of asbestos and may be missed by some laboratories using the PLM method. Internal verification studies performed by Pinchin indicate that the chance of missing asbestos in floor tiles is no higher than about 2%. The vinyl tile study and laboratory documentation on measurement uncertainty is available upon request. The analysis of dust samples by PLM cannot be used as an indicator of past or present airborne asbestos fibre levels.*



Pinchin Ltd. Asbestos Laboratory

Certificate of Analysis

Project Name: City of Mississauga, 6970 Second Line West, Mississauga, Ontario
Project No.: 0283113.000
Prepared For: A. Rakic

Lab Reference No.: b241201
Date Analyzed: November 12, 2020

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
A0001A Mortar between horizontal wood slats running up around redundant chimney, Attic Space	Homogeneous, grey, hard, cementitious material.	None Detected	Cellulose 0.5-5% Hair 0.5-5% Non-Fibrous Material > 75%
A0001B Mortar between horizontal wood slats running up around redundant chimney, Attic Space	Homogeneous, grey, hard, cementitious material.	None Detected	Cellulose 0.5-5% Hair 0.5-5% Non-Fibrous Material > 75%
A0001C Mortar between horizontal wood slats running up around redundant chimney, Attic Space	Homogeneous, grey, hard, cementitious material.	None Detected	Cellulose 0.5-5% Hair 0.5-5% Non-Fibrous Material > 75%
A0002A Blown-in attic insulation, Attic Space	Homogeneous, brown, fibrous material.	None Detected	Cellulose > 75% Non-Fibrous Material 10-25%
A0002B Blown-in attic insulation, Attic Space	Homogeneous, brown, fibrous material.	None Detected	Cellulose 50-75% Man-made Vitreous 10-25% Fibres Non-Fibrous Material 10-25%
A0002C Blown-in attic insulation, Attic Space	Homogeneous, brown, fibrous material.	None Detected	Cellulose 50-75% Man-made Vitreous 10-25% Fibres Non-Fibrous Material 10-25%



Pinchin Ltd. Asbestos Laboratory

Certificate of Analysis

Project Name: City of Mississauga, 6970 Second Line West, Mississauga, Ontario
Project No.: 0283113.000
Prepared For: A. Rakic

Lab Reference No.: b241201
Date Analyzed: November 12, 2020

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)			
		ASBESTOS		OTHER	
A0003A Magnesia block insulation firestop around former exhaust penetration at east face of building, Attic Space	Homogeneous, beige, soft, parging cement.	Chrysotile	50-75%	Non-Fibrous Material	25-50%
A0003B Magnesia block insulation firestop around former exhaust penetration at east face of building, Attic Space				Not Analyzed	
Comments:	Analysis was stopped due to a previous positive result.				
A0003C Magnesia block insulation firestop around former exhaust penetration at east face of building, Attic Space				Not Analyzed	
Comments:	Analysis was stopped due to a previous positive result.				
A0004A Plaster, wall, Attic Space	2 Phases: a) Homogeneous, grey, hard, cementitious, plaster base coat. b) Homogeneous, off-white, hard, cementitious, plaster top coat.	None Detected		Hair Non-Fibrous Material	0.5-5% > 75%
		None Detected		Non-Fibrous Material	> 75%



Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

Project Name: City of Mississauga, 6970 Second Line West, Mississauga, Ontario
Project No.: 0283113.000
Prepared For: A. Rakic

Lab Reference No.: b241201
Date Analyzed: November 12, 2020

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
A0004B Plaster, wall, Attic Space	2 Phases: a) Homogeneous, grey, hard, cementitious, plaster base coat.	None Detected	Hair 0.5-5% Non-Fibrous Material > 75%
	b) Homogeneous, off-white, hard, cementitious, plaster top coat.	None Detected	Non-Fibrous Material > 75%
A0004C Plaster, wall, Attic Space	2 Phases: a) Homogeneous, grey, hard, cementitious, plaster base coat.	None Detected	Hair 0.5-5% Non-Fibrous Material > 75%
	b) Homogeneous, off-white, hard, cementitious, plaster top coat.	None Detected	Non-Fibrous Material > 75%
A0005A Plaster, ceiling, Attic Space	2 Phases: a) Homogeneous, grey, hard, cementitious, plaster base coat.	None Detected	Hair 0.5-5% Non-Fibrous Material > 75%
	b) Homogeneous, off-white, hard, cementitious, plaster top coat.	None Detected	Non-Fibrous Material > 75%
A0005B Plaster, ceiling, Attic Space	2 Phases: a) Homogeneous, grey, hard, cementitious, plaster base coat.	None Detected	Hair 0.5-5% Non-Fibrous Material > 75%
	b) Homogeneous, off-white, hard, cementitious, plaster top coat.	None Detected	Non-Fibrous Material > 75%



Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

Project Name: City of Mississauga, 6970 Second Line West, Mississauga, Ontario
Project No.: 0283113.000
Prepared For: A. Rakic

Lab Reference No.: b241201
Date Analyzed: November 12, 2020

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
A0005C Plaster, ceiling, Attic Space	2 Phases: a) Homogeneous, grey, hard, cementitious, plaster base coat.	None Detected	Hair 0.5-5% Non-Fibrous Material > 75%
	b) Homogeneous, off-white, hard, cementitious, plaster top coat.	None Detected	Non-Fibrous Material > 75%
A0006A Drywall joint compound on drywall wall, Front Entrance Vestibule, Ground Floor	2 Phases: a) Homogeneous, off-white, drywall joint compound.	None Detected	Non-Fibrous Material > 75%
	b) Homogeneous, white, drywall joint compound.	None Detected	Non-Fibrous Material > 75%
A0006B Drywall joint compound on drywall wall, Front Entrance Vestibule, Ground Floor	Homogeneous, off-white, drywall joint compound.	None Detected	Non-Fibrous Material > 75%
A0006C Drywall joint compound on drywall wall, Front Entrance Vestibule, Ground Floor	Homogeneous, off-white, drywall joint compound.	None Detected	Non-Fibrous Material > 75%

Reviewed by:

Digitally signed by Julieth Oran
Date: 2020.11.12 15:48:30 -05'00'

Reporting Analyst:

Digitally signed by Julieth Oran
Date: 2020.11.12 15:48:15 -05'00'

Analyzed by: ASLReviewed by: JKReport Sent by: JK**Instructions:**

Pinchin Ltd. - Asbestos Laboratory

Internal Asbestos Bulk Sample Chain of Custody

Client Name:	City of Mississauga	Project Address:	6970 Second Line West, Mississauga, Ontario
Portfolio/Building No:		Pinchin File:	283113
Submitted by:	Anthony Rakic	Email:	arakic@pinchin.com
CC Results to:		CC Email:	
Invoice to:		Invoice Email:	
Date Submitted:	November 5 2020	Required by:	November 13 2020
# of Samples:	18	Priority:	5 Day Turnaround
Year of Building Construction (Mandatory Field):	1872		
Do NOT Stop on Positive (Sample Numbers):	A0004A-C, A0005A-C, and A0006A-C		
Pinchin Group Company (Mandatory Field):	Pinchin		

To be Completed by Lab Personnel Only:

Lab Reference #:	6241201		Time:	24 hour clock		
Received by:	NOV 05 2020		Date:	Month	Day	Year
Name(s) of Analyst(s):	ASL		12-NOV-20 (23)			
Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)			
	A0001	A	Mortar between horizontal wood slats running up around redundant chimney, Attic Space			
	A0001	B	Mortar between horizontal wood slats running up around redundant chimney, Attic Space			
	A0001	C	Mortar between horizontal wood slats running up around redundant chimney, Attic Space			
	A0002	A	Blown-in attic insulation, Attic Space			
	A0002	B	Blown-in attic insulation, Attic Space			
	A0002	C	Blown-in attic insulation, Attic Space			



Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)
	A0003	A	Magnesia block insulation firestop around former exhaust penetration at east face of building, Attic Space CH 50-75
	A0003	B	Magnesia block insulation firestop around former exhaust penetration at east face of building, Attic Space na
	A0003	C	Magnesia block insulation firestop around former exhaust penetration at east face of building, Attic Space na
	A0004	A	Plaster, wall, Attic Space a) NO b) NO
	A0004	B	Plaster, wall, Attic Space a) NO b) NO
	A0004	C	Plaster, wall, Attic Space a) NO b) NO
	A0005	A	Plaster, ceiling, Attic Space a) NO b) NO
	A0005	B	Plaster, ceiling, Attic Space a) NO b) NO
	A0005	C	Plaster, ceiling, Attic Space a) NO b) NO
	A0006	A	Drywall joint compound on drywall wall, Front Entrance Vestibule, Ground Floor a) NO b) NO
	A0006	B	Drywall joint compound on drywall wall, Front Entrance Vestibule, Ground Floor NO
	A0006	C	Drywall joint compound on drywall wall, Front Entrance Vestibule, Ground Floor NO

17

APPENDIX II-B
Lead Analytical Certificates



Analysis for Lead Concentration in Paint Chips

by Flame Atomic Absorption Spectroscopy
EPA SW-846 3050B/6010C/7000B

8.4



Customer: Pinchin Ltd.
2470 Milltower Court
Mississauga, ON L5N 7W5

Attn: Anthony Rakic

Lab Order ID: 71953768

Analysis ID: 71953768_PBP

Date Received: 11/6/2020

Date Reported: 11/12/2020

Project: 6970 Second Line West, Mississauga

Sample ID	Description	Mass	Concentration	Concentration
Lab Sample ID	Lab Notes	(g)	(ppm)	(% by weight)
L001	Burgundy Paint, Exterior Window Frame	0.0668	220	0.022%
71953768PBP_1				
L002	White Paint, Exterior Wood Siding, South Side	0.0669	27000	2.7%
71953768PBP_2				
L003	White Paint, Exterior Wood Siding, North Side	0.0646	6900	0.69%
71953768PBP_3				
L004	Green Paint, Plaster Wall, Attic Space	0.0714	19000	1.9%
71953768PBP_4				
L005	White Paint, Drywall Wall, Ground Floor	0.0603	< 66	< 0.0066%
71953768PBP_5				

Unless otherwise noted blank sample correction was not performed on analytical results. Scientific Analytical Institute participates in the AIHA ELPAT program. ELPAT Laboratory ID: 173190. This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAI. Analytical uncertainty available upon request. The quality control samples run with the samples in this report have passed all EPA required specifications unless otherwise noted. RL: (Report Limit for an undiluted 50ml sample is 4µg Total Pb). Unless indicated, areas and volumes were provided by the customer.

Melissa Ferrell (5)

Analyst

Scientific Analytical Institute, Inc. 4604 Dundas Dr. Greensboro, NC 27407 (336) 292-3888

Laboratory Director

719 53768 8.4

Version 1-15-2012

Client:	Pinchin Ltd.	*Instructions: Use Column "B" for your contact info To See an Example Click the bottom Example Tab. 11 Begin Samples with a "<<" above the first sample and end with a ">>" below the last sample. Only Enter your data on the first sheet "Sheet1" Note: Data 1 and Data 2 are optional fields that do not show up on the official report, however they will be included in the electronic data returned to you to facilitate your reintegration of the report data.
Contact:	Anthony Rakic	
Address:	2470 Milltower Court, Mississauga, Ontario, Canada	
Phone:	416-816-5498	
Fax:	N/A	
Email:	arakic@pinhin.com	
Project:	6970 Second Line West, Mississauga	
Client Notes:	City of Mississauga	
P.O. #.	283113	
Date Submitted:	11/5/2020 0:00	
Analysis:	Paint Chips Flame AA	
TurnAroundTime:	Regular 5 day	

Scientific
Analytical
Institute



4604 Dundas Dr.
Greensboro, NC 27407
Phone: 336.292.3888
Fax: 336.292.3313
Email: lab@sailab.com

Sample Number	Data 1 (Lab use only)	Sample Description	Data 2 (Lab use only)
<<			
L001		Burgundy paint, exterior window frame	
L002		White paint, exterior wood siding, south side	
L003		White paint, exterior wood siding, north side	
L004		Green paint, plaster wall, Attic Space	
L005		White paint, drywall wall, Ground Floor	
>>			

Accepted ☒

Rejected ☐

L. D. Smith 11-6
10:30

APPENDIX III
Methodology

1.0 GENERAL

Pinchin conducts a room-by-room survey (rooms, corridors, exterior, roof) to identify the hazardous building materials as defined by the scope of work. All work is conducted in accordance with our own internal Standard Operating Procedures.

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

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

1.1 Limitations on Scope

The assessment excludes the following:

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

The assessment includes limited demolition of ceiling finishes (drywall or plaster) to view concealed conditions at representative areas as permitted by the current building use. Wall finishes will not be demolished. Destructive testing of flooring is not conducted as it is outside of the scope of renovations. Demolition of exterior building finishes, masonry walls (chases, shafts etc.), and structural items is not conducted.

1.2 Asbestos

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

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

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

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

Sampling of roofing materials including shingled sloped roof is conducted where accessible with an 8-foot ladder.

Drywall joint compound is sampled at representative locations such as ceilings, bulkheads or other building components. Asbestos in drywall joint compound was banned in Canada in 1980. Drywall joint compound that is known to have been installed after 1986 (1980 plus a reasonable non-compliance period based on our experience) is presumed to non-asbestos and is not sampled.

The following materials (if present) are not sampled and will be presumed to contain asbestos.

- Floor levelling compound
- Ceramic tile setting compound
- Electrical components or wiring within control centers, breakers, motors or lights, insulation on wiring
- Mechanical packing, ropes and gaskets
- Vermiculite
- Adhesives and duct mastics
- Caulking and putties
- Paper products
- Fire resistant doors
- Vibration dampers on HVAC equipment

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

Analytical results are compared to the following criteria.

Jurisdiction	Friable	Non-Friable
Ontario	0.5%	0.5%

The asbestos analysis is completed using a stop positive approach. Only one result meeting the above regulated criteria is required to determine that a material is asbestos containing, but all samples must be analyzed to conclusively determine that a material is non-asbestos. The laboratory stops analyzing samples from a homogeneous material once a result equal to or greater than the regulated criteria is detected in any of the samples of that material. All samples of a homogeneous material are analyzed if no asbestos is detected. In some cases, all samples are analyzed in the sample set regardless of result.

Where building materials are described in the report as “non-asbestos” 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.

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);
- 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).

1.3 Lead

Samples of distinctive paint finishes, and surface coatings present in more than a limited application, where removal of the paint is possible is collected. The samples are collected by scraping the painted finish to include base and covering applications. Drawings included show sample locations.

Analysis for lead in paints or surface coatings is performed at an accredited laboratory in accordance with EPA Method No. 3050B/Method No. 7420; flame atomic absorption.

The Ontario Ministry of Labour (MOL) has not established a lower limit for concentrations of lead in paint, below which precautions do not need to be considered during construction projects. Pinchin follows the recommendations of the Environmental Abatement Council of Ontario (EACO) Lead Guideline for Construction, Renovation, Maintenance or Repair. The Guideline suggests that 0.1% (1,000 ppm) lead in paint represents a de minimis concentration of lead in paint for construction hygiene purposes, that is a concentration below which the lead content is not the limiting hazard in any disturbance of leaded paint for non-aggressive disturbance of painted finishes, (hand powered demolition, chipping, scraping, light sanding, etc.). The use of aggressive methods such as power grinding, torching, welding, etc. may result in significant lead exposures even with low concentrations of lead in paints (below 0.1%). Exposure from construction disturbance of paints containing lead less than 0.009% is assumed to be insignificant. Paint and surface coatings are evaluated for condition such as flaking, chipping or spalling.

Other lead building products (e.g. batteries, lead sheeting, flashing) are identified by visual observation only.

1.4 Silica

Building materials known to contain crystalline silica (e.g. concrete, cement, tile, brick, masonry, mortar) is identified by visual inspection only. Pinchin does not perform sampling of these materials for laboratory analysis of crystalline silica content.

1.5 Mercury

Building materials/products/equipment (e.g. thermostats, barometers, pressure gauges, light tubes), suspected to contain mercury are identified by visually inspection only. Dismantling of equipment suspected of containing mercury is not performed. Sampling of these materials for laboratory analysis of mercury content is not performed.

1.6 Polychlorinated Biphenyls

The potential for light ballast and wet transformers to contain PCBs is based on the age of the building, a review of maintenance records and examination of labels or nameplates on equipment, where present and accessible. The information is compared to known ban dates of PCBs and Environment Canada publications.

Dry type transformers are presumed to be free of dielectric fluids and hence non-PCB.

Fluids (mineral oil, hydraulic, Aroclor or Askarel) in transformers or other equipment are not sampled for PCB content.

Caulking or sealants are sampled for PCBs based on the date of construction or installation. Caulking installed after 1985 (1980 ban date plus a reasonable non-compliance period based on our experience) is presumed to be free of PCBs and hence not sampled. If sampled, analysis for PCBs is performed using an ASTM test method appropriate to the sample matrix at an accredited laboratory. Sample results are compared to the criteria of 50 ppm for solids as stated in the PCB Regulation, SOR/2008-273.

1.7 Visible Mould

The presence of mould is determined by visual inspection of exposed building surfaces. If any mould growth is concealed within building cavities it is not addressed in this assessment.

Template: Methodology for Hazardous Building Materials Assessment, HAZ, March 9, 2020