Bid Documents For

605 James St. North – 4th Floor Office Renovations

March 2025

HOPA Procurement Lead

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Hamilton-Oshawa Port Authority
605 James Street North
Hamilton, ON ,L8L 1K1

Bid Submission Checklist

Email bid to:
bids@hopaports.ca

Include the following documents in your bid submission:

- ✓ **Bid Form**
- ✓ **Bid Form Supplement #1**
- ✓ **Bid Form Supplement #2**
- ✓ **Bid Form Supplement #3**
- ✓ **Bid Form Supplement #4**
- ✓ **Bid Bond**

INTRODUCTORY INFORMATION

BIDDING REQUIREMENTS

CONTRACT REQUIREMENTS

DRAWING LIST

General Notes and Specifications

APPENDICIES

1.1 INVITATION

.1 Bid Call:

.1 **Offers signed under seal, executed, and dated will be received from General Contract Bidders by the Hamilton - Oshawa Port Authority, before Wednesday, April 23, 2025 @ 1400 hrs (2:00 pm local time).**

.2 Offers submitted after the above time shall not be considered and the bid will be rejected.

.3 The system time clock of the Owner's servers, which is synchronized with the National Research Council of Canada clock through Network Time Protocol (NTP), will be used as the Official time piece for this tender.

.4 Bids will be opened privately by the owner following the tender closing.

1.2 CONTRACT DOCUMENTS

.1 The following Contract Documents shall form the basis of the Contract and should be consulted by the Bidders:

.1 CCDC 2 Stipulated Price Contract
.2 Supplementary Conditions
.3 Form of Agreement
.4 Bid Form and Bid Form Supplements
.5 All Addenda to the Specifications, Schedules and Drawings.
.6 Instructions to Bidders, and all other parts of Division 00.
.7 General Requirements, and all other parts of Division 01.
.8 Specifications.
.9 Appendices to Specifications.
.10 Contract Drawings and Sketches.

1.3 COORDINATION OF PROJECT

.1 Owner:

.1 The Owner is the Hamilton - Oshawa Port Authority (HOPA), and the Procurement Lead, acting on behalf of HOPA, is responsible for the coordination of this Project.

1.4 BID DOCUMENTS

.1 Availability:

.1 Bid Documents are available through HOPA's Bids&Tender portal. To obtain documents online please visit [*https://hopa.bidsandtenders.ca*]. Documents are not provided in any other manner.

.2 Upon receipt of Bid Documents, verify that documents are complete; notify the Procurement Lead should the documents be incomplete.

.3 Immediately notify the Procurement Lead upon finding discrepancies or omissions in the Bid Documents.

.2 Queries/Addenda:

.1 If a bidder finds discrepancies in or omissions from the tender documents, or if a bidder is in doubt as to their meaning, questions must be submitted through the Bidding System portal by clicking on the “Submit Question” button on the bid details page for the applicable opportunity not less than five (5) working days prior to closing date and time. Questions received after the deadline or any other method are not guaranteed a response.

.2 Addenda may be issued during the Bidding period. All addenda shall be issued through the bids & tenders™ website, not less than twenty-four (24) hours prior to the closing date and time. It is the responsibility of the Bidders to ensure that they have all Addenda issued as part of the Tender. All Addenda shall become part of the Contract Documents. Include costs in the Bid Price.

.3 It is the responsibility of the Bidder to create a Bidding System Vendor Account on www.bids&tenders.com and to register as a Plan Taker for the bid opportunity. The Bidder shall be solely responsible for ensuring that they have the latest addenda for the bid opportunity.

.4 Verbal answers are not binding.

.5 The submission of questions or other inquiries, and the failure of the Procurement Lead to answer by the expiration of the period as set out in these documents, shall not cause the time for the submission of Bids to be extended.

.7 Except for official Addenda, issued by the Procurement Lead - which shall form part of the Contract Documents - only the written instructions of the Procurement Lead shall be recognized as altering any of the provisions in the originally issued documents and as binding with respect to any contract entered, with the Owner, by the Bidder.

.3 Product Alternatives:

.1 Where the Bid Documents stipulate a product or method, alternatives may be considered by the Procurement Lead up to five (5) working days before receipt of bids.

.2 When a request to substitute a product or method is made, the Procurement Lead may approve the substitution and will issue an Addendum to all known Bidders.

.3 In submission of alternatives to products or methods specified, Bidders

shall include in their Bid any changes required in the work to accommodate such alternatives. A later claim by the Bidder for an addition to the contract price because of changes in work necessitated by use of alternatives will not be considered.

.4 Alternative products or methods will be considered if submitted as an attachment to the Bid Form.

.5 The submission shall provide sufficient information to enable the Procurement Lead to determine acceptability of such products or methods.

.6 Provide complete information on required revisions to other work to accommodate each alternative and the dollar amount of additions to, or reductions from, the Bid Price including revisions to other work.

.7 Unless alternatives are submitted in the above-mentioned manner, and subsequently accepted, provide products or methods as specified.

.8 Approval to submit alternatives prior to submission of bids is not required.

.9 If the Owner elects to proceed on the basis of one or more of the alternatives offered, make all modifications to the work required in the furnishing and installation of selected alternative(s) to the approval of the Owner and at no additional cost to the Owner other than as proposed on the Bid Form.

1.5 BIDDER SITE VISIT

.1 The site visit is non-mandatory, but highly recommended.

.2 Site Location: **605 James St. North, Hamilton, L8L 1K1**
Meet at: **4th floor**
Date/Time: **@10:00 AM, Thursday, April 3, 2025**

1.6 BID SUBMISSION

.1 Bid Ineligibility:

.1 Bids that are unsigned, improperly signed or sealed, conditional illegible, obscure and contain arithmetical errors, erasures, alterations or irregularities of any kind may, at the discretion of the Owner, may be declared informal.

.2 Bids with Bid Forms and enclosures, which are improperly prepared may, at the discretion of the Owner, be declared informal.

.3 Bids that fail to include Bid Bond, will be declared informal.

.4 All Bidders shall have a Bidding System Vendor account and be registered as a Plan Taker through bids & tenders™ to be eligible for this Bid opportunity. All others will be ineligible to bid and their bid submission will not be accepted.

.2 Submissions:

.1 Bid shall be signed and sealed by the Bidder and submitted electronically via email to:

bids@hopaports.ca

.2 Tenders will be counted as received at the time our mail server receives the them. Upon receipt of tenders, the Owner's electronic server will reply with a message indicating the time the email was received and a copy of the received email. If the Bidder does not receive this message within 30 minutes of submission, then the Bidder may contact the Procurement Lead to confirm the submission was received. Due to internet speeds and server processing, your email may take some time to be received by our servers, especially for larger size files.

.3 Delivery of the Bid prior to the bid closing time is solely the responsibility of the Bidder.

.4 HOPA staff (other than IT manager) will not have access to the bids received at this email address until after closing date and time. Emailed Bids received will be kept un-opened and confidential until the bid closing date and time have passed and at which point the IT manager forwards the bids to the Procurement Lead for review.

.5 Do not email bids directly to the Procurement Lead.

.6 Bids received after the closing date and time will be rejected regardless of the reason for their late arrival.

7. All bids are reviewed privately and bid results are not published.

.8 Bids shall be in pure digital format (pdf) only and shall not exceed 100Mb in size. The naming of the pdf file shall include the bidders company name (example "ABC Inc – Bid"), and shall not exceed 40 characters in length.

.9 Bid submission to be single PDF file including all supplements and bid bond.

.10 Once submitted, a sealed Bid may be withdrawn or changed before closing time of Tender submission, but only on acceptance of a request in writing to the Procurement Lead and signed by the Bidder.

.3 Completion of Bid Documents:

.1 No Bid will be considered by the Owner unless properly set out on the documents furnished by the Owner.

.2 All blank spaces on the Bid Forms must be filled in unless otherwise specified.

.3 All Addendum numbers must be included on the Bid Form.

.4 Type or print clearly, all information. Do not alter or erase printed information on Bid Form.

.5 Discrepancies between the words and figures will be resolved in favour of words. Discrepancies between the indicated sum of any column figures, and the correct sum thereof, will be resolved in favour of the correct sum.

1.7 BID ENCLOSURES/REQUIREMENTS

.1 Security Deposits:

.1 Bids shall be accompanied by a security deposit as follows: Electronic Bid Bond or Certified Cheque in an amount not less than 10% of the Bid Price.
   a. Bid Bonds shall be in the form of an e-Bond which bears electronic signatures and seals. Scanned paper copies of bonds shall not be accepted.
   b. Certified Cheques shall be submitted in a sealed, opaque envelope addressed to the Procurement Lead at the Owner's offices in advance of the Tender Closing.

.2 Endorse the Bid Bond in the name of the Owner as obligee, signed and sealed by the principal Contractor and Surety.

.3 Include the cost of bonds in the Bid Price.

.4 The Bid Bond, or Certified Cheque, shall be a security of the Bidder, that, if his Bid is accepted by the Owner, the Bidder will enter into Contract for the performance of the specified work after the Owner has given him written notice in the form of Letter of Intent that his Bid has been accepted either by personal delivery, by prepaid registered mail.

.5 The Bid Bond, or Certified Cheque, shall be forfeited and surrendered as the assessed amount of liquidated damages in the event of failure on the part of the Bidder to enter into a Contract with the Owner for the performance of the specified work.

.6 By submitting a Tender, the Bidder agrees that the amount of the Bid Bond or Certified Cheque is an estimate of the actual damage which may be incurred by the Owner as a consequence of the Bidder's failure to enter into the said Contract.

.2 Performance Assurance:

.1 No Performance Bond or Labour and Material Payment Bond is required for this project.

.3 Insurance:

.1 The selected Bidder agrees to provide a signed “Undertaking of Insurance” on a standard form provided by the insurance company stating their intention to provide insurance to the Bidder in accordance with the insurance requirements of the Contract Documents. The “Undertaking of Insurance” is to include the insurances listed in GC 11.1 INSURANCE. Failure to provide the requisite “Undertaking of Insurance” shall be deemed a failure to enter into contract, and shall result in forfeiture of the Bid Surety.

.4 Bid Form Requirement:

.1 The Bidder, in submitting an offer, accepts the time period stated in the Contract Documents for performing the work. The completion date in the Agreement shall be this completion time added to the commencement date. For this Contract it will be considered that “Time is of the Essence”.

.5 Bid Signing:

.1 The Bid Form shall be signed under seal by the Bidder.

.2 Sole Proprietorship: signature of sole proprietor in the presence of a witness who will also sign. Insert the words “Sole Proprietor” under the sole proprietor’s signature. Affix seal.

.3 Partnership: signature of all partners in the presence of a witness who will also sign. Insert the word “Partner” under each signature. Affix seal to each signature.

.4 Limited Company: signature of duly authorized signing officers in their normal signatures. Under each signature, insert the officer’s capacity in which the signing officer acts. Affix the corporate seal. If the Bid is signed by officials other than the President and Secretary of the company, or the President-Secretary-Treasurer of the company, a copy of the by-law resolution of the Board of Directors authorizing them to do so must also be submitted with the Bid in the bid envelope.

1.8 OFFER ACCEPTANCE/REJECTION

.1 Duration of Offer:

.1 Bid shall remain open for acceptance and shall be irrevocable for a period of **Thirty (30)** calendar days after the Bid closing date.

.2 Acceptance of Offer:

.1 The Owner reserves the right to accept or reject any or all offers received.

.2 The Owner reserves the right to award a contract to other than the Bidder submitting the lowest Bid. The Procurement Lead may consider factors, in its sole and exclusive discretion that will assist to lead to the selection of the optimum General Contractor for this project. Such general factors may include, but not be limited to, the General Contractor Bidder's bid price, record of completion or projects on schedule and within budget, as well as any record of excessive claims for extras and the general financial stability of the Bidder. As such, the Owner reserves the right to refuse to accept the lowest, or any Bid.

.3 After acceptance by the Owner, the Procurement Lead on behalf of the Owner will issue to the successful Bidder a written Bid acceptance.

.4 After a Bid has been accepted and a Contract has been legally executed by other parties, all rejected Bids will be returned to the respective Bidders with submitted Bid securities.

.5 The successful Bidder shall sign a CCDC2, as amended by the Supplementary Conditions, within fifteen (15) days after notification from the Project Manager of the Bid acceptance.

.3 Letter of Intent:

.1 Should the Contract not be signed prior to the expiry of the stipulated acceptance time, and if agreed to by the Bidder, the Procurement Lead may issue to the Bidder a letter of intent advising the Bidder that the Contract will be executed within a time period agreed upon and in the amount of the Contract Price.

.2 The issuance of the Letter of Intent shall be deemed to be the equivalent of a legally executed Contract and shall trigger the return of rejected bids to the respective Bidders, along with submitted bid securities.

.4 Record and Reputation:

.1 At the election of Hamilton-Oshawa Port Authority, whether or not a Bid or Bidder otherwise satisfies the requirements of a Tender, Hamilton-Oshawa Port Authority may reject summarily any Bid received from:

a. A corporation, including an officer, director or shareholder of a corporation, or other person which has been involved in litigation with Hamilton Port Authority or Hamilton-Oshawa Port Authority, within five-year period immediately preceding the date on which the request for proposal or request for tender was published.

b. Any person against Hamilton Port Authority or Hamilton-Oshawa Port Authority has made a claim under a tender bond, a performance bond or a warranty bond within a five-year period immediately preceding

the date which the tender was published.

c. Any corporation that is an affiliate of or a successor to, or has one or more of its officers, directors, or shareholders, or any person or corporation described in clauses (a) or (b).

1.9 QUALIFICATIONS

.1 Subcontractors:

.1 The Owner reserves the right to reject a proposed Subcontractor for reasonable cause.

.2 Refer to Article GC 3.8 of the General Conditions of the CCDC 2.

END OF SECTION

605 James St. N.- 4th Floor Office Renovations
Hamilton - Oshawa Port Authority
Hamilton or Oshawa, ON

Name of Bidder _____

Address _____

_____ **Telephone** _____

Bid Price

I/We, the undersigned, having carefully examined the bid documents, having visited and investigated the Site, and examined all conditions, circumstances and limitations affecting the Work, offer to enter into a Contract with the Owner, to perform the Work required by the bid documents for the Contract Price of:

_____

_____Dollars ($_____)

In Canadian fund, excluding HST. Prices are free of escalation clauses.

The above bid price does not include HST in the amount of $ _____

I/We the undersigned declare that:

(a) I/We declare that we are in receipt of Addendum _____ through _____ inclusive, and have accounted for the information contained therein in the above-noted price.

(b) I/We agree to perform the Work in compliance with requirements of the Contract Documents and reach Substantial Performance within _____ weeks from **award** of contract;

(c) No person, firm or corporation other than the undersigned has any interest in this bid or in the proposed Contract for which this bid is made;

(d) This bid is open to acceptance for a period of 30 days from date stated for its submission.

(e) The bid price includes all work indicated in the bid documents, except those items which are included as Separate Price Items.

Date _____

Signature _____

Name and Title_____ Seal

Signature _____

Name and Title _____

Incorporated bidders shall affix their company seal, together with the signature(s) of the authorized signing official(s).

END OF SECTION

605 James St. N.- 4th Floor Office Renovations
Hamilton - Oshawa Port Authority
Hamilton or Oshawa, ON

Name of Bidder _____

I/We, the undersigned propose that the following subcontractors and/or suppliers will be used to perform work on this Contract and I/we confirm that all have been investigated to ensure their reliability and competence to carry out their work in accordance with the Contract Documents and I/we agree that no changes from this list may be made without the express written approval of the Owner.

Extra costs to the Contract will not be considered for the Subcontractor/Supplier substitution, regardless of the reason, except where a substitution is requested by the Owner.

Section of Work	Subcontractor
Demolition	
Painting	
Flooring	
Doors, windows and frames	
Drywall	
Finishing and Hardware Supplier	
Ceiling	
Mechanical	
Sprinkler/Fire Alarm	
Plumbing	
Electrical	
Abatement	
Millwork	

Date _____

Signature _____

Name and Title _____

END OF SECTION

605 James St. N.- 4th Floor Office Renovations
Hamilton Oshawa Port Authority
Hamilton, ON

Name of Bidder _____

The Contract Price shall be the total sum of the individual cost breakdown in the table below. Include for overhead and profit in each of the item numbers listed below.

Item No.	Item	Total Cost
1	Contract Administration	$
2	Demolition and Disposal	$
3	Abatement of Designated Substances	$
4	Electrical	$
5	Mechanical	$
6	Flooring	$
7	Painting	$
8	Ceiling and Grid	$
9	Sprinklers	$
10	Drywall, framing, insulation and Baseboard	$
11	Millwork	$
12	New Doors/Windows and Hardware	$
Total Bid Price (*must equal bid price on Bid Form)*:		**$**

Name and Title: _____

Signature: _____

Date: _____

END OF SECTION

605 James St. N.- 4th Floor Office Renovations
Hamilton - Oshawa Port Authority
Hamilton or Oshawa, ON

Name of Bidder _____

I/We, the undersigned agree that the Owner may use the following unit prices for additional work, and that all unit prices, unless specifically indicated, are for complete work, in place, supplied and installed. I/We agree that credits for deleted work shall be no less than 80% of the prices listed hereunder. I/We the undersigned agree that the Owner shall have the right to negotiate the cost for changes to the work instead of using the unit prices listed hereunder. Prices listed hereunder are excluding H.S.T.

Extra costs to the Contract will not be considered for the Subcontractor/Supplier substitution, regardless of the reason, except where a substitution is requested by the Owner.

Item of Work	**Extra / Credit**	**Unit of Measure**
Glove bag removal and disposal of air cell insulation on straight section of pipe. (The price will apply to any pipe system regardless of location or finish)	$	Linear ft.
Glove bag removal and disposal of 1 pipe fitting insulated with parging cement. (The price will apply to any pipe system regardless of location or finish)	$	Each
Disposal of vinyl floor tile and mastic	$	Per ft²
Disposal of asbestos waste	$	Per tonne
New drywall assembly as per wall finish schedule on DWG A300, TAG ID-WL	$	Per ft²
3/4" dual temperature water pipe	$	Per linear ft.
1" dual temperature water pipe	$	Per 10 linear ft.
1-1/2" dual temperature water pipe	$	Per 10 linear ft.
2" dual temperature water pipe	$	Per 10 linear ft.
4" dual temperature water pipe	$	Per 10 linear ft.
6" dual temperature water pipe	$	Per 10 linear ft.
Wall Priming and Painting	$	Per ft²

Date _____

Signature _____

Name and Title _____

END OF SECTION

605 James St. N.- 4th Floor Office Renovations
Hamilton - Oshawa Port Authority
Hamilton, ON

Name of Bidder _____

I/We, the undersigned agree that the Owner may use the following hourly rates for additional work, and that all unit prices, unless specifically indicated, are total rates including salaries, benefits, overhead and profit mark-up. I/We agree that credits for deleted work shall be no less than 80% of the prices listed hereunder. I/We the undersigned agree that the Owner shall have the right to negotiate the cost for changes to the work instead of using the unit prices listed hereunder. Prices listed hereunder are excluding H.S.T.

Extra costs to the Contract will not be considered for the Subcontractor/Supplier substitution, regardless of the reason, except where a substitution is requested by the Owner.

Classification	**Hourly rate**
Superintendent	$
Skilled Labourer	$
Semi-Skilled Labourer	$
Tradesperson- Electrician	$
Apprentice – Electrical	$
Tradesperson - Mechanical	$
Apprentice – Mechanical	$
Tradesperson – Plumbing	$
Apprentice – Plumbing	$
Asbestos Abatement Worker (regular hours)	$
Asbestos Abatement Worker (after hours)	$

Add additional page if other labour rates apply.

Date _____

Signature _____

Name and Title _____

END OF SECTION

605 James St. N.- 4th Floor Office Renovations
Hamilton - Oshawa Port Authority
Hamilton, ON

AGREEMENT

The executed Agreement Between Owner and Contractor of the Standard Construction Documents CCDC 2, as amended hereinafter governs the Work of this Contract.

ARTICLE A-5 PAYMENT

Paragraph 5.1.2

DELETE paragraph in its entirety and substitute the following:

"5.1.2 Upon Substantial performance of the Work as certified by the Project Manager, and one day after Lien Rights regarding the work performed before the date certified to be the date of Substantial Performance have expired, pay to the Contractor the unpaid balance of Holdback monies then due, together with such Value Added Taxes as may be applicable to such payment, and".

Paragraph 5.1.3

DELETE paragraph in its entirety and substitute the following:

"5.1.3 Upon receipt of the Project Manager's final certificate of payment, and one day after all Lien Rights for finishing work have expired, pay to the Contractor the unpaid balance of the Contract Price then due together with such Value Added Taxes as may be applicable to such payment".

Paragraph 5.2.1

ADD to appropriate blank space: CIBC.

Definitions

The Definitions of the Standard Construction Document CCDC 2 apply to all Contract Documents.

GENERAL CONDITIONS

The General Conditions of the CCDC 2, except as amended by Document 00800 – Supplementary Conditions, govern the Work of this Contract.

END OF SECTION

605 James St. N.- 4th Floor Office Renovations
Hamilton - Oshawa Port Authority
Hamilton, ON

THE GENERAL CONDITIONS OF THE STANDARD CONTRACT DOCUMENT CCDC-2 2020, STIPULATED PRICE CONTRACT, AS AMENDED HEREIN SHALL GOVERN THE WORK OF THIS CONTRACT.

GC 2.3 REVIEW AND INSPECTION OF THE WORK

ADD new paragraph 2.3.8:

"2.3.8 The *Project Manager* will conduct periodic reviews of the Work in progress, to determine general conformance with the requirements of the Contract Documents. Such reviews, or lack thereof, shall not give rise to any claims by the Contractor in connection with construction means, methods, techniques, sequences and procedures, not in connection with construction safety at the Place of the Work, responsibility for which belongs exclusively to the Contractor."

GC 3.2 CONSTRUCTION BY OWNER OR OTHER CONTRACTORS

DELETE Paragraph 3.2.2 and Paragraphs 3.2.2.1 and 3.2.2.2 in their entirety and SUBSTITUTE the following:

"3.2.2 When work is performed by the Owner's own forces, the Owner shall:

.1 Provide for the coordination of the activities and work of the Owner's own forces with the work of the Contract;

.2 Assume responsibility for compliance with the applicable health and construction safety legislation at the Place of the Work for work performed by the Owner's own forces."

Paragraphs 3.2.2.3, and 3.2.2.4 are not changed.

GC 3.8 SHOP DRAWINGS

ADD new paragraphs 3.8.8 to 3.8.14 to this Article:

"3.8.8 The Project Manager's review will not include review of dimensions, quantities, calculations, weights, fabrication processes, construction means or methods, the coordination of Trades, or safety factors relating to the construction for which the Contractor has the sole responsibility in connection therewith. Should any errors in dimensions, or interferences with other work be noticed by the Project Manager in his review of the Shop Drawings, the attention of the Contractor will be called to them, but review of Shop Drawings by the Project Manager shall not, in any way whatsoever, relieve the Contractor from the responsibilities indicated in Paragraph 3.11.3. Shop drawings review by the Project Manager does not authorize changes in

the Contract Price and changes in the Contract Time. Such changes shall be determined in accordance with GC6.1 CHANGES.

3.8.9 Contractor shall secure from all his Subcontractors and material suppliers uniform size Shop Drawings of all items, as listed in their respective trade specifications, showing construction materials, etc., or as required, and upon which representative trade bids have been based.

3.8.10 Shop Drawings shall define divisions of responsibility between Trades, and all items shown on Shop Drawings shall be supplied as part of the Contract unless it is specifically approved that certain items are not part of the Contract.

3.8.11 Shop Drawings shall be laid out with same orientation as contract Drawings.

3.8.12 Submit Shop Drawings to Project Manager in the form of a PDF document. On each PDF document page provide a 75 x 180 mm blank space for the Project Manager's use. Upon receipt of PDF document, the Project Manager will review, mark corrections or changes and return PDF document. Original tracings or other transparency shall be corrected and resubmitted for the Project Managers further review and further revisions if necessary. The PDF document will be returned to Contractor for reproduction. All fixture cuts, equipment brochures and printed descriptive literature shall be submitted on letter size paper. Provide two copies of all such material.

3.8.13 Upon completion of review by Project Manager, Shop Drawings will be returned to the Contractor for reproduction and issuance to all concerned. Retain one complete set of all reviewed Shop Drawings for Owner, which shall, on completion of the work, be issued to the Owner in an approved form.

3.8.14 Any fabrication work done before receiving final reviewed Shop Drawings shall be at the Contractor's and his Subcontractor's and/or supplier's risk."

GC 4.1 CASH ALLOWANCES

Paragraph 4.1.4: change first line to read:

"Where the total costs expended under cash allowances exceed the aggregate amount of all cash allowances, the *Contractor* shall be"

ADD the following new Paragraphs 4.1.8 and 4.1.9 to this Article:

"4.1.8 The *Project Manager* shall notify the *Contractor* when work is to be tendered in respect to *Cash Allowances*.

4.1.9 Should the *Project Manager* elect to have the *Contractor* tender the work, mutually acceptable Trades shall be selected, and the *Contractor* shall proceed to solicit and receive Tenders. Alternatively, should the *Project Manager* elect to solicit and receive Tenders, he shall advise the *Contractor* of the tendered results and of his selection. In either case, the *Contractor*, in his *Progress Certificate*, shall include payment on account or work authorized under *Cash Allowance*."

GC 5.1 Financing Information Required of the Owner

DELETE entire GC 5.1.

GC 5.2 Application for Payment

Paragraph 5.2.8: replace with

"5.2.8 Claims for Products delivered to the Place of the Work but not yet incorporated into the work, provided such Products are Project specific and cannot readily be used elsewhere, may be considered for payment on an individual basis and shall be supported by such evidence as the Project Manager may reasonably require, to establish the value and delivery of the Products.

ADD new Paragraph 5.2.9 and 5.2.10 to this Article:

"5.2.9 Commencing with the second Application for Payment on account and for all applications thereafter the Contractor shall furnish a statutory declaration, declared before a Notary Public, Commissioner of Oaths, and a Workplace Safety and Insurance Board Certificate of Clearance.

5.2.10 Each application for Release of Holdback upon Completion of the Subcontractors Work, as permitted by application legislation shall be accompanied by a Statutory Declaration and a Workers' Compensation Board Certificate of Clearance."

GC 5.3 Payment

Paragraph 5.3.1

CHANGE the words "calendar days' to the words "working days".

GC 5.4 Substantial Performance of the Work
Paragraph 5.4.2

CHANGE the words "calendar days" to the words "working days".

GC 5.5 Final Payment

Paragraphs 5.5.2 and 5.5.4

CHANGE the words "calendar days" to the words "working days".

ADD new paragraph 5.5.5:

"5.5.5 The release of the remaining Holdback monies shall become due and payable on the day following the expiration of the statutory limitation period stipulated in the lien legislation applicable to the Place of the Work, or where such legislation does not exist or apply in accordance with such other legislation, industry practice or such other provisions which may be agreed to between the parties, providing that the

Owner may retain out of such Holdback monies any sums required bylaw to satisfy any liens against the Work or monetary claims against the Contractor and enforceable against the Owner, and providing the Contractor has submitted to the Owner a sworn statement that all accounts for labour, subcontracts, products, construction machinery and equipment and other indebtedness which may have been incurred by the Contractor in the performance of the Work, and for which the Owner might in any way be held responsible, have been paid in full, except Holdback monies properly retained."

GC 6.2 Change Order

ADD new paragraphs 6.2.3, 6.2.4, 6.2.5, 6.2.6, 6.2.7 and 6.2.8:

"6.2.3 All claims resulting from changes in the Work which would extend the Contract time shall be presented by the Contractor concurrently with his change in Contract Price, and

6.2.4 Changes in the Work may be initiated by the Project Manager and issued to the Contractor in the form of a Site Instruction, which should not normally include any change in the Contract Price and change in the Contract Time. If it is the opinion of the Contractor that the issued Site Instruction involves a change in the Contract Price and/or change in Contract Time, the Contractor shall formally notify the Project Manager in writing within seven working days following the date of the Site Instruction that the changes involve an amendment to the Contract Price and/or Contract Time. If satisfied the Project Manager shall issue a Contemplated Change Notice.

6.2.5 The value of the changes shall be determined by cost and fixed percentage fees as follows:

a) Contractor's changes shall be –
Net price of materials and Place of Work direct labour including statutory charges and burdens, plus 10% for overhead and profit of value of work.

b) Subcontractors charges shall be –
Net price of materials and Place of Work direct labour including statutory charges and burdens, plus 10% for overhead and profit of value of work.

c) Contractors' charges on all Subcontractors' charges shall be no more than 5% of value of work.

d) Pending final determination of value, payments on account of changes shall be made on the Project Manager's certificate.

6.2.6 Overhead and profit may not be charged on credits to the Contract. Where a change involves both extras and credits, overhead and profit shall apply only to the next extra of the change.

6.2.7 The cost for the following items shall be considered to be included in the allowance

for overhead and profit:

.1 Contractor's head office expenses.
.2 Wages of project managers, superintendents, assistants, watchpersons and administrative personnel.
.3 Temporary site office expenses, including costs for telephone and facsimile machine.
.4 Small tools.
.5 Insurance and bonding premiums.
.6 Shop and record drawings.
.7 Clean up and disposal of waste materials.

6.2.8 It will be the Contractor's responsibility to notify the Bonding Company of all changes in the work so that the Performance Bond will not be invalidated."

GC 6.5 Delays

ADD new paragraph 6.5.6 to this Article:

"6.5.6 If the Contractor is delayed in the performance of the Work due to timely unavailability of products which are ordered by the Owner, and which are to be installed or set in place by the Contractor, or work which is performed by the Owner outside the contract, then the Contract Time shall be extended for such reasonable time as the Project Manager, in consultation with the Owner and Contractor, may decide, but in no case shall the extension of time be less than the time lost as result of the event causing the delay."

GC 9.4 CONSTRUCTION SAFETY

ADD new paragraph 9.4.6 and 9.4.7:

"9.4.6 The Contractor shall assume the role of the Constructor as defined by applicable legislation.

9.4.7 The Contractor shall file "Notice of Project" with the Ontario Ministry of Labour as "Constructor" of this project as required under Section 5 of the Ontario Regulations 213/91 (The Occupational Health and Safety Act 1990), and provide the Project Manager with a copy of said notice."

GC 11.1 Insurance

REVISE the first sentence of item 11.1.1.1 General Liability Insurance to read:

"General Liability Insurance shall be in the joint names of the *Contractor*, the *Owner*, with limits not less than $5,000,000.00 per occurrence and with a property damage deductible not exceeding $5,000.00."

GC 13.1 Indemnification

Paragraph 13.1.2.2:

CHANGE “$2,000,000” to “$5,000,000”.

END OF SECTION

General Description of Work

The project site is located on the 4th floor of 605 James Street North, which is occupied by multiple tenants. A portion of the 4th floor will be renovated to accommodate staff expansion for HOPA's own occupancy.

The section of the 4th floor undergoing renovation will be vacant during the work. However, the remaining areas on the 4th floor, as well as other floors in the building, will remain fully operational.

The project scope includes, but is not limited to, the following tasks:

- Removal and disposal of existing flooring, shelving, partition walls, doors, windows, ceiling tiles/grids, and electrical and mechanical fixtures, as specified in the tender drawings.
- Designated substance removal (refer to Pinchin's report and specifications included in the appendices).
- Supply and installation of new interior partition walls, windows, and doors.
- Supply and installation of new flooring, including baseboards.
- Supply and installation of new electrical and mechanical fixtures as detailed in the tender drawings and specifications.
- Supply and installation of new kitchenettes.
- Painting throughout the entire project area.

PART 1 GENERAL

1.1 General and Related Work

.1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of the General Conditions of the Contract.

.2 Related work specified elsewhere:

.1 Section 02 82 00.01 Asbestos Abatement – Type 1 Procedures

.2 Section 02 82 00.02 Asbestos Abatement – Type 2 Procedures

.3 Section 02 82 00.04 Asbestos Abatement – Type 2 Glove Bag Method

.3 Site Conditions identifies all known hazardous building materials within the Project Area. The information provided is for general reference only. Each Contractor must confirm existing conditions on site prior to tender close.

.1 The specification fulfils the requirements of Section 30 of the Ontario Occupational Health and Safety Act.

.2 The specification fulfils the requirements of the Section 10 of Ontario Regulation 278/05.

.4 The Outline of Work identifies the location, condition and quantities of hazardous building materials to be removed as part of this project.

.1 It is the intent that work prescribed this Section will result in the removal of all hazardous materials as outlined and the decontamination of all surfaces or materials which may have been or become contaminated by hazardous materials either during or prior to work of this Contract.

1.2 Site Conditions

.1 Refer to the report entitled “Revised 2 Hazardous Building Materials Assessment (Pre-construction) Fourth Floor Renovations”, dated January 15, 2025, prepared by Pinchin Ltd., file number 336569.005.

1.3 Outline of Work

.1 Coordinate the following items with the Owner’s Project Manager and the Construction Manager, including but not limited to: electrical isolations, GFI connection, water connections, HVAC and exhaust ventilation system isolation, bin placement, schedule, disconnects, etc.

.2 Using Type 1 procedures prescribed in the Section identified in Related Work, remove and dispose of the following.

.1 Sink and associated asbestos-containing mastic from Location 30 (1 sink).

.2 Asbestos-containing sweatwrap pipe insulation from Locations 20-27 (approximately 240 LF).

.1 Include to remove pipe insulation where discovered during demolition work (allow for 20 LF)

.3 Using Type 2 procedures prescribed in the Section identified in Related Work, perform the following work using a grinder/machine equipped with a HEPA filtered dust collection device.

.1 Floor mastic from Locations 19-27 (approximately 2,000 SF).

.1 Remove mastic completely from substrate.

.2 Remove all mastic where present below floor finishes, walls, millwork etc.

.4 Using Glove Bag procedures prescribed in the Section identified in Related Work, remove and dispose of the following.

.1 All asbestos-containing pipe insulation (approximately 261 LF and 44 fittings).

.1 Include to remove pipe insulation where discovered during demolition work (allow for 20 LF, and 20 fittings)

.2 Reinsulate removed pipe insulation with fiberglass and ASJ jacketing.

.3 If for reasons of pipe geometry or access, Glove Bag procedures cannot be used, remove and dispose of asbestos-containing insulations in accordance with Section 02 82 00.02 for less than 1 square meter, or following Type 3 procedures in accordance with Ontario Regulation 278/05 for greater than 1 square metre.

.5 Follow lead procedures prescribed in the EACC Lead Guideline when disturbing lead materials, lead paint and/or materials with lead paint.

.6 Follow mercury procedures when removing all light fixtures and fluorescent light tubes and light ballasts presumed to contain PCB. Place all light fixtures into containers to avoid breakage.

.7 Follow silica procedures prescribed in the MOL Silica Guideline when disturbing silica containing materials.

.8 Refer to Specification Sections identified in the Related Work for specified personnel protective measures for the safe handling, removal, clean-up, enclosure, or repair of hazardous materials in each phase or work area.

.9 Visit the site prior to tender close to confirm the location and extent of any hazardous building materials or materials contaminated by hazardous materials.

.10 Protect surfaces, building fabrics and items remaining within the Abatement Work Area.

.11 Without disturbing hazardous materials, perform removals where required, prior to abatement work.

.1 Maximize waste diversion by use of resale of building materials, or recycling.

.12 Isolate the Abatement Work Area from adjoining Occupied and Non-Occupied Areas whether present at an interior or exterior location.

.13 Maintain emergency and fire exits from Abatement Work Area, or establish alternative exits satisfactory to Provincial Fire Marshall and local authorities having jurisdiction. Maintain extra routes from occupied areas. Place emergency exit signs at locations to clearly mark exit route. Seal emergency exit doors so as not to impede use of door during emergency evacuation.

.14 Remove, clean, store and replace at completion of work, non-operating mechanical and electrical equipment, ducts, building components, materials or items removed to accommodate asbestos removal.

.15 Perform selective demolition of mechanical and electrical equipment, building components, materials and items scheduled for demolition at locations required to facilitate asbestos removal. Refer to all Contract Documents for responsibility of demolition work and disposal.

.16 Remove and dispose of as appropriate waste, building components, materials and items contaminated by hazardous materials that cannot be effectively cleaned.

.17 Encapsulation will not be permitted where removal of building materials or structures scheduled for demolition will facilitate access to the asbestos materials in question.

.18 Final clean work area to remove visible signs of asbestos and other hazardous materials, other debris or settled dust.

.19 Apply lock-down agent to exposed surfaces throughout the work area and to surfaces from which any hazardous materials have been removed.

.1 Do not apply lock-down to materials which would be damaged by its application.

.20 Label mechanical systems and services to clearly identify location of remaining asbestos-containing materials.

.21 Unless otherwise specified, the handling, removal, clean-up or repair of hazardous materials or surfaces contaminated with hazardous materials is to be performed following wet removal techniques.

1.4 Schedule

.1 Provide necessary manpower, supervision, equipment and materials to maintain and complete the project on schedule.

.2 Work Hours:

.1 Coordinate all work, scheduling and phasing with the Owner.

.2 Duration for which HVAC systems may remain shutdown to accommodate quiet hours work will vary in accordance with outside weather conditions and internal demand. Duration of quiet hours work will have to be scheduled accordingly and in consultation with the Abatement Consultant and Owner.

.3 Provide 48 hours written notice to the Abatement Consultant of any request to work outside normal working hours. Obtain written approval before proceeding.

1.5 Definitions

.1 Abatement Consultant: Owner's Representative providing inspection and air monitoring.

.2 Abatement Contractor: Contractor or sub-contractor performing work of this section.

.3 Abatement Work Area: Area where work takes place which will, or may, disturb hazardous materials.

.4 Amended Water: Water with wetting agent added for the purpose of reducing surface tension to allow thorough wetting of materials.

.5 Asbestos: Any of the fibrous silicates defined in Regulation 278/05 including: actinolite, amosite, anthophyllite, chrysotile, crocidolite and tremolite.

.6 Asbestos-Containing Material (ACM): Material identified under Site Conditions including any debris, overspray, fallen material and settled dust.

.7 Authorized Visitors: Building Owner, Abatement Consultant, or designated representative, and persons representing regulatory agencies.

.8 Competent Worker: A worker who is qualified because of knowledge, training and experience to perform the work, is familiar with Regulation 278/05 and the Occupational Health and Safety Act, and has knowledge of the potential or actual danger to health and safety in the work.

.9 Contaminated Waste: Material identified under Site Conditions, including fallen material, settled dust, other debris and materials or equipment deemed to be contaminated by the Abatement Consultant.

.10 Curtained Doorway: Doorway consisting of two (2) overlapping flaps of rip-proof polyethylene arranged to permit ingress and egress from one room to another while permitting minimal air movement between rooms.

.11 DOP Test: A testing method used to determine the integrity of the Negative Pressure unit or vacuum using a Dispersed Oil Particulate (DOP) or Poly Alpha Olefin (PAO) HEPA filter leak test. This test is to be conducted on site where units are to be installed. Refer to the Environmental Abatement Council of Ontario (EACO) DOP/PAO Testing Guideline 2013 or ANSI/ASME N510-2007.

.12 Fitting: Individual segments or pieces of a mechanical service line which may include but is not limited to the hangers, tees, elbows, joints, valves, unions, etc.

.13 Friable Material: Material that when dry can be crumbled, pulverized or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.

.14 HEPA: High Efficiency Particulate Aerosol filter that is at least 99.97 percent efficient in collecting a 0.3 micrometre aerosol.

.15 Lead-Containing: 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.).

.16 Lead Waste: Waste generated from removal of lead-containing materials, or the substrate and paint finish where left intact.

.17 Mercury Waste: Equipment, materials or items containing mercury or contaminated with mercury.

.18 Milestone Inspection: Inspection of the Abatement Work Area at a defined point in the abatement operation.

.19 Negative Pressure: A reduced pressure within the Abatement Work Area (> 0.02 inches of water column) established by extracting air directly from Abatement Work Area and discharging it to exterior of building.

.20 Non-Friable Material: Material that when dry cannot be crumbled, pulverized or powdered by hand pressure.

.21 Occupied Area: Any area of the building or adjoining space outside the Abatement Work Area.

.22 Personnel: All Contractor's employees, sub-contractors employees, supervisors.

.23 PCM: Phase Contrast Microscopy.

.24 Remove: Remove means remove and dispose of (as applicable type of waste) unless followed by other instruction (e.g. remove and turn over to Owner).

.25 TEM: Transmission Electron Microscopy.

1.6 Regulations and Guidelines

.1 Comply with Federal, Provincial, and local requirements, provided that in any case of conflict among those requirements or with these Specifications, the more stringent requirements shall apply. Work shall be performed under regulations in effect at the time work is performed.

.2 Where regulations are not present, follow accepted industry standards and applicable Guideline documents.

.3 Regulations and Guidelines include but are not limited to the following:

.1 Ministry of Labour Occupational Health and Safety Act Regulations for Construction Projects including Revised Statutes of Ontario 1990, Chapter 0.1 and Ontario Regulation 278/05.

.2 Ministry of the Environment and Climate Change Regulation for the disposal of waste, including R.R.O. 1990, Reg. 347 as amended.

.3 Regulation 490/09 Designated Substances.

.4 Environmental Abatement Council of Ontario (EACO), Lead Guideline For Construction, Renovation, Maintenance or Repair, October 2014.

.5 Ministry of Labour, Guideline, Silica on Construction Projects, 2011.

1.7 Quality Assurance

.1 Removal and handling of hazardous materials is to be performed by persons trained in the methods, procedures and industry practices for Abatement.

.2 Ensure work proceeds to schedule, meeting all requirements of this Specification.

.3 Complete work so that at no time airborne dust, visible debris, or water runoff contaminate areas outside the Abatement Work Area.

.4 Any contamination of surrounding area (indicated by visual inspection or air monitoring) shall necessitate the clean-up of affected area, and in the same manner applicable to an Abatement Work Area at no cost to the Owner.

.5 All work involving electrical, mechanical, carpentry, glazing, etc., shall be performed by licensed persons experienced and qualified for the work required.

1.8 Supervision

.1 Provide on site for each work shift, a Shift Superintendent(s), who has authority regarding all aspects related to manpower, equipment and production.

.2 Supervisory personnel must hold a recognized certificate proving attendance at an asbestos removal training course (2 day minimum duration) and have performed supervisory functions on at least five (5) other asbestos abatement projects of similar size and complexity.

.3 At all times during work, the Overall or Shift Superintendent(s) must be on site. Failure to comply with this requirement will result in a stoppage of all work, at no cost to the Owner.

.4 Replace supervisory personnel, with approved replacements, within three (3) working days of a written request from the Owner. Owner reserves the right to request replacement of supervisory personnel without explanation.

.5 Do not replace supervisory personnel without written approval from the Owner.

1.9 Instruction and Training

.1 Instruction and training must be provided by a competent person.

.2 All workers completing Type 1, 2 or 3 asbestos abatement must be trained in compliance with Section 19 of O.Reg. 278/05.

1.10 Notification

.1 Before commencing work, notify orally and in writing, an inspector at the office of the Ontario Ministry of Labour nearest the project site, where required.

.2 Inform all trades on site of the presence and location of hazardous materials identified in the Contract documents.

.3 Notify the Owner or Owner's Representative, the Joint Occupational Health and Safety Committee and the Provincial Ministry of Labour, if suspected asbestos-containing materials not identified in the contract documents are discovered during the course of the work. Stop work in these areas immediately.

.4 Notify Sanitary Landfill site as per O.Reg. 347/90 as amended.

1.11 Submittals

.1 Submit prior to starting work:

.1 Provincial Workers' Compensation Board Clearance Certificate.

.2 Insurance certificates.

.3 Copy of Company Health and Safety Policy and applicable programs.

.4 Copy of Certificate of Approval for disposal of hazardous materials waste and location of landfill.

.2 Submit the following information regarding personnel prior to starting work:

.1 Resumes of the supervisory personnel.

.2 Proof in the form of a certificate that supervisory personnel have attended a training course on asbestos removal or are certified as supervisors under the Ministry of Training, Colleges and Universities course 253S.

.3 WHMIS training certificates for all personnel.

.4 Certificate proving that each worker on site has been fit tested for the respirator appropriate for the work being performed.

.3 Submit the following information regarding HEPA filtered devices prior to construction of enclosure or asbestos abatement:

.1 Performance data on HEPA filtered vacuums including DOP tests no more than 3 months old.

.2 DOP tests to be performed by an independent testing company.

.1 DOP testing company is required to submit a detailed technical report of testing protocol, including Introduction, Methodology, Results, Conclusions, and Recommendations, including results of the Air-Aerosol Mixing Uniformity test as per ASME N510-1989 (1995).

.2 DOP testing company must also provide calibration certificates from an independent calibration firm or from the manufacturer of the testing equipment for both the aerosol photometer and the pressure gauge on the aerosol generator dated within 1 calendar year from the on-site testing date.

.3 DOP testing company must also provide the National Sanitation Foundation (NSF) certification name and number of the on-site technician performing the testing.

.3 Proof of calibration of DOP testing equipment.

.4 Submit the following upon completion of the work.

.1 Manifests, waybills, bills of ladings etc. as applicable for each type of waste.

1.12 Insurance

.1 Maintain a Commercial General Liability Policy with an insurance company acceptable to Pinchin Ltd. And0 OWNER. The intent of this policy is to hold Construction Manager and Hamilton-Oshawa Port Authority harmless as it relates to claims for Bodily Injury or Property Damage or both, relating to the contract. Commercial General Liability insurance shall be provided on an "occurrence" basis to cover injury or damage (whether detected or not during the policy period) which happens during the policy period.

.2 Maintain an Automobile or Fleet Policy, and Non-owned Automobile Policy with an insurance company acceptable to Pinchin Ltd. And0 OWNER. The intent of these policies is to hold Pinchin Ltd. And0 OWNER harmless as it relates to claims for Bodily Injury or Property Damage or both, relating to the contract.

.3 Maintain a Pollution Liability Policy (or asbestos/lead liability policy or specific coverage under the CGL for asbestos/lead abatement) with an insurance company acceptable to Pinchin Ltd. And0 OWNER. The intent of this policy is to hold Pinchin Ltd. And0 OWNER harmless as it relates to claims for Bodily Injury or Property Damage or both, relating to the contract. Pollution Liability shall be provided on an "occurrence" basis to cover injury or damage (whether detected or not during the policy period) which happens during the policy period. Without limiting the generality of the foregoing, the policy shall insure the operations of abatement and shall not contain any environmental and/or health hazard exclusions relating to remediation operations.

.4 Forward all certificates to Pinchin Ltd. And0 OWNER before work is commenced, showing Pinchin Ltd. And0 OWNER as additional insured as their interest may appear.

.5 Pinchin Ltd. And0 OWNER may request a certified true copy of the policies.

.6 The limits will not be less than:

.1	Commercial General Liability	$5,000,000.00
.2	Automobile	$2,000,000.00
.3	Pollution Policy	$5,000,000.00

1.13 Inspection

.1 From commencement of work until completion of clean-up operations, the Abatement Consultant is empowered by the Owner to inspect for compliance with the requirements of governing authorities, adherence to specified procedures and materials, and to inspect for final cleanliness and completion.

.2 The Abatement Consultant is empowered by the Owner to order a shutdown of work when leakage of asbestos from the controlled work area has occurred or is likely to occur.

.3 Any deviation from the requirements of the Specifications or governing authorities that is not approved in writing may result in a stoppage of work, at no cost to the Owner.

.4 Additional labour or materials expended by the Contractor to rectify unsatisfactory conditions and to provide performance to the level specified shall be at no additional cost to the Owner.

.5 Inspection and air monitoring performed as a result of Contractor's failure to perform satisfactorily regarding quality, safety, or schedule, shall be back-charged to the Contractor.

.6 Facilitate inspection and provide access as necessary. Make good work disturbed by inspection and testing at no cost to the Owner.

.7 Refer to the Sections identified in Related Work for specified milestone inspections which are to take place at defined points throughout the abatement operation specific to each phase or work area.

.8 Provide 24 hours written notice to the Abatement Consultant of any request for scheduling of milestone inspections or transportation of waste through Occupied Areas.

.9 The following Milestone Inspections may take place, at the Owner's cost, as outlined in each related specification section OR which will be confirmed at the initial start-up meeting:

.1 Milestone Inspection - Clean Site Preparation

.1 Inspection of preparations and set-up prior to contaminated work in the Abatement Work Area.

.2 Milestone Inspection – Bulk Removal Inspection

.1 Inspection during asbestos removal, monitoring removal methods, site deficiencies, performing occupied air monitoring, etc.

.3 Milestone Inspection - Visual Clearance

.1 Inspection of Abatement Work Area after completion of all abatement, but prior to application of lock-down agents or dismantling of enclosure.

.4 Milestone Inspection – Clearance Sampling

.1 Air monitoring performed following removal of asbestos and application of slow drying sealer to ensure fibre levels inside the Type 2 enclosure(s) are within the acceptable limits. The number of samples to be collected and analysed are based on the requirements of O.Reg. 278/05.

.10 Refer to the Sections identified in Related Work for specified milestone inspections which are to take place at defined points throughout the abatement operation specific to each phase or work area.

.11 Do not proceed with next phase of work until written approval of each milestone is received from the Abatement Consultant.

1.14 Worker Protection

.1 Instruct workers before allowing entry to the Abatement Work Area. Instruction shall include training in use of respirators, dress, showering, entry and exiting from an Abatement Work Area, and all other aspects of work procedures and protective measures.

.2 Workers shall not eat, drink, chew gum or tobacco, vape or smoke in the Abatement Work Area.

.3 Workers shall be fully protected at all times when possibility of disturbance of hazardous materials exists.

.4 Provide soap, towels and facilities for washing of hands and face, which shall be used by all personnel when leaving the Abatement Work Area.

.5 Respiratory Protection

.1 Refer to each particular Section of the Specification for specified type of respiratory equipment specific to each phase or work area.

.2 Respirators shall be:

.1 Certified by the National Institute of Occupational Safety and Health (NIOSH) or other testing agency acceptable to the Ministry of Labour.
.2 Fitted so that there is an effective seal between the respirator and the worker’s face. Ensure that no person required to enter an Abatement Work Area has facial hair which affects the seal between respirator and face.
.3 Assigned to a worker for their exclusive use.
.4 Maintained in accordance with manufacturer’s specifications.
.5 Cleaned, disinfected and inspected by a competent person after use on each shift, or more often if required.

.6 Repaired or have damaged or deteriorated parts replaced.
.7 Stored in a clean and sanitary location.
.8 Provided with new filters as necessary, according to manufacturer's instructions.
.9 Worn by personnel who have been fit checked by qualitative or quantitative fit-testing.
.10 Instruction on proper use of respirators must be provided by a competent person as defined by the Occupational Health and Safety Act.

.3 Provide protective clothing, to all personnel which:

.1 Is made of a material that does not readily retain nor permit penetration of asbestos fibres or lead/silica dust.
.2 Consists of head covering and full body covering that fits snugly at the ankles, wrists and neck.
.3 Once coveralls are worn, treat and dispose of as contaminated waste.
.4 Is replaced or repaired if torn or ripped.

.4 Use hard hats, safety footwear and other protective equipment and apparel required by applicable construction safety regulations.

1.15 Visitor Protection

.1 Provide clean protective clothing and equipment to Authorized Visitors.

.2 Instruct Authorized Visitors in the use of protective clothing and Abatement Work Area entry and exit procedures.

.3 Authorized visitors are required to be fit tested on respirators, prior to entering Abatement Work Area.

.1 Respirator worn must be compliant with Section 13 and Table 2 of O.Reg. 278/05.

1.16 Signage

.1 Asbestos Abatement Signs: Post signs at access points to the Abatement Work Area, stating at minimum, the following:

.1 There is an asbestos dust hazard.

.2 Access to the work area is restricted to persons wearing protective clothing and equipment.

.2 Lead Abatement Signs: Post signs at access points to the Abatement Work Area, stating at minimum, the following:

.1 There is a lead dust, fume or mist hazard.

.2 Access to the work area is restricted to authorized persons.

.3 Respirators must be worn in the work area.

.3 Silica Warning Signs: Post signs at access points to the Abatement Work Area, stating at minimum, the following:

.1 There is a silica dust hazard.

.2 Access to the work area is restricted to authorized persons.

.3 Respirators must be worn in the work area.

.4 Vehicles, Bins and Asbestos Waste Containers: Post signs on both sides of every vehicle used for the transportation of asbestos waste and on every asbestos waste container. Signs must display thereon in large, easily legible letters that contrast in colour with the background the word "CAUTION" in letters not less than ten centimetres in height and the words:

.1 CONTAINS ASBESTOS FIBRES

.2 Avoid Creating Dust and Spillage

.3 Asbestos May be Harmful To Your Health

.4 Wear Approved Protective Equipment.

.5 Place placards in accordance with Transportation of Dangerous Goods Act.

1.17 Waste and Material Handling

.1 Waste bins must be placed on grade or in receiving.

.2 All bins for hazardous materials must be covered and locked when waste transfer is not being performed.

.3 Ensure redundant non-ACM, rubble, debris, etc. removed during contaminated work are treated, packaged, transported and disposed of as appropriate waste.

.4 Clean, wash and apply Post Removal Sealant to metal waste prior to removal from Abatement Work Area. Recycle metals.

.5 Clean, wash and apply Post Removal Sealant to non-porous materials prior to disposal as clean waste. Obtain prior written approval from the Abatement Consultant for each individual type of material.

.6 Clean and wash equipment prior to removal from Abatement Work Area if removed prior to completion.

.7 Place all equipment, tools and unused materials that cannot be cleaned in Abatement Waste Containers.

.8 As work progresses, and at regular intervals, transport the sealed and labelled waste containers from the Abatement Work Area to waste bin.

.9 Place items in bins according to waste classification. Place asbestos waste, lead waste, metals, non-asbestos waste, etc. in separate bins.

.10 Removal of waste containers and decontaminated tools and materials from the Abatement Work Area shall be performed as follows:

.1 Remove any visible contamination from the surface of non-porous or cleanable waste being removed from the Abatement Work Area. If the item can be cleaned, remove it from the site as clean waste.

.2 Place waste or item in Waste Container and seal closed.

.3 Wet wipe outside of Waste Container.

.4 Within Decontamination Facility, Transfer Room or at the perimeter of the Abatement Work Area, place in second Waste Container. Seal closed.

.5 Remove waste containers and transport to appropriate bin.

.11 Transport waste and materials via the predetermined routes and exits. Arrange waste transfer route with Owner. Use a closed, covered cart to transport through Occupied Areas.

.12 Provide workers transporting waste with means to access full personal protective equipment and all tools required to properly clean up spilled material in the case of a rupture of a Waste Container.

.13 Pick-up and drop off of garbage bin shall be at pre-approved times, and must not interfere with the Owners operations.

.14 Transport hazardous waste to landfill or waste transfer station licensed by the provincial Ministry of the Environment.

.15 Cooperate with the provincial Ministry of the Environment inspectors and immediately carry out instructions for remedial work at dump to maintain environment, at no additional cost to the Owner.

1.18 Re-establishment of Objects and Systems

.1 Re-establish objects and items relocated by the Contractor's workforce to facilitate work.

.2 Re-establish electrical, communication, HVAC and other services previously disconnected or otherwise isolated to accommodate work by this Section.

.3 Make good at completion of work, all damage not identified in pre-removal survey.

PART 2 PRODUCTS AND FACILITIES

2.1 Materials and Equipment

.1 Refer to the Sections identified in Related Work for specified materials, equipment or facilities specific to each phase or work area.

.2 Materials and equipment must be in good condition and free of debris and fibrous materials. Disposable items must be of new materials only.

.3 Airless Sprayer: AC powered pressure washer that allows wetting agent to mix with water, uses no air or compressed air, and has a nozzle to regulate power and pressure.

.4 Amended Water: Water with wetting agent added for purpose of reducing surface tension to allow thorough wetting of materials.

.5 Asbestos Waste Container: A container acceptable to disposal site, Ministry of the Environment, and Ministry of Labour, comprised of the following:

.1 Dust tight.

.2 Suitable for the type of waste.

.3 Impervious to asbestos.

.4 Identified as asbestos waste.

.6 Differential Pressure Monitor: a high precision instrument for measuring and controlling pressure differences in the low range, between the Abatement Work Area and Occupied Area. Calibrate regularly to manufacturer's instructions.

.7 Discharge Ducting: Polyethylene Tubing. Reinforced with wire. Diameter to equal negative pressure machine discharge. Not to be longer than required, or so long that negative pressure is compromised.

.8 Ground Fault Panel: Electrical panel as follows:

.1 Ground fault circuit interrupters of sufficient capacity to power temporary electrical equipment and lights in Asbestos Work Area.

.2 Interrupters to have a 5 mA ground fault protection.

.3 Necessary accessories including main switch disconnect, ground fault interrupter lights, test switch to ensure unit is working, and reset switch.

.4 Openings sealed to prevent moisture or dust penetration.

.5 Inspected by the Electrical Safety Authority.

.6 Panel uses CSA approved parts and been constructed, inspected and installed by a licensed electrician.

.7 Provide one Ground Fault Panel for each 5,000 square feet (500 square metres) of Abatement Work Area.

.9 HEPA Filtered Negative Pressure Machine: Portable air handling system which extracts air directly from the Abatement Work Area and discharges the air to the exterior of the building. Equipped as follows:

.1 Prefilter and HEPA filter. Air must pass HEPA filter before discharge.

.2 Pressure differential gauge to monitor filter loading.

.3 Auto shut off and warning system for HEPA filter failure.

.4 Separate hold down clamps to retain HEPA filter in place during change of prefilter.

.10 HEPA Vacuum: Vacuum with necessary fittings, tools and attachments. Discharged air must pass through a HEPA filter.

.11 Hose: Leak-proof, minimum busting strength of 500 PSI or greater if required, abrasion resistant covering, reinforcing, and machined-brass couplings. Maintained and tested. Hose to be temperature resistant if it is to carry domestic hot water.

.12 OSB: Oriented Strand Board.

.13 Polyethylene Sheeting: 6 mil (0.15 mm) minimum thickness unless otherwise specified, in sheet size to minimize joints.: 6 mil (0.15 mm) minimum thickness unless otherwise specified, in sheet size to minimize joints.

.14 Post Removal Sealant (or Lockdown): Sealant that when applied to surfaces serves the function of trapping residual asbestos fibres or other dust. Product must have flame spread and smoke development ratings both less than 50. Product shall leave no stain when dry. Post Removal Sealant shall be compatible with replacement insulation or fireproofing where required and capable of withstanding service temperature of substrate. Apply to manufacturer's instructions.

.15 Protective Clothing: Disposable coveralls complete with head covering and full body covering that fits snugly at the ankles, wrists and neck.

.16 Rip-Proof Polyethylene Sheeting: 8 mil (0.20 mm) fabric made up from 5 mil (0.13 mm) weave and two (2) layers of 1.5 mil (0.05 mm) poly laminate or approved equal. In sheet size to minimize on-site seams and overlaps.

.17 Shower Hose: Water lines for supply of hot & cold water to shower facilities to be rated for use at 200 PSI (1380 kPa) or twice the working pressure whichever is greater. Supply lines to be continuous and free of fittings, joints or couplings.

.18 Sprayer: Garden type portable manual sprayer or water hose with spray attachment if suitable.

.19 Tape: Duct tape or tape suitable for sealing polyethylene to surfaces under both dry and wet conditions in the presence of Amended Water.

.20 Wetting Agent: Non-sudsing surfactant added to water to reduce surface tension and increase wetting ability.

PART 3 EXECUTION

.1 Refer to the Sections identified in Related Work for specified procedures for work area preparation, maintenance, site dismantlement, application of lock-down agent and all other procedures for the safe handling, removal and clean-up of hazardous materials specific to each phase or work area.

END OF SECTION

PART 1 GENERAL

1.1 General and Related Work

.1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of Division 1 and the General Conditions of the Contract.

.2 Requirements specified elsewhere:

.1 Section 02 81 00 Hazardous Materials – General Provisions

1.2 Outline of Work

.1 Refer to Section 02 81 00 Hazardous Materials – General Provisions for the Outline of Work.

.2 The intent of this Section is to provide safe work practices and procedures to govern the handling, removal, clean-up and disposal of asbestos-containing materials following Type 1 or Low Risk procedures, and Pinchin and Owner specific requirements.

1.3 Personal Protection

.1 Protect all personnel at all times when possibility of disturbance of ACM exists.

.1 Provide non-powered half-face respirators with P100 high efficiency (HEPA) cartridge filters when requested by personnel.

.2 When requested by personnel, provide protective clothing.

.2 Provide protective clothing, to all personnel entering the Abatement Work Area.

.3 Wear hard hats, safety shoes and other personal protective equipment required by applicable construction safety regulations.

1.4 Inspections

.1 Refer to Section 02 81 00 – General Provisions.

.2 The following Milestone Inspections are to be scheduled:

.1 Milestone Inspection - Clean Site Preparation

.2 Milestone Inspection – Bulk Removal Inspection

.3 Milestone Inspection - Visual Clearance

PART 2 PRODUCTS AND FACILITIES

.1 Refer to Section 02 81 00.

PART 3 EXECUTION

3.1 Site Preparation

.1 Remove stored or non-fixed items from the Abatement Work Area including but not limited to equipment, furniture, waste etc. Store in area provided by Owner.

.2 Moving of equipment, tools, supplies, and stored materials that can be performed without disturbing ACM will be performed by others.

.3 Remove visible dust and friable material from all surfaces in the work area including those to be worked on, using HEPA Vacuums or wet wiping.

.4 Install one layer of polyethylene sheeting on walls, floors, finishes, millwork, electrical equipment, equipment and furnishings remaining in the Abatement Work Area.

.5 Install one layer of rip-proofing polyethylene sheeting over one layer of polyethylene sheeting on walls, floors, finishes, millwork, electrical equipment, equipment and furnishings remaining in the Abatement Work Area.

.6 Install polyethylene drop sheets below areas of work.

.7 Install polyethylene sheeting on openings in walls and floors (as required) and seal.

.8 Install signage in clearly visible locations and in sufficient numbers to adequately warn of an asbestos dust hazard.

.9 Isolate, at panel, and disconnect existing power supply to Abatement Work Area. Power supply to remaining areas of building must not be disrupted during work of this section.

.1 Lock-out/tag-out power at electrical panels.

.2 Mark/tag any items within or passing through the Abatement Work Area that are to remain live including but not limited to cable, conduit, wire, fixtures, equipment panels, etc.

.10 Provide power from ground fault interrupt circuits.

.11 Shut down HVAC systems serving the Abatement Work Area.

.1 Install polyethylene sheeting over openings in ducts and diffusers and seal.

.2 HVAC to remaining areas of building must not be disrupted during work of this section.

.3 System shall remain inoperative until completion of work, unless ducts can be effectively capped.

.4 Perform work at scheduled times after shutting down HVAC systems affecting the Abatement Work Area.

.12 Provide amended water for wetting ACM, and adequate method of wetting (garden sprayers, airless sprayers, etc).

.13 Without disturbing asbestos-containing materials, remove and dispose of non-hazardous materials as clean waste prior to asbestos removal work, where possible.

3.2 Maintenance of Abatement Work Area

.1 Inspect polyethylene sheeting and ensure it is effectively sealed and taped. Repair damage and remedy defects immediately.

.2 Inspect electrical panels and ensure locks and tags are on panels prior to entering the Abatement Work Area.

.3 Maintain Abatement Work Area in tidy condition.

.4 Remove any standing water on polyethylene/floor at the end of every shift.

.5 Turn off water supply to any hoses and reduce pressure in hose, prior to leaving the Abatement Work Area at end of shift.

3.3 Asbestos Removal - General

.1 Do not use powered tools or non-hand held tools.

.2 Do not use compressed air to clean or remove dust or debris.

.3 Do not break, cut, drill, abrade, grind, sand or vibrate ACM if it cannot be wetted. Type

2 procedures would be required if the material cannot be wetted due to hazard or damage.

.4 Wet ACM prior to work and keep ACM wet throughout the removal process.

.5 Frequently and at regular intervals during the work, clean up dust and waste using HEPA vacuums and/or wet sweeping or mopping.

.6 Frequently and at regular intervals, place all waste in asbestos waste containers.

.7 Immediately upon completion of work, clean area with HEPA vacuum and/or wet sweeping or mopping.

3.4 Asbestos Removal - Removal of Other Non-Friable Asbestos Materials – Sinks and Pipe Insulation

.1 Wet all material to be disturbed.

.2 Undo fasteners if necessary, to remove sink.

.3 Use only non-powered hand-held tools to remove ACM.

.4 Place removed sink directly into an asbestos waste container.

3.5 Abatement Work Area Dismantling

.1 Wash or HEPA vacuum equipment and tools used in contaminated Abatement Work Area to remove all asbestos contamination, or place in Asbestos Waste Containers prior to being removed from Abatement Work Area.

.2 Place tools and equipment used in contaminated work site but not cleaned in polyethylene bags prior to removal from Abatement Work Area.

.3 Clean polyethylene sheeting and drop sheets which with HEPA vacuum or wet cleaning methods at completion of work.

.4 Wet drop sheets and polyethylene sheeting.

.5 Carefully roll polyethylene sheeting and drop sheets toward the centre. As polyethylene is rolled away, immediately remove visible debris beneath with a HEPA vacuum.

.6 Remove remaining polyethylene sheeting and tape.

.7 Place polyethylene sheeting, drop sheets, tape, disposal clothing and other contaminated waste in asbestos waste containers, wet wipe and place in second asbestos waste container.

3.6 Waste and Material Handling

.1 Refer to Section 02 81 00.

END OF SECTION

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PART 1 GENERAL

1.1 General and Related Work

.1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of the General Conditions of the Contract.

.2 Requirements specified elsewhere:

.1 Section 02 81 00 Hazardous Materials – General Provisions

1.2 Outline of Work

.1 Refer to Section 02 81 00 Hazardous Materials – General Provisions for the Outline of Work.

.2 The intent of this Section is to provide safe work practices and procedures to govern the handling, removal, clean-up and disposal of asbestos-containing materials following Type 2 or Moderate Risk procedures, and Pinchin and Owner specific requirements.

1.3 Personal Protection

.1 Protect all personnel at all times when possibility of disturbance of ACM exists.

.2 Provide the following minimum respiratory protection to all personnel:

.1 Full face respirators with P100 high efficiency (HEPA) cartridge filters, for:

.1 Removal of all or part of a ceiling if asbestos is likely lying on the surface.

.2 Use of a HEPA filtered power tool on non-friable ACM if the material is not wetted.

.2 Non-powered half-face respirators with P100 high efficiency (HEPA) cartridge filters.

.3 Provide protective clothing, to all personnel entering the Abatement Work Area.

.4 Wear hard hats, safety shoes and other personal protective equipment required by applicable construction safety regulations.

1.4 Inspections

.1 Refer to Section 02 81 00 – General Provisions.

.2 The following Milestone Inspections are to be scheduled:

.1 Milestone Inspection - Clean Site Preparation

.2 Milestone Inspection – Bulk Removal Inspection

.3 Milestone Inspection - Visual Clearance

PART 2 PRODUCTS AND FACILITIES

.1 Refer to Section 02 81 00.

2.2 Hoarding Walls

.1 Type A Hoarding Wall: One layer of rip-proof polyethylene sheeting installed floor to ceiling, secured with telescopic poles, clips, or other suitable methods.

2.3 Transfer Room

.1 Install vented wood door in wood frame at doorway to Occupied Area. Door must have

locking passage set.

.1 Provide a lock box with key to the door.

.2 Provide lock box code to Abatement Consultant and Owner.

.2 Transfer Room to be generally 2000 mm x 2000 mm x 2200 mm high. Increase size accordingly to accommodate number of workers.

.3 Install walls as follows:

.1 Install 38 x 89 mm wood framing at 610 mm o/c with continuous top and sill plates.

.2 Install one layer rip-proof polyethylene sheeting on interior walls of Transfer Room.

.4 Install one layer of rip-proof polyethylene sheeting over two layers of 6 mil polyethylene sheeting beneath entire Transfer Room.

.5 Install one layer rip-proof polyethylene sheeting over roof.

.6 Turn 600 mm of polyethylene down the sides over polyethylene on the perimeter walls.

.7 Install a fire extinguisher, mount to wall.

2.4 Curtained Doorways

.1 Construct as follows:

.1 Install two flap doors, full width and height of door opening at all doors to Abatement Work Area and both ends of Transfer Room.

.2 Construct each flap door of two layers of polyethylene sheeting with all edges reinforced with tape. Use wood strapping to securely fasten flap doors to head and alternate jambs.

.3 Install weights attached to bottom edge of each door flap.

.4 Provide direction arrows on flaps to indicate opening.

PART 3 EXECUTION

3.1 Site Preparation - General

.1 Remove stored or non-fixed items from the Abatement Work Area including but not limited to equipment, furniture, waste etc. Store in area provided by Owner.

.2 Moving of equipment, tools, supplies, and stored materials that can be performed without disturbing ACM will be performed by others.

.3 Remove visible dust and friable material from all surfaces in the work area including those to be worked on, using HEPA Vacuums or wet wiping.

.4 Isolate, at panel, and disconnect existing power supply to Abatement Work Area. Power supply to remaining areas of building must not be disrupted during work of this section.

.1 Lock-out/tag-out power at electrical panels.

.2 Mark/tag any items within or passing through the Abatement Work Area that are to remain live including but not limited to cable, conduit, wire, fixtures, equipment panels, etc.

.5 Provide power from ground fault interrupt circuits.

.6 Shut down HVAC systems serving the Abatement Work Area.

.1 Install polyethylene sheeting over openings in ducts and diffusers and seal.

.2 HVAC to remaining areas of building must not be disrupted during work of this section.

.3 System shall remain inoperative until completion of work, unless ducts can be effectively capped.

.4 Perform work at scheduled times after shutting down HVAC systems affecting the Abatement Work Area.

.7 Provide amended water for wetting ACM, and adequate method of wetting (garden sprayers, airless sprayers, etc).

3.2 Site Preparation –Enclosure Required

.1 Install polyethylene enclosure complete with Windows at Abatement Work Areas for the following work:

.1 Removal of friable asbestos-containing materials (less than 1 square metre).

.2 Removal of a false ceiling (or part of) where asbestos-containing material is presumed or known to be present on the surface.

.2 Install Transfer Room where duration of work is to last longer than one 8 hour shift.

.3 Seal openings in floor using tape, caulking, polyethylene, etc. Floor openings are to be sealed independently prior to installation of floor polyethylene.

.4 Install polyethylene sheeting on floors of Abatement Work Area. Use sufficient layers to provide adequate protection for carpeting and equipment.

.1 Minimum requirement over carpet is one layer of 6 mil polyethylene under one layer of rip-proof polyethylene.

.2 Cover floors first so that polyethylene on walls is overlapped by at least 305 mm.

.5 Construct Type A Hoarding Walls between Abatement Work Area perimeter and occupied areas.

.6 Install polyethylene sheeting at openings in walls (as required) and seal.

.7 Install 6 mil polyethylene sheeting on walls within the Abatement Work Area., including existing walls that make up, or are within, the Abatement Work Area.

.8 Provide a completely sealed polyethylene top for free standing enclosures.

.9 Extend to underside of ceiling system, enclosures for access into ceilings. Enclosure may be supported from the ceiling system if ceiling can support the polyethylene.

.10 Install Curtained Doorways.

.11 Install one layer of 6 mil polyethylene sheeting so as to protect all equipment and finishes in the Abatement Work Area that may be damaged. Items to remain include but are not limited to:

.1 Millwork.

.2 Doors.

.3 Bulkheads.

.4 Toilet Partitions.

.5 Plumbing fixtures.

.6 Electrical Equipment.

.7 Mechanical Equipment.

.8 Kitchen Equipment.

.12 Install temporary lighting in enclosure to a level that will provide for safe and efficient use of work area - minimum 550 LUX.

.13 Establish negative pressure in Abatement Work Areas as follows:

.1 Provide sufficient HEPA filtered negative pressure machines to exchange a volume of air equivalent to that of the Abatement Work Area a minimum of every 20 minutes.

.2 Provide additional HEPA filtered negative pressure machines as required to ensure air flow from Occupied Area into Abatement Work Area.

.3 Arrange negative air units to maximize the distance between units and decontamination facilities.

.4 Provide weighted flaps in perimeter Hoarding Walls as necessary to provide make-up air.

.5 Operate HEPA filtered negative pressure machines continuously from first disturbance of ACM until completion of dismantling.

.6 Replace prefilters to maintain specified flow rate.

.7 Replace HEPA filter as required to maintain flow rate and integrity of unit.

.8 Discharge HEPA filtered negative air machines as follows:

.1 To building exterior.

.1 Remove existing glazing where necessary and replace with a 19 mm plywood panel.

.2 Install panel securely in window frame so that it cannot be pushed into the building and make weather-tight with caulking.

.3 For each negative pressure unit, provide a 300 mm diameter, screened, duct opening through panel.

.4 Direct discharge away from building access points.

.5 Reinstall glazing to match existing upon completion of work.

.2 Into Occupied Areas as required.

.1 Install and make airtight all negative air discharge ducting.

.2 Use metal reinforced polyethylene discharge ducting in locations where the ducting must be protected from damage or collapse.

.14 Establish negative pressure in Abatement Work Areas as follows:

.1 Use HEPA Vacuum.

.2 Insert vacuum hose into enclosure, leave HEPA vacuum outside enclosure. Provide enough hose to reach all areas of enclosure.

.3 Operate HEPA vacuum continuously at all times when ACM may be disturbed.

.15 Place required tools to complete the abatement with the Abatement Work Area.

.16 Install Signage in clearly visible locations and in sufficient numbers to adequately warn of an asbestos dust hazard.

3.3 Maintenance of Abatement Work Area

.1 Inspect polyethylene sheeting and ensure it is effectively sealed and taped. Repair damage and remedy defects immediately.

.2 Inspect electrical panels and ensure locks and tags are on panels prior to entering the Abatement Work Area.

.3 Inspect HEPA filtered negative pressure machines including discharge ducting at the beginning and end of each working period. Inspection must be performed by competent person.

.4 Maintain Abatement Work Area in tidy condition.

.5 Remove standing water on polyethylene/floor at the end of every shift.

.6 Turn off water supply to any hoses and reduce pressure in hose, prior to leaving the Abatement Work Area at end of shift.

3.4 Asbestos Removal - General

.1 Do not use compressed air to clean or remove dust or debris.

.2 Frequently and at regular intervals during the work, clean up dust and waste using HEPA vacuums and/or wet sweeping or mopping.

.3 Frequently and at regular intervals, place all waste in asbestos waste containers.

.4 Immediately upon completion of work, clean area with HEPA vacuum and/or wet sweeping or mopping.

3.5 Asbestos Removal – Thermal Systems Insulation (less than 1 Square Metre)

.1 Construct an enclosure around Abatement Work Area and use the procedures described above under *Site Preparation –Enclosure Required*.

.2 Adequately wet exterior of the ACM with amended water to suppress dust.

.3 Remove asbestos-containing mechanical insulations in layers, maintaining all exposed surfaces of insulation in a wet condition.

.4 Remove wetted ACM directly into waste containers. Do not allow ACM to fall to the floor of the Abatement Work Area.

.5 Clean all surfaces from which ACM has been removed with scouring pads, vacuuming or wet-sponging to remove all visible material after completion of removal of ACM.

.6 Remove visible dust and debris.

.7 Seal exposed ends of asbestos-containing insulation to remain, with canvas and lagging.

.8 HEPA vacuum or wet clean entire Abatement Work Area, including any surfaces not covered with polyethylene sheeting. Any materials removed to access ACM that are to be re-used, and any abatement equipment, must be wet cleaned or HEPA vacuumed prior to completion.

.9 Apply Post Removal Sealant to all surfaces within the Abatement Work Area including those from which ACM has been removed.

3.6 Asbestos Removal - Flooring Mastic with HEPA Filtered Power Tools and Machines

.1 Use the procedures described above under *Site Preparation – Enclosure Required*.

.2 Wet all material to be disturbed.

.3 Turn on power tool/machine and HEPA dust collection device. HEPA dust collection device to remain operational throughout work.

.4 Use the power tool/machine to remove all ACM.

.5 Place removed ACM directly into an asbestos waste container.

.6 Wet clean or HEPA vacuum the entire Abatement Work Area, including surfaces not covered with polyethylene sheeting. Any materials or equipment removed to access ACM that are to be reused, must be wet cleaned or vacuumed prior to reinstatement.

3.7 Abatement Work Area Dismantling

.1 Wash or HEPA vacuum equipment and tools used in contaminated Abatement Work Area to remove all asbestos contamination, or place in Asbestos Waste Containers prior to being removed from Abatement Work Area.

.2 Place tools and equipment used in contaminated work site but not cleaned in polyethylene bags prior to removal from Abatement Work Area.

.3 Clean polyethylene sheeting and drop sheets which with HEPA vacuum or wet cleaning methods at completion of work.

.4 Wet drop sheets and polyethylene sheeting.

.5 Carefully roll polyethylene sheeting and drop sheets toward the centre of enclosure. As polyethylene is rolled away, immediately remove visible debris beneath with a HEPA vacuum.

.6 Remove remaining polyethylene sheeting and tape, and dispose of as asbestos waste.

.7 Place polyethylene sheeting, drop sheets, tape, disposal clothing and other contaminated waste in asbestos waste containers, wet wipe and place in second asbestos waste container.

.8 Remove remaining site isolation, seals, tape, etc.

.9 Remove Transfer Room.

.10 Remove seals, tape, Signage etc.

.11 Immediately upon shutting down negative air units, seal air inlet grill and exhaust vent with polyethylene and tape.

.12 Seal openings in HEPA vacuums.

.13 Remove and dispose of the pre-filters from HEPA filtered negative pressure machines as asbestos waste.

.14 Remove HEPA filtered negative pressure machines and discharge ducting or HEPA vacuums.

.15 Remove temporary lights.

.16 Remove ground fault panels.

.17 Place contaminated materials including polyethylene sheeting, drop sheets, seals, tape, disposable coveralls, and other contaminated waste in asbestos waste containers.

3.8 Waste and Material Handling

.1 Refer to Section 02 81 00.

3.9 Re-Establishment of Items

.1 Upon completion of work:

.1 Move items that were removed from Abatement Work Area prior to work, back into same location within Abatement Work Area.

.2 Remove and disconnect Ground fault Panel, tags and locks from electrical panels and re-energize equipment and items.

.3 Remove hose bibs installed and repair pipe.

.4 Remove negative air discharge panel and reinstall glazing to match existing.

.5 Reinstall ducts removed to perform cleaning of ducts or to access ACM.

.6 Clean, mop and vacuum Abatement Work Area and area beneath any tunnels, platform and Decontamination Facilities.

.7 Enable building air handling systems.

.2 Notify Abatement Consultant to the need for Milestone Inspection – Re-establishment Inspection.

END OF SECTION

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PART 1 GENERAL

1.1 General and Related Work

.1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of the General Conditions of the Contract.

.2 Requirements specified elsewhere:

.1 Section 02 81 00 Hazardous Materials – General Provisions

1.2 Outline of Work

.1 Refer to Section 02 81 00 Hazardous Materials – General Provisions for the Outline of Work.

.2 The intent of this Section is to provide safe work practices and procedures to govern the handling, removal, clean-up and disposal of asbestos-containing materials following Glove Bag procedures, and Pinchin and Owner specific requirements.

.3 If for reasons of pipe temperature, geometry or access, Glove Bag procedures cannot be used, remove and dispose of asbestos-containing insulations as per Section 02 82 11 for less than 1 square meter, or Section 02 82 13 for greater than 1 square meter.

1.3 Personal Protection

.1 Protect all personnel at all times when possibility of disturbance of ACM exists.

.2 Provide the following minimum respiratory protection to all personnel:

.1 Non-powered half-face respirators with P100 high efficiency (HEPA) cartridge filters.

.3 Provide protective clothing, to all personnel entering the Abatement Work Area.

.4 Wear hard hats, safety shoes and other personal protective equipment required by applicable construction safety regulations.

1.4 Inspections

.1 Refer to Section 02 81 00 – General Provisions.

.2 The following Milestone Inspections are to be scheduled:

.1 Milestone Inspection - Clean Site Preparation

.2 Milestone Inspection – Bulk Removal Inspection

.3 Milestone Inspection - Visual Clearance

PART 2 PRODUCTS AND FACILITIES

2.1 Materials and Equipment

.1 Refer to Section 02 81 00.

.2 Glove Bag: Prefabricated bag which provides a completely sealed envelope surrounding a given section of piping to permit the removal of asbestos-containing insulation from within the bag while maintaining the integrity of the bag and preventing the spread of airborne asbestos fibres. The glove bag shall be equipped with,

.1 sleeves and gloves that are permanently sealed to the body of the bag to allow the worker to access and deal with the insulation and maintain a sealed enclosure throughout the work period,

.2 valves or openings to allow insertion of a vacuum hose and the nozzle of a water sprayer while maintaining the seal to the pipe, duct or similar structure,

.3 a tool pouch with a drain,

.4 a seamless bottom and a means of sealing off the lower portion of the bag, and

.5 a high strength double throw zipper and removable straps, if the bag is to be moved during the removal operation.

.3 Securing Straps: For some types of Glove Bag, reusable nylon straps at least 25mm wide with metal tightening buckle for sealing ends of bags around pipe and/or insulation.

PART 3 EXECUTION

3.1 Site Preparation - General

.1 Remove to the extent necessary to access piping, stored or non-fixed items from the Abatement Work Area including but not limited to equipment, furniture, waste etc. Store in area provided by Owner.

.2 Moving of equipment, tools, supplies, and stored materials that can be performed without disturbing ACM will be performed by others.

.3 Shut down HVAC systems serving the Abatement Work Area.

.1 Install polyethylene sheeting over openings in ducts and at diffusers and seal.

.2 HVAC to remaining areas of building must not be disrupted during work of this section.

.3 System shall remain inoperative until completion of work, unless ducts can be effectively capped.

.4 Perform work at scheduled times after shutting down HVAC systems affecting the Abatement Work Area.

.4 Install caution tape around work area where existing walls are not present.

.5 Install Signage in clearly visible locations and in sufficient numbers to adequately warn of an asbestos dust hazard.

.6 Remove visible dust and friable material from all surfaces in the work area including those to be worked on, using HEPA Vacuums or wet wiping.

.7 Cover walls, floors, finishes, millwork, equipment and furnishings below the pipe to be worked on in the Abatement Work Area with polyethylene sheets before disturbing ACM. Drop sheets shall extend a minimum of 1,800 mm from pipe.

.8 Use existing lighting or install temporary lighting to a level that will provide for safe and efficient use of work area - minimum 550 LUX.

.9 Provide Amended Water for wetting ACM, in garden sprayers. Provide one garden sprayer for each worker.

.10 Do not used compressed air to clean or remove and dust or debris when completing work of this section.

.11 Place HEPA Vacuum in Abatement Work Area for each worker.

.12 Place required tools to complete the abatement within the Abatement Work Area.

.13 Post Notice of Project, where required by O.Reg. 278/05.

3.2 Maintenance of Abatement Work Area

.1 Maintain Abatement Work Area in tidy condition.

3.3 Glove Bag Removal

.1 Do not use Glove Bags on hot pipes that may damage Glove Bag. Refer to manufacturer's limitations.

.2 Prior to use of Glove Bag on damaged or unjacketed insulation:

.1 Spray any areas of damaged insulation jacketing with mist of Amended Water.

.2 Tape over damaged insulation to provide temporary repair.

.3 Mist areas of insulation with no jacketing and wrap with polyethylene sheeting and seal with tape.

.3 Place any tools necessary to remove insulation in tool pouch built into Glove Bag.

.4 Inspect the Glove Bag for damage and defects immediately before it is attached to the pipe or duct.

.1 If damage or defects are observed, dispose of Glove Bag.

.5 Install Glove Bag as per manufacturer's instructions.

.6 Remove metal jacketing or banding carefully. Do not damage the Glove Bag.

.7 Remove insulation from pipe as per manufacturer's directions.

.1 Volume and weight of insulation must not exceed capacity of the Glove Bag or supports.

.2 Arrange insulation in the Glove Bag to maximize use of the Glove Bag.

.8 Only glove bags designed to be moved may be re-used on other sections of pipe or moved down same section of pipe (e.g. Safe-T-Strip).

.9 At regular intervals during its use, if damage or defects are observed during the use of the Glove Bag, which cannot be readily repaired with tape and not affect the integrity or strength of the glove bag.

.1 Discontinue use of Glove Bag.

.2 Wash inner surface of Glove Bag.

.3 Wet insulation.

.4 Pull an Asbestos Waste Container over Glove Bag before removing from pipe.

.5 Remove Glove Bag and Asbestos Waste Container, seal with tape.

.6 Place in a second Asbestos Waste Container and seal with tape.

.7 Clean immediate area with a HEPA Vacuum prior to resuming work.

.10 If bag is to be moved along pipe for use on adjacent section of insulation:

.1 Wash inner surface of Glove Bag.

.2 Wash tools and place tools in pouch.

.3 Wet surface of insulation in lower section of bag and any exposed end of asbestos insulation remaining on pipe with Amended Water.

.4 Insert nozzle of HEPA filtered vacuum cleaner into bag through valve and evacuate air from bag.

.5 Seal closure strip.

.6 Loosen securing straps to maintain a loose seal of Glove Bag to insulation or pipe.

.7 Use double throw zipper as necessary to pass hangers.

.8 Tighten straps once bag is in new position and continue insulation removal until Glove Bag is full, work is completed on the pipe or an obstruction prevents further movement of the bag.

.11 If bag is to be removed from a pipe for use on a new section of pipe, perform the following:

.1 Wash inner surface of Glove Bag.

.2 Wash tools and place tools in pouch.

.3 Wet surface of insulation in lower section of bag and any exposed end of asbestos insulation remaining on pipe with Amended Water.

.4 Insert nozzle of HEPA filtered vacuum cleaner into bag through valve and evacuate air from bag.

.5 Seal valve cover on valve Glove Bags.

.6 Seal closure strip.

.7 Wash top section of Glove Bag and tool pouch thoroughly.

.8 Undo securing straps, unfasten zipper and carefully move bag to new section of pipe.

.12 To remove bag after completion of insulation removal operation:

.1 Wash inner surface of Glove Bag.

.2 Wash and place all tools in one hand (glove), pull hand out inverted, twist to create a separate pouch, tape inverted hand at two separate locations 25 mm apart so as to seal pouch.

.1 Remove inverted hand and tools by cutting between the two tape seals.

.2 Place inverted hand pouch and tools into the next clean Glove Bag to be used or into a water bucket, open pouch underwater and clean tools.

.3 Wet surface of insulation in lower section of bag and any exposed end of asbestos insulation remaining on pipe with Amended Water.

.4 Insert nozzle of HEPA filtered vacuum cleaner into bag through valve and evacuate air from bag.

.5 Seal valve cover on valve Glove Bags.

.6 Seal closure strip if equipped with one. Twist bag at tapered point and secure with tape.

.7 Pull an Asbestos Waste Container over Glove Bag before removing from pipe.

.1 Undo straps and unzipper, or cut upper portion of single-use Glove Bag.

.2 Seal Asbestos Waste Container with tape.

.8 Ensure pipe is clean of all residue after removal of Glove Bag. If necessary, after removal of each section of asbestos, vacuum all surfaces of pipe, using HEPA vacuum or wipe with wet cloth.

.13 Seal all surfaces of freshly-exposed pipe with Post Removal Sealer.

.14 Cover exposed ends of any remaining asbestos insulation with canvas and lagging using Type 2 Procedures.

3.4 Clean-Up and Dismantling

.1 Clean and remove from Abatement Work Area:

.1 Equipment and tools.

.2 Temporary lighting if used.

.3 Polyethylene seals from HVAC systems.

.2 Place polyethylene sheeting, drop sheets, seals, tape, clothing and other contaminated waste in asbestos waste containers, wet wipe and place in second asbestos waste container.

.3 Clean Abatement Work Area with HEPA vacuums or wet wiping/mopping.

.4 Seal openings in HEPA vacuums.

.5 Proceed with the dismantlement of all barricades, etc. following receipt of authorization to proceed from the Asbestos Abatement Consultant.

.6 Remove barricades, fencing, caution tape, signs, etc.

3.5 Waste and Material Handling

.1 Refer to Section 02 81 00.

3.6 Re-Establishment of Items

.1 Upon completion of work:

.1 Move all items that were removed from Abatement Work Area prior to work, back into same location within Abatement Work Area.

.2 Remove tags and locks from electrical panels and re-energize equipment and items.

.3 Enable building air handling systems.

.4 Clean and vacuum Abatement Work Area.

END OF SECTION

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PART 1 GENERAL

1.1 General and Related Work

.1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of the General Conditions of the Contract.

.2 Requirements specified elsewhere:

.1 Section 02 81 00 Hazardous Materials – General Provisions

1.2 Outline of Work

.1 Unless otherwise shown or specified it is the intent that work performed as per this section will result in the removal and destruction of:

.1 PCB-containing ballasts and capacitors

.2 All Work shall be performed in strict accordance with the Project Documents and all governing codes, rules, and regulations. Where conflicts occur between the Project Documents and applicable codes, rules, and regulations, the more stringent shall apply.

1.3 Quality Assurance

.1 Use qualified contractors to isolate electrical services prior to the removal of lamps or other PCB-containing equipment.

.2 Ensure the removal and handling of PCBs is performed by persons experienced in the methods, procedures and industry practices.

.3 Complete work so that at no time do PCBs contaminate the building or environment.

1.4 Instruction and Training

.1 Instruction and training must be provided to all workers and supervisors. Instruction and training includes the following:

.1 Hazards of PCBs.

.2 Use, care and disposal of protective equipment (including but not limited to respirators and filters) and clothing that would be used and worn during work, including:

.1 Limitations of equipment.

.2 Inspection and maintenance of equipment.

.3 Proper fitting of equipment.

.4 Disinfecting and cleaning of equipment.

.3 Personal hygiene to be observed when performing the work.

.4 The measures and procedures prescribed by this section.

.2 Instruction and training must be provided by a competent, qualified person.

1.5 Personal Protection

.1 Workers handling PCB-containing materials are advised to avoid skin and eye contact.

.2 During removal of PCBs, personnel are to wear personal protective equipment appropriate to the task.

.3 During removal of PCB caulking, personnel are to wear, at minimum:

.1 Provide workers, at a minimum, with non-powered half-face respirators with P100 high efficiency and Organic Vapour cartridge filters.

.2 Provide workers, with protective eye wear.

.3 Provide protective clothing, to all personnel entering the Abatement Work Area.

.4 Provide disposable gloves (nitrile), to all personnel entering the Abatement Work Area.

1.6 Inspections

.1 Refer to Section 02 81 00 – General Provisions.

.2 The following Milestone Inspections are to be scheduled:

.1 Milestone Inspection - Clean Site Preparation

.2 Milestone Inspection – Bulk Removal Inspection

.3 Milestone Inspection - Visual Clearance

PART 2 PRODUCTS

2.1 Materials

.1 Containment Drums: new, not used double bung 45 gallon No. 16 gauge cold rolled steel drums with removable steel lid, PCB resistant gasket (nitrile rubber, cork or Teflon), and 12 gauge compression type ring closure with 5/8" bolt and forged lug. Drums shall be newly painted inside and out with bright white rust-resistant enamel. Metal pail of 16 gauge steel with removal steel lid, are also acceptable for smaller quantities of waste.

.2 Decontamination Area: An established area for the purpose of decontaminating personnel and equipment.

.1 Of sufficient size to accommodate cleaning of equipment and removing personal protective equipment.

.2 Install PCB warning signs / tape at the entrance to the decontamination area.

.3 The floor shall be covered with polyethylene sheeting.

.4 Include a hand washing station complete with soap and towels and 6 mil polyethylene bags for disposal of PCB-contaminated items such as gloves, Tyvek suite rags etc.

.5 All personnel must enter and exit the Abatement Work Area through the decontamination area.

.6 All equipment and surfaces of waste containers must be cleaned prior to removing them from the decontamination room or area.

.7 Work clothing must be cleaned with a HEPA vacuum before it is removed.

.3 Drum liners: clear polyethylene bag, 36" x 60", 6 mil thick. Open one 36" end.

.4 Label: appropriate PCB Labels and Placards of sufficient size to be clearly legible, for display on waste containers (bags, boxes, rolloffs or drums) which will be used to contain or transport PCB contaminated material, in accordance with TDG regulations.

.5 Polyethylene Sheeting: 6 mil (0.15 mm) minimum thickness unless otherwise specified, in sheet size to minimize joints. New materials only.

PART 3 EXECUTION

3.1 General

.1 Do not contaminate building surfaces with PCBs.

.2 Should visible PCB debris be observed outside the Work Area, immediately stop Work notify the Consultant and Owner; institute emergency procedures as directed. All costs incurred in decontaminating such non-Work Areas and the contents thereof shall be borne by the Contractor, at no additional cost to the Owner.

.3 Notify Owner's Representative of any spills immediately.

.1 Any spills of PCBs are to be cleaned to the satisfaction of the Owner's Representative at the contractors cost. This includes removal and replacement of building materials as required.

.4 Conduct PCB removal operations in a matter that fully protects Contractor's and Subcontractor's employees, the general public, other building occupants and the environment from exposure to PCB.

.5 Non-PCB items remaining such as windows, doors, masonry, and all other building construction and components from which PCB materials are removed shall be decontaminated by physical or chemical means such that no visible residue remains. The removal of the PCB materials may require the use of scrapers, solvents, mastic removal chemicals, or other methods/procedures to ensure complete removal.

.6 Use hand tools that generate the least amount of dust and will still complete the PCB caulk removal.

.1 Grinding electromechanical tools (e.g. angle grinders, masonry groove cutters, circular saws, and slot mills, etc.) are not allowed to be used for exterior open-air PCB caulk removals.

.7 Remove accessible caulk that could be disturbed before cutting building components, such as window frames.

3.2 Work Area Preparation - Exterior Removal:

.1 Take appropriate precautions (e.g. install windscreens) to prevent dust and debris from migrating due to windy conditions.

.2 All work platforms and ground surfaces exterior to the work area shall have a layer of 6 mil fire retardant plastic sheeting, attached to the building face and laid down on the surface below the exterior abatement work area, at least 10 feet wide or to the furthest point of gravity fall for dislodged debris by methods used, whichever is further.

.3 For work at the second storey and above, extend 6 mil fire retardant plastic sheeting as necessary.

.4 For work above third storey, by sidewalk, street, or property boundary, scaffolding sides shall be covered in 6-mil fire retardant plastic sheeting.

.5 All operable windows within the work area and 25 ft from all sides of the work area shall be closed.

.6 In the work area, isolate all HVAC equipment intakes by temporarily shutting down units during removals and installing plastic sheeting OR HEPA filters over the opening.

3.3 Work Area Preparation - Interior Removal:

.1 Isolate all HVAC equipment, including installing polyethylene sheeting on all air returns and exhausts. Turn off all HVAC systems serving work area when feasible.

.2 All floor areas adjacent to the work area shall have a layer of polyethylene sheeting, attached to the interior wall and laid down on the surfaces below the abatement work area, at least 5 feet wide or to the furthest point of gravity fall for dislodged debris by methods used, whichever is further.

.3 All movable objects shall be removed from the immediate work area. All non-movable objects shall be covered with one layer of polyethylene sheeting and sealed at the edges.

.4 All operable windows within the work area shall be closed.

.5 Temporary dust barriers consisting of a minimum of polyethylene sheeting shall be at installed at hallways, corridors, doorways, and other openings to the work area not used for passage during removals to establish work area containment enclosure.

.6 Polyethylene sheeting overlapping curtained doorway shall be installed at the entrance to the work area.

3.4 Removal of Ballasts

.1 Contractor is responsible for determining the actual quantity of ballasts to be disposed as PCB waste.

.2 Prior to removing any fixtures, ensure electrical service is isolated at panel, and disconnect existing power supply to electrical equipment.

.1 Lock-out/tag-out power at electrical panels.

.3 Remove the following:

.1 Lenses at light fixtures.

.2 Mercury vapour lamps (refer to Section 02 87 00).

.3 Light fixtures.

.4 Ballasts.

.4 Install polyethylene drop sheets in packaging area to protect surfaces and finishes.

.5 Avoid rough handling of PCB ballasts. Do not drop or throw.

.6 Identify ballasts as either non-PCB or PCB containing.

.1 All ballasts not clearly labelled as "NO PCB" are to be treated as PCB containing.

.2 Non-PCB ballasts to be recycled or disposed as solid non-hazardous waste.

.7 Place PCB waste on polyethylene drop sheets immediately after removal.

.8 Package PCB-containing ballasts in Containment Drums, or on wood skids.

.1 Place ballasts on end in Containment Drum. When full:

.1 Seal liner bag with duct tape.

.2 Seal drum with lid, gasket and compression ring.

.3 Affix specified and completed label.

.4 Do not leave liner bags or drums open overnight.

.2 Shrink wrap ballasts and wood skid to prevent movement during transport.

.9 Transport packaged PCB waste to a Ministry of the Environment approved incineration facility and destroy.

3.5 Equipment and Area Decontamination

.1 When removal of PCB materials is completed, the decontamination process shall consist of HEPA vacuuming, wet wiping/mopping and a repeated HEPA vacuuming of the entire work area. All surfaces in and around the work area must be free of dust generated during the work.

.2 Decontaminate all tools and equipment before removal from the work area.

.3 If dust or debris has migrated to areas of the building other than the immediate work area, those areas shall be incorporated into the work area and thoroughly decontaminated to ensure all visible dust generated by the activity is eliminated.

.4 Uncontaminated dust barriers and other protective sheeting shall be placed in disposable construction bags and disposed of as normal trash.

.5 Visually inspect the area for any remaining dust or debris. HEPA vacuum and wet wipe until space is clean. Dispose of vacuum contents as PCB waste.

.6 Upon completion of decontamination and removing temporary dust barriers, a final inspection shall be performed by the Contractor.

.7 Failure of any visual inspection by the Consultant, the Contractor will clean the affected areas at no additional expense to the Owner.

3.6 Transportation and Reporting

.1 All waste containers shall be fully enclosed and lockable (i.e. enclosed dumpster, trailer, etc.).

.1 While on-site, the container shall be labelled with PCB Warning Labels and as required by Federal and Provincial regulations.

.2 All waste generated as part of the PCB project shall be removed from the site within ten (10) calendar days after successful completion of all PCB abatement work.

.3 The Hauler, with the Abatement Contractor and the Abatement Consultant, shall inspect the transport container prior to the Hauler taking possession and signing the Hazardous Waste Manifests.

.4 A Hazardous Waste Manifest shall be utilized solely as the waste Manifest for transportation. A hauler billing form or bill of lading may be used if the hauler needs an independent record, but shall not be used as a shipping document.

.1 The Manifest shall be completed by the Contractor and verified by the Consultant that all the information and amounts are accurate and the proper signatures are in place.

.2 The Manifest shall have the appropriate signatures of the Owner's Representative (the Generator) and the Hauler representative prior to any waste being removed from the site.

.3 Upon arrival at the Disposal Site, the Manifest shall be signed by the Disposal Facility operator to certify receipt of PCB materials covered by the manifest.

.4 The Disposal Facility operator shall return the original Manifest to the Owner's Representative (the Generator) as required by the Ministry of Environment, Conservation and Parks.

.5 Provide a copy of the completed waste manifest proving receipt of the PCB waste by the Disposal Facility.

.5 Transport materials following Transportation of Dangerous Goods Act.

.1 Transport PCBs to approved incineration site for destruction and ensure materials are destroyed.

.6 The facility used to process the PCBs shall be approved by the Ministry of the Environment and shall have valid Certificates of Approval to carry out the work outlined herein.

.1 The facility must issue a Certificate of Destruction identifying types and quantities of PCBs generated from the project.

3.7 Fire and Explosion Response

.1 PCBs ballasts do not present an inhalation hazard when handled appropriately and contained within ballasts.

.2 PCBs are relatively non-flammable. However, if exposed to flame or hot surfaces, a higher vapour concentration will result. At high temperatures PCBs may decompose and chemically rearrange to produce highly toxic gases, vapours, and soot.

.3 Contractor is to include procedures for response to Fire and Explosion regarding PCBs in Site Specific Safety.

END OF SECTION

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PART 1 GENERAL

1.1 General and Related Work

.1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of Division 1 and the General Conditions of the Contract.

.2 Requirements specified elsewhere:

.1 Section 02 81 00 Hazardous Materials – General Provisions

1.2 Outline of Work

.1 Unless otherwise shown or specified it is the intent that work performed as per this section will result in the identification, removal, preparation for disposal, transportation, and disposal of mercury-containing fluorescent and mercury vapour lamps, HVAC control systems, manometers, switches and thermostats.

1.3 Quality Assurance

.1 Use qualified contractors to isolate mechanical/electrical services prior to the removal of lamps or other mercury-containing equipment.

.2 Ensure the removal and handling of mercury-containing equipment is performed by persons experienced in the methods, procedures and industry practices.

.3 Complete work so that at no time does mercury contaminate the building or environment.

1.4 Instruction and Training

.1 Instruction and training must be provided to all workers and supervisors. Instruction and training includes the following:

.1 Hazards of mercury.

.2 Use, care and disposal of protective equipment (including but not limited to respirators and filters) and clothing that may be used during work, including training on:

.1 Limitations of equipment.

.2 Inspection and maintenance of equipment.

.3 Proper fitting of equipment.

.4 Disinfecting and cleaning of equipment.

.3 Personal hygiene to be observed when performing the work.

.4 The measures and procedures prescribed by this section.

.2 Instruction and training must be provided by a competent, qualified person.

1.5 Personal Protection

.1 During removal of equipment containing mercury, personnel are to wear personal protective equipment appropriate to the work being performed.

.2 The following personal protection is to be available on site in the event of a spill or leak:

.1 Non-powered half-face respirators with combined P100 and mercury cartridge.

.2 Protective clothing.

.3 Rubber, nitrile or latex gloves.

PART 2 PRODUCTS

2.1 Materials

.1 Containment Drums: new metal pails or steel drums with removable steel lid. Drums shall be newly painted inside and out with bright white rust-resistant enamel.

.2 Drum liners: clear polyethylene bag, 0.15mm thick.

.3 Label: Mercury warning labels.

.4 Lamp Storage Container: Cardboard box that lamps were originally packaged within, or plastic or cardboard totes for recycling lamps. Intent is to package lamps so that they are not broken during shipping. Container to be designed for lamps of that size.

.5 Mercury Sponge: A plated metal-wool pad for the pick-up of mercury spills.

.6 Mercury Vacuum: Nilfisk VT Mercury Vacuum or equal. Vacuum used to collect liquid mercury and granular mercury compounds with an internal HEPA filter and an activated carbon adsorbent filter to purify exhaust air of mercury vapours.

.7 Neutralizing Agent: Mercon X or similar. Mercury neutralizing solution such as 20% calcium polysulfide or sodium thiosulphate.

.8 TSP: Tri Sodium Phosphate, or other strong cleaner

PART 3 EXECUTION

3.1 Equipment Removal

.1 Prior to removing any fixtures or equipment, ensure associated services is isolated and de-energized.

.2 Locate and remove the following materials designated to be disposed of:

.1 Fluorescent and mercury vapour lamps

.2 HVAC control systems, manometers, switches

.3 Thermostats

.4 Mercury filled traps

.3 Place all mercury-containing equipment into containers to prevent breakage.

.4 Provide an accurate inventory of the contents of each container including number of light tubes and lamps and an estimate of the total weight of the container in kilograms.

3.2 Packaging

.1 Do not contaminate building surfaces mercury.

.2 Notify Owner's Representative of any spills immediately.

.1 Any spills of mercury are to be cleaned to the satisfaction of the Owner's Representative at the contractor's cost. This includes removal and replacement of building materials as required.

.3 Install polyethylene drop sheets in packaging area to protect surfaces and finishes.

.4 Package lamps in lamp storage containers. Do not break lamps.

.5 Package mercury-containing equipment as follows:

.1 Place polyethylene liner in metal drum or pail.

.2 Carefully place mercury-containing equipment in pails, to prevent breakage.

.3 When full, or all items placed in container, seal liner bag with duct tape, seal lid, and place appropriate label on outside of container.

.6 Package mercury and contaminated plumbing drains as follows:

.1 Clear the immediate area of all moveable objects.

.2 Cover the floor or cabinet bottom with polyethylene sheeting.

.3 Place polyethylene liner in metal drum or pail.

.4 Cut plumbing, or disconnected threaded connection, and cover open end with polyethylene sheeting, and seal with duct tape. Complete second cut or disconnection, and seal.

.5 Place drain sludge and drain into containment drum. If pipes are too long to fit in containers, double wrap in polyethylene sheeting.

.6 Clean tools and equipment contaminated with sludge with soap and water.

.7 Remove polyethylene drop sheet and place in containment drum.

.8 When full, or all items placed in container, seal liner bag with duct tape, seal lid, and place appropriate label on outside of container.

3.3 Emergency Response for Spills

.1 For small spills:

.1 Evacuate area. Only personnel using the specified personal protective equipment are to be in spill area.

.2 Open windows or provide ventilation to area.

.3 Clean mercury and broken glass with mercury vacuum.

.4 Clean horizontal surfaces impacted by spill with TSP or approved alternative cleaner.

.2 For large mercury spills:

.1 Evacuate area. Only personnel using the specified personal protective equipment are to be in spill area.

.2 Contact Owner's Representative immediately.

.3 Open windows or provide ventilation to area.

.4 Deactivate heat systems if they are adjacent and may aid in vaporization of mercury.

.5 If spill cannot be cleaned up immediately, apply neutralizing agent over mercury spill area.

.6 Collect mercury droplets together will a dust pan, squeegee or mercury vacuum.

.7 Clean-up bulk mercury using aspirator bulb or mercury vacuum. Clean remainder with a mercury sponge. Place mercury in closed container (plastic or glass).

.8 Porous surfaces are to be cleaned with Neutralizing Agent after clean-up of bulk mercury. Neutralizing Agent to be cleaned with mercury vacuum, or manufacturer's instructions.

.9 If mercury spills into soil, carpet, through cracks, into drains etc. further removal of surface materials at contractor cost will be required. Do not proceed without approval from Owner's Representative.

.10 Place all cleaning materials including drop sheets or polyethylene sheeting in containment drums.

3.4 Transportation and Reporting

.1 Transport materials following Transportation of Dangerous Goods Act.

.1 Transport Mercury Materials and Waste to approved site for recycling, including mercury vapour in lamps, and ensure materials are recycled.

.2 The facility used to process and recycle the mercury shall be approved by the Ministry of the Environment, Conservation and Parks, or local jurisdictional authority, and shall have valid Certificates of Approval to carry out the work outlined herein.

.1 The facility must issue a Certificate of Recycling identifying types and quantities of materials generated from the project. The facility must also provide a Certificate of Recycling for the mercury generated from the project.

.3 Provide the Abatement Consultant a copy of each waste manifest and or a letter from the recycling agency acknowledging receipt of the materials.

END OF SECTION

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PART 1: GENERAL

1.1 GENERAL INSTRUCTIONS

1. The General Conditions of the *Contract* CCDC 2.
2. Document 00800, Supplementary Conditions

1.2 SUMMARY

1. Work included: Provide selective demolition and salvage including but not limited to the following:
2. Selective demolition to accommodate alterations
3. Salvage and recycle of demolition materials as noted on Drawings and as designated on site
4. Demolition and removal of mechanical equipment services: See Mechanical Drawings.
5. Disconnection and sealing off electrical services to building to be demolished: See Electrical Drawings
6. Demolition and removal of electrical equipment services: See Electrical Drawings.

1.3 REFERENCES

.1 CSA S350-M80 – Code of Practice for Safety in Demolition of Structures
.2 OBC – Ontario Building Code

1.4 SUBMITTALS

Plan of Action:

.1 Submit in Accordance with Section 02 82 10
.2 Submit “Plan of Action” immediately after award of Contract for review by Consultant

1.5 QUALITY ASSURANCE

Regulatory Requirements:

.1 Conform to the Occupational Health and Safety Act and Regulation for Construction Projects
.2 Conform to OBC, especially Article 2.3.2.3 as applicable
.3 Conform to Fire Code, Regulation under Fire Marshal Act especially Part 8
.4 Post danger signs conspicuously around property. If requested, provide a watchman for patrolling site when work is not in progress to prevent public entering danger zone and to maintain barricades
.5 Provide fire extinguishers acceptable to fire prevention authorities in locations and type suitable to enable personnel to with fire occurring during progress of work

Qualifications:

.1 Employ for this Work a demolition company having 5 years Canadian experience in this type of Work satisfactory to Consultant. If requested, submit proof of experience.

Pre-demolition Meeting:

.1 Prior to start of Work, arrange for site meeting of all parties associated with Work of this Section. Presided over by Consultant meeting shall include Contractor, demolition Subcontractor, testing company's and Owner's representative(s).

.2 Review specification for work included under this Section and determine complete understanding of requirements and responsibilities relative to Work included, storage and handling materials, inspection of construction to be demolished, methods to be used, sequence and quality control, Project staffing, restrictions due to environmental protection requirements and other matters affecting demolition, to permit compliance with intent of this Section. Review structural load limitations of existing structures. Review and finalize building demolition schedule and verify availability of demolition personnel equipment, and facilities needed to make progress and avoid delays. Review and finalize protection requirements.

1.6 PROJECT CONDITIONS

.1 Demolition performed on this Project in areas which may be partially occupied. Take care and provisions for protection of workers on site and occupants during progress of Work.

.2 Maintain access Road to buildings: Repair damage which is result of Work of this Contract.

.3 Do not close or obstruct roads, streets, sidewalks, passageways without permits. Do not place or store materials in the street or passageways. Conduct operations with minimum interface with roads, streets, driveways, passageways, and parking lot.

1.7 SCHEDULING

.1 Where practicable, remove or neutralize hazardous or toxic materials identified in Environmental Report before demolition begins.

.2 Demolition and removal of electrical equipment services designated for removal on Drawings and as required by Work. Disconnecting and capping prior to authorizing removal.

.3 Schedule the work to ensure that disruption to utilities for the remaining building are not interrupted. Any interruption must occur after 5pm weekdays or on the weekend.

.4 Provide the owner and its tenants with 72-hours written notice of any interruption of utilities.

PART 2: PRODUCTS

1.1 MATERIALS

.1 Provide materials necessary for temporary bracing and shoring. On completion, remove temporary materials from site.

PART 3: EXECUTION

1.1 GENERAL

Preliminary Survey:

1. Before commencing demolition operations, examine site and when requested. Provide engineering survey to determine type of construction, condition of structure and site conditions. Assess strength and stability of damaged or deteriorated structures. Investigate the follow conditions:
    1. Load bearing walls and floors
    2. Structure suspended from another
    3. Cantilevered construction
    4. Presence of pre-stressed or post-tensioned elements
    5. Presence of hazardous materials

Protection

1. Do not interfere with use and activities of occupants where applicable and adjacent buildings. Maintain free and safe passage to and from buildings. Maintain integrity of existing fire exits.
2. Protect existing adjacent Work against damages which might occur from falling debris or other causes due to Work of this Section.
3. Provide, erect and maintain required hoarding, sidewalk sheds if applicable, catch platforms, lights and other protection around site before commencing Work Maintain such areas free of snow, ice, mud, water and debris. Lighting levels shall be equal to that prior to erection.
4. Provide flagmen where necessary or appropriate to Provide effective and safe access to site to vehicular traffic and protection to pedestrian traffic.
5. Ensure scaffolds, ladders, equipment and other such equipment are not accessible to public. Protect with adequate fencing or remove and dismantle at end of each Day or when no longer required.
6. Do not interfere with use and activities of adjacent buildings. Maintain free and safe passage to and from buildings.
7. Erect and maintain partitions as required to prevent spread of dust, fumes and smoke to other parts of building. Maintain fire exits from site. On completion, remove partitions and *Make Good, Made Good* surfaces to match adjacent surfaces of building.
8. Before starting demolition, ensure required dust-tight partitions have been installed where necessary.

Restrictions

1. Restrict demolition activities between hours of 7:30am and 5:00pm Monday through Friday, unless written approval from Owner.

Existing Services

1. Provide and maintain temporary services required during demolition to satisfaction of authorities having jurisdiction, fire departments and utility companies
2. Verify prior to commencement Work of this Section that disconnection and capping of mechanical services have been carried out in accordance with requirements of local authority having jurisdiction.
3. Remove electrical equipment schedule for removal on Drawings and as required by Work.

1.2 PERFORMANCE

1. Demolition action plans may indicate only general scope of Work to be demolished and removed. It is Contractor's sole responsibility to determine exact extent of demolition required. Contractor may not rely solely on Drawings to limit scope of selective demolition

Work required. Review site conditions and assess exact scope of demolition and removal.
2. Examine and review existing conditions prior to starting demolition. Initially perform demolition only in selected and designated test areas prior to proceeding full scale demolition Work. Obtain approval on technique of demolition in test areas from Consultant. Only after approval, proceed in other areas.
3. Materials and debris shall not be stacked in building to extent that overloading of any part of structure will occur.
4. At end of each day's work, leave work in safe condition ensuring no parts of structure are in danger of collapsing.

Demolition

1. Ensure demolition work is supervised.
2. Adhere to manufacturer's recommendations in use of hand held tools while conforming to the Occupational Health and Safety Act requirements. Lower demolition materials and debris through chutes. Do not create falling material hazards.
3. Remove all mechanical and electrical items indicated to be removed.
4. Demolish and remove interior partition walls, ceilings, flooring down to concrete substrate, except those specified and/or indicated to remain.
5. Minimize noise. Limit the use of noisy machinery to the hours of 8:00 am to 5:00 pm Monday to Friday.
6. Provide enclosed chutes for disposal of debris from heights more than 1 story in accordance with CSA S350-M.
7. Provide protection around floor openings

Relocation of Salvaged Items:

1. Components of historical value i.e. cornerstones and their contents, commemorative plagues, tablets and similar objects remain property of the Owner. Store in areas designated by the Owner.
2. Carefully remove, store, protect and re-install where applicable existing materials and equipment noted on Drawings to be retained and relocated. Relocate items to be retained and store them in areas directed by the Owner. In addition to items indicated in Drawings, Owner still reserves the right to retain any items or materials.
3. Coordinate for removal, relocation and reinstallation of mechanical and electrical items.

Disposal of Waste Materials

1. Clear away dirt, rubbish and loose litter resulting from Work of this Section, minimum daily. Keep dust to a minimum. Maintain roadways, lanes, street sidewalks, stairways and elevators in the vicinity of the premises safe and clear.
2. Selling or burning of materials on site is not permitted.
3. Conform to requirements of municipality's Works department regarding disposal of waste materials.
4. Materials prohibited from municipality waste management facilities shall be removed from site and disposed of at recycling companies specializing in recyclable materials.
5. Any additional materials prohibited from waste management facilities shall be removed from site and disposed of to requirements of authorities having jurisdiction without any additional cost to Owner.

END OF SECTION

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

a. Conform to requirements specified under Division 1.

b. Refer to Doors and Frames Section 08150 for door and screen frame locations, types and required fire ratings, as shown on drawings.

c. Colour Schedule will be provided by the Consultant during the construction period.

1.2 SCOPE OF THE WORK

a. Supply and install all hollow metal doors, frames and screens.

b. Install all access doors as required – See Drawings.

c. Install all hardware supplied under Section 08710. Obtain templates from the hardware supplier for accurate shop fabrication.

1.3 SHOP DRAWINGS

a. Submit shop drawings in accordance with the requirements of Division 1.

b. Clearly indicate each type of door, material, thicknesses, mortises, reinforcements and location of exposed fasteners.

1.4 RELATION TO OTHER TRADES

a. Cooperate with other trades whose work is affected by this trade.

b. Coordinate schedule of installation with all related trades.

1.5 MEASUREMENTS

a. All items fitting to structural parts of the building must be fabricated from measurements taken on the Site and verified from the work as it is built.

1.6 STANDARDS

a. Unless specified otherwise, steel door and frame construction shall conform to the Canadian Manufacturing Standards recommended by the Canadian Steel Door & Frame Manufacturer's Association.

1.7 GUARANTEE

a. Steel doors are to be guaranteed against defects for a period of three (3) years from the date of Substantial Completion of the contract.

b. Any door found to be defective or unfit for use under normal conditions must be replaced free of charge by the manufacturer.

PART 2 PRODUCTS

2.1 MATERIALS

a. Hollow Metal Doors, Frames and Screens:

Shall be as manufactured by Artek, Baron, Daybar, Fleming, or Trillium Steel Doors or as approved in conformance with the following specifications:

.1 All materials shall be new and in perfect condition, free from defects impairing strength, durability, or appearance. All anchors, straps and shapes for steel frames shall be of hot rolled structural steel. All exposed metal fastenings and accessories shall be of the same material, texture, colour and finish as the base metal to which it is applied.

b. Hollow Metal Frames and Screens:

.1 Sheet steel shall be of minimum 1.5mm (.06") core thickness and conform to hot rolled commercial grade to ASTM A569-72 with a zinc coating designation of ZF075. All floor anchors, channel spreaders and wall anchors shall be of a minimum 1.5mm (.06") core thickness.

.2 Frames shall be of welded construction as per details on drawings. All mitres shall be neatly welded and dimensions shall accommodate the various finishes on partitions.

.3 Frames which are to be installed in masonry walls shall be equipped with not less than six wall plate anchors to suit the various wall conditions shown on details.

.4 Frames which are to be installed in steel stud partitions shall have base plates designed with two anchor holes to prevent rotation, anchorage to floor shall be by two power driven anchors or equivalent per plate. Four jamb anchors shall be provided on each jamb, welded to trim returns.

.5 Provide jamb anchors to suit the partition system manufacturer's detail for stud and frame anchorage.

.6 Provide to all frames for doors and hollow metal frames 914mm (36") or wider occurring in steel stud partitions, two 1.5 (16 gauge) full height studs at each jamb, and one 1.5 mm (16 gauge) stud at head to support

.7 Latch side of all frame rebates shall be fitted with two rubber bumpers. Remove all bumpers from frames if required, previous to doors and frames being finished and reinstalled when finishes have completely dried.

.8 Screws are to be self-tapping type with flat countersunk heads.

.9 Labelled frame assemblies shall be provided for all openings requiring fire protection ratings including all door frames, door frames with transoms or sidelights, view windows, etc., or any combination thereof. Such frame assemblies shall be constructed as tested and approved by the Underwriter's Laboratories of Canada.

.10 Frames manufactured from C.R.S. shall be chemically treated for good paint

adhesion and shop coated with a corrosion resistant steel primer. Frames manufactured from zinc coated steel shall have a factory applied touch up at welded areas where coating has been removed due to disc sanding.

.11 Weld in place all frame back boxes, provided by 08710, for electric hardware. Boxes shall be centered around the electric hardware preparation.

.12 Provide W conduit to all electric hardware locations in mullions and mid-rails. Coordinate exact locations with Section 08710.

.12 Provided full height, lOg reinforcing, welded 6" on centre for any frames in which continuous hinges will be used. The reinforcement shall be covered with a 1/2" thick mortar guard for frames located in concrete or masonry walls.

c. Hollow Metal Doors:

.1 Hollow metal doors shall be of dimensions and fire ratings noted on the Door Schedule.

.2 Doors shall be hollow steel construction having each face of the door formed from sheet steel of minimum 1.5mm (16 gauge) core thickness commercial grade cold rolled to ASTM A-366 Class I with ZF075 zinc coating. Longitudinal joints shall be welded, dressed and filled. Top and bottom of the doors may be either welded flush or be closed with recessed spot welded channel and closures. Doors shall be vertically stiffened with stiffeners spot welded to face sheets at a maximum of 152mm o.c. Fill all voids with semi-rigid fibreglass insulation with minimum density of 24 kg/m conforming to CSA A101-1975, Type 1A.

.3 Labelled doors shall be provided for those doors requiring fire protection ratings as shown on the Door Schedule. Such doors shall be constructed as tested and approved by the Underwriter's Laboratories of Canada.

.4 Channel type wrap-around glazing detail will be acceptable. Formed channels glazing bead shall be minimum 16mm high.

.5 All doors shall be reinforced, mortised, drilled and tapped to receive templated hardware and reinforced for surface mounted hardware.

.6 All components are to be assembled by means of adequate spot welding or arc welding tin accordance with current C.S.A. Standard W59 to provide a finished door, square and true and free from defects and distortions.

.7 Exterior doors shall have extended P.V.C. flush cap closing off head rail conforming to CGSB 41-GP-19Ma.

d. Hardware Reinforcing:

Hinges	10 ga. hi-frequency
Continuous Hinges	10 ga. full height edge to suit "adjusta-screw" fasteners
Lock	14 ga. lock box (86 edge) with centering clips
Exit Device	14 ga. reinforcing boxes
Closer	14 ga. 4W integral reinforcing box

HII doors to be reinforced and prepped for electric door hardware. Provide internal door raceways and pull strings thru W diameter conduit to necessary hardware locations.

e. Primer:
Shall conform to the current CGSB Standard 1-GP-181M.

f. Glazing Stops:
.1 Shall be minimum 0.912mm (20 GA) steel with a minimum zinc coating of 76.3 Gm/m2 conforming to ASTM A526.

PART 3 EXECUTION

3.1 STEEL FRAME FABRICATION

a. Form frames in accordance with details, approved shop drawings, and ULC requirements.

b. Mortise, reinforce, drill and tap frames and reinforcements to receive hardware using templates provided.

c. Protect strike and hinge reinforcement completely by guard boxes welded to frame.

d. Weld in two temporary channel spreaders per frame to ensure proper frame alignment.

e. Where frames terminate at finish floor, provide floor plates for anchorage to structural slab.

f. Cut mitres accurately and weld continuously on inside of frame profile.

g. Grind welded corners to a flat plane, fill with metallic paste filler and sand to a uniform smooth finish.

h. Fill surface depressions and butted joints with metallic paste filler and sand to a uniform smooth finish.

i. Reinforce heads of frames wider than 1219 mm (4'0") with 3.4mm (10 GA) reinforcing.

j. Provide ULC labels on frames for fire-rated doors.

k. Removable glazing stops shall be screw-fixed with countersunk heads.

l. Touch up frames by priming areas where galvanizing is damaged prior to delivery.

3.2 STEEL DOOR FABRICATION

a. Construct doors in accordance with reviewed shop drawings and ULC requirements.

b. Make provisions for grilles and glass and provide necessary glazing stops. Removable glazing stops shall be screw-fixed with countersunk heads.

c. Undercut doors where shown on Door Schedule.

d. Touch up doors with primer where galvanized finish is damaged during fabrication.

e. Provide astragals for pairs of doors in accordance with ULC requirements.

f. Provide ULC labels for all fire-rated doors.

3.3 FRAME INSTALLATION

a. Set frames plumb, square, level, free from warp, twist and superimposed loads and at correct elevation.

b. Secure anchorages and connections to adjacent construction, in a manner not restricting thermal movement. Final anchor settings after alignment.

c. Brace frames solidly in position while being built-in. Install a temporary horizontal wood spreader at mid-height of door opening to maintain frame width until adjacent work is completed. For frames over 1219mm (4'-0") in width, provide temporary vertical support at center of head. Remove temporary spreaders and supports only after completion of adjacent work.

d. Fill first core of concrete masonry units adjacent to door jambs solid with concrete mortar. Fill jambs and head of all hollow metal frames, which occur in concrete masonry unit partitions, with concrete mortar.

e. Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.

f. Door frames and screen frames 914mm (3'4') wide or greater installed in metal stud framed partitions are to be braced in accordance with the "Door Frame and Screen Bracing Detail" located in Appendix 'A' of this Section.

g. Install hardware in accordance with templates and hardware manufacturer's instructions.

h. Adjust operable parts for correct function.

3.4 DOOR INSTALLATION

a. Install doors and hardware in accordance with hardware templates and manufacturer's instructions.

b. Adjust operable parts for correct function.

c. Install grilles where indicated.

3.5 WORKMANSHIP

a. All workmanship shall be first-class in every way, the various parts of the work being accurately fitted and fabricated with surfaces free from warp, wave, buckle or other defects.

3.6 CLEAN-UP

a. At completion of work of this Section, remove all tools, equipment, surplus materials and debris from Job Site.

END OF SECTION

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

a. Division 1, General Requirements, is a part of this Section and applies to this Section.

b. All firms bidding this work must be members of the Door and Hardware Institute and have in their employ at least one architectural hardware consultant (AHC) as certified by the Door and Hardware Institute.

1.2 SCOPE OF THE WORK

a. The hardware supplier shall furnish and deliver to the project all items of architectural finishing hardware specified herein. The hardware supplier shall supply and install the access control system and electrical hardware items including, but not limited to, card readers, controllers, automatic door operators, electric exit devices, electric locksets, current transfer devices, integration modules, key switches, monitor strikes, maglocks, low voltage wire and power supplies. All low voltage termination and commissioning shall be completed by the hardware supplier to provide a single source, single responsibility of the complete swing door opening.

The hardware supplier will be required to provide to the general contractor five complete sets of riser and schematic wiring diagrams for all electrical hardware components. Schematic diagrams must be reviewed and signed by an electrified hardware consultant (EHC) as certified by the Door & Hardware Institute and must be approved by the consultant prior to the commencement of any work.
The hardware supplier shall meet with the contractor, sub-contractors and the owner's representative to instruct and co-ordinate the supply and installation of all electrical hardware components.

b. Work performed by other sections and which is related to this section is specified in:

Section 08150: Doors and Frames

1.3 QUALITY ASSURANCE

a. Regulatory Agencies:

.1 Supply only hardware as required by jurisdictional codes.
.2 Install only U.L.C. or U.L.I. listed hardware for fire rated construction.
.3 Install only U.L.C. and/or C.S.A. listed electrical components.

1.4 SUBMITTALS (Digital copies and hard copies)

a. Samples:
Submit samples of each hardware item.

b. Templates:
Submit templates to Contractor for use by fabricators and installers.

c. Maintenance and Operating Hardware:

Submit maintenance, and operating and installation instructions for installation requirements and for incorporation into Project Data Books.

d. Schedules:

.1 The hardware supplier shall submit three (3) copies of the hardware schedule to the Consultant through the general contractor for review. After the Consultant's review, supply the required number of hardware schedules to the necessary trades/suppliers including coordination with mechanical and electrical components of the work. If requested by the Consultant, samples on material to be supplied shall be forwarded to the Consultant for his use until the job's completion.

2. Submit the specified number of copies of the final hardware schedule for incorporation into the Project Data Books as described in the Contract Closeout subsection of Section 01700, Contract Closeout.

e. Electrical Riser and Schematic Diagrams:

Submit three (3) copies of electrical riser, elevation and wiring schematic drawings for approval prior to installation. Provide as-built diagrams for inclusion in the Project Data Books.

1.5 DELIVERY, STORAGE AND HANDLING

a. Package hardware in protective coverings and label each piece with a description of contents and location of installation. Refer to approved finishing hardware schedule and to door number where applicable.

b. Deliver all hardware to building site and to the location as designated by Contractor with the exception of hardware to be installed in finish carpentry, custom woodwork and millwork which shall be delivered to the premises of the fabricator for shop installation.

PART 2 PRODUCTS

2.1 MATERIALS

a. This Section will include the supply of finishing hardware and the supply and installation of the access control system and all electric door hardware.

b. Finishing hardware fabricated of the same material shall be consistent in colour and finish throughout.

d. Supply all necessary screws, bolts, expansion shields, inserts and other items and of same finish and colour as required for a complete installation and for proper functioning.

e. The final Finishing Hardware Schedule shall be forwarded for coordination with mechanical and electrical components of the work.

PART 3 EXECUTION

3.1 EXAMINATION

a. Before supplying any materials, check all Contract Documents, shop drawings, field dimensions and site conditions and other details for this Project to ensure that listed hardware is suitable for intended use and application. Inform the Consultant of any inaccuracies or discrepancies.

3.2 INSTALLATION

a. Provide instruction and templates to fabricators and to installers.

b. Provide assistance and supervision of installations.

c. Doors are to be installed and shimmed to provide 1/8" tolerance between the door and frame ant the head and jambs. Frames installation must be corrected to be square and plumb prior to door and hardware installation. Tolerances must be within guidelines set forth by the Canadian Steel Door & Frame Manufacturer's Association

3.3 ADJUSTMENT

a. Verification:

.1 Verify that the installed hardware functions properly.

.2 Instruct installers of requirements and procedures for adjustments.

.2 Provide a written inspection report for all hardware installation deficiencies.

END OF SECTION

PART 1 – GENERAL

1.1 GENERAL INSTRUCTIONS

.1 Read and be governed by conditions of the *Contract* and sections of Division 1.

1.2 SECTION INCLUDES

.1 Metal support systems for gypsum board partitions as indicated.

1.3 QUALITY ASSURANCE

.1 Retain a Professional Engineer registered in the *Place of the Work* to design the work of this section; to prepare, seal and sign shop drawings; and to perform field review. Shop drawings shall show both design and installation requirements.

.2 Qualifications: *Provide* work of this section, executed by a *Subcontractor* with minimum 5 years experience in application of *Products*, systems and assemblies specified and with approval and training of *Product* manufacturers.

.3 Fire resistance rating: Where gypsum board systems with fire resistance ratings are indicated or required, provide materials and installations that are identical with those of applicable assemblies tested by fire testing laboratories acceptable to authorities having jurisdiction.

.4 Reference Standards:

.1 Applicable requirements of ASTM C754-09a for installation of steel framing.

.5 Conduct quality control in accordance with Division 1. Inspection and testing company may perform random load tests for ceiling anchor installation.

1.4 SUBMITTALS

.1 Submit required submittals in accordance with Division 1.

.2 *Product* data sheets:

.1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this section, including additional data as may be required to demonstrate compliance with the *Contract Documents*.

.3 Test results:

.1 Submit certified test results for each required fire resistance rated assembly for work of this section.

.4 Shop drawings; for engineered interior metal support systems:

.1 Shop drawings shall be engineered.

.2 Submit design for metal support systems at interior locations where noted as engineered.

1.5 DESIGN REQUIREMENTS FOR ENGINEERED INTERIOR METAL SUPPORT SYSTEMS

.1 Design system members to withstand own dead load, super-imposed dead loads, to maximum allowable deflection of L/240, without permanent deformation.

.2 Loads on walls acting as guards: Where the floor elevation on one side of a wall, including a shaftwall, is more than 600 mm (24") higher than the elevation of the floor or ground on the other side, the wall shall be designed to resist the lateral design loads prescribed in the building code or 0.5 kPa (0.07 PSI), whichever produces the greatest effect.

.3 Metal support systems shall be engineered where indicated in *Contract Documents* as "engineered" or "structural". Horizontal framing of ceilings shall be engineered. Indicated framing depths are maximum permitted unless approved otherwise by *Consultant*.

1.6 FIRE RESISTANCE RATED ASSEMBLIES

.1 Materials for fire resistance rated construction shall conform to requirements of indicated fire resistance rated assembly.

PART 2 – PRODUCTS

2.1 GENERAL

.1 For sheet metal *Products*: Sheet metal thickness indicated herein pertains to the “minimum base steel thickness exclusive of coating”.

2.2 PARTITION SUPPORT MATERIALS

.1 Interior non-loadbearing channel stud framing: to ASTM C645-09a; roll formed from 0.455 mm (0.0179”) minimum thickness unless otherwise indicated, electro-galvanized steel sheet. Provide service holes starting at 450 mm (18") from bottom, then 914 mm (36") on centre to top of studs.
  .1 Steel studs; at backer plate locations: 0.752 mm (0.0296”) minimum thickness.

.2 Interior engineered metal stud framing: to ASTM C645-09a; as indicated; roll formed from 0.836 mm (0.0329”) minimum thickness unless otherwise required electro-galvanized steel sheet. Provide service holes starting at 450 mm (18") from bottom, then 914 mm (36") on centre to top of studs.

.3 Interior floor and ceiling tracks (runners): to ASTM C645-09a; in widths to suit stud sizes.
  .1 Metal thickness: to match studs.
  .2 For openings wider than 914 mm (36"), provide 0.752 mm (0.0296”) minimum thickness for header.

.4 Runner fasteners:
  .1 To concrete and masonry: Use stub nails or power-driven fasteners.
  .2 To metal concrete inserts: Use 10 mm (3/8") Type S-12 Pan Head screws.
  .3 To suspended ceilings: Use prefinished clips to match ceiling grid, as manufactured by CGC.

.5 Bracing channels: Minimum 19 mm x 10 mm x 1.087 mm (3/4" x 3/8" x 0.0428") cold rolled galvanized steel.

2.3 FURRING

.1 Furring channels: 0.455 mm (0.0179”) minimum typical thickness, cold rolled steel, wiped coated, nominal size of 22 mm (7/8") depth x 35 mm (1-3/8") face, hat type with knurled face.

.2 Resilient furring channels: ‘RC-1 Resilient Channel’ as manufactured by Canadian Gypsum Company or ‘Resilient Channel’ as manufactured by Nicholson Rollforming or Bailey Metal.

.3 Z-furring members: Manufacturer's standard screw type galvanized steel, z-shaped furring members; ASTM A653/A653M-06a, G60, 0.752 mm (0.0296”) minimum thickness of base metal, of depth indicated, designed for mechanical attachment of insulation boards or blankets.

.4 Fasteners for furring members: Type and size recommended by furring manufacturer for substrate and application indicated.

2.4 ACCESSORIES

.1 Backer plates:
  .1 Metal backer plates: Steel, galvanized; minimum 150 mm (6") wide x 1.367 mm (0.0538”) minimum x lengths to suit size of items to be attached; fastened to studs for attachment of surface mounted fittings and accessories.
  .2 Plywood backer plates: Softwood plywood; 19 mm (3/4") minimum x lengths to suit size of items to be attached; fastened to studs for attachment of surface mounted fittings and accessories.
  .3 Elimination of backer plates or direct attachment of accessories or equipment to studs will not be permitted.

PART 3 – EXECUTION

3.1 INSTALLATION GENERAL

.1 Comply with ASTM C754-09a and manufacturer's instructions, except as modified herein. Do not bridge building expansion joints with support system. Frame both sides of joints with furring and other supports as indicated.

.2 Provide and install studs, framing, shimming, and furring to provide proper support for gypsum board to achieve the following installation tolerances:
  .1 Do not exceed 3 mm (1/8") in 3 m (10') variation from plumb, level, and plane.
  .2 Do not exceed 10 mm (3/8") from drawings locations.
  .3 Do not exceed 1.5 mm (1/16") variation between planes of abutting edges or ends.
  .4 Install each framing member so fastening surfaces vary not more than 3.2 mm (1/8") from the plane formed by faces of adjacent framing
.3 Give complete cooperation and direction to trades erecting framing and furring over which this work is applied. Coordinate finished joint location with framing.
.4 Coordinate installation and cooperate with mechanical and electrical work to accommodate mechanical electrical items and any other work required to be incorporated into or coordinated with the partitions, ceiling and soffit systems.
  .1 Where the presence of suspended ductwork or other mechanical or electrical services or devices above ceiling framing conflicts with ceiling framing suspension points from structure above, provide bridging framing below conflicting work as required to support ceiling framing on specified intervals.
  .2 Do not suspend ceiling framing from mechanical or electrical suspension systems unless agreement is obtained in writing from engineer for *Subcontractor* installing such framing that additional imposed loads are acceptable; obtain *Consultant's* acceptance before proceeding.
.5 Provide clearances between work of this section and structural elements to prevent transference of structural loads.
.6 Do not bridge building expansion joints with steel framing or furring members. Independently frame both sides of joints with framing of furring members or as indicated.
.7 Size framing systems according to manufacturer's engineered load tables, to meet allowable deflection without permanent deformation.
  .1 Maximum allowable deflection: L/240.
  .2 Maximum allowable deflection for tiled partitions: L/360.

3.2 BLOCKING

.1 Attach to framing adequate backer plates to support the load of, and to withstand the withdrawal and shear forces imposed by items installed upon the work of this section.

3.3 FURRING - GENERAL

.1 Furring indicated in *Contract Documents* is schematic. Do not regard as exact or complete. *Provide* all necessary framing and furring to support gypsum board in accordance with manufacturers' specifications.
.2 Shim furring as required to achieve required installation tolerances.
.3 Leave finished work rigid, secure, square, level, plumb, curved to detailed radius and erected to maintain finish gypsum board line dimensions and contours. Make allowance for thermal movement.
.4 Thermally separate metal studs from exterior concrete or masonry.

3.4 WALL FURRING

.1 Install steel furring for braced walls, free standing walls, walls that are furred out as indicated.
.2 Frame openings and around built-in equipment, cabinets, access panels, on 4 sides, with channels. Extend furring into reveals. Check clearances with equipment suppliers.
.3 *Provide* bulkheads and boxed-in duct shafts, for beams, columns, pipes and around exposed services where indicated. Install 19 mm (3/4") channels at corners and at 305 mm (12") on centre.

3.5 RESILIENT FURRING

.1 Erect gypsum board resilient furring maximum 610 mm (24") on centre and not more than 150 mm (6") from ceiling/wall juncture. Secure to each support with 25 mm (1") gypsum wallboard screw.
.2 Install 150 mm (6") continuous strip of 12.7 mm (1/2") gypsum board along base of partitions where resilient furring installed.
.3 *Provide* resilient furring channel transverse to framing members, or as indicated.

3.6 METAL STUD PARTITION FRAMING

.1 Provide partition tracks (runners) at floor and underside of structural assembly and as follows:
  .1 Align accurately and lay out according to partition layout.
  .2 Secure runners to concrete access flooring and to concrete slabs, as applicable, with screwed or shot fasteners located 50 mm (2") from each end and spaced at maximum 610 mm (24") on centre.
  .3 At partition corners, extend one runner to end of corner and butt other runner to it, allowing necessary clearance for gypsum board thickness. Runners should not be mitred.

.2 Unless otherwise indicated, place interior studs vertically at centres as follows:
  .1 *Provide* studs at 400 mm (16") on centre, and as specially spaced in accordance with details indicated.
  .2 *Provide* studs not more than 50 mm (2") from abutting walls, openings and each side of corners.
  .3 *Provide* freedom for 19 mm (3/4") deflection under beams, structural slabs and the like to avoid transmission of structural loads to studs or install 50 mm (2") leg ceiling tracks.

.3 Install studs in tracks at floor and ceiling.

.4 Where horizontal runs of service lines are scheduled to be installed, arrange with applicable trades and install studs simultaneously with services.

.5 At openings in stud walls, erect track at head and sills to accommodate intermediate studs. At each end of track, cut out flanges, turn up web, and fasten to studs. Install intermediate studs above and below openings in same manner and spacing as wall studs. Install double studs at each jamb, and double tracks at head of door openings.

.6 At partitions requiring fire rating, erect in accordance with requirements of listing.

.7 Size studs, connections, and runners to carry loads according to stud manufacturer's load tables, at 24 kg/m2 (5 lb/ft2) live load to meet maximum allowable deflection limits. Where depth of stud is indicated, size metal thickness to meet allowable deflection limits.

.8 *Provide* three studs at corner and intermediate intersections of partitions.

.9 Coordinate work with others installing horizontal runs of service lines so that work is done simultaneously. Where standard holes are too small for installed services, notch studs, and splice notched flanges with splice pieces 305 mm (12") longer than notches, each fastened with 2 screws.

.10 *Provide* metal studding to maximum tolerance of 3 mm in 3 m (1/8" in 10 ft).

.11 Coordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.

.12 Coordinate erection of studs with installation of door/window frames and special supports or anchorage for work specified in other sections.

.13 Unless otherwise indicated, partitions, together with gypsum board facings, shall extend above ceilings to underside of structure above.

.14 Maintain clearance to avoid transference of structural loads to studs.

.15 Chase walls:
  .1 *Provide* chase walls where indicated, consisting of two parallel steel stud partitions.
  .2 *Provide* cross bracing consisting of metal furring, located at quarter points on each pair of studs. Attach cross bracing to studs with metal screws. Coordinate construction of partitions to suit installation of services.

.16 Lateral support bracing channels:
  .1 Stiffen partitions over 3 m (10') in vertical span, at mid-height to maximum vertical spacing of 2440 mm (8') on centre, with at least one 19 mm (3/4") horizontal bracing channel, extending full length of partition, overlapping at least two stud spaces at ends of bracing channels.
  .2 Stiffen partitions at not more than 150 mm (6") from the top and bottom of openings and across two full stud spaces at each side of openings with horizontal bracing channel.

END OF SECTION

PART 1- GENERAL

1.1 GENERAL INSTRUCTIONS

.1 Read and be governed by conditions of the *Contract* and sections of Division 1.

1.2 SECTION INCLUDES

.1 Gypsum board; plain.
.2 Gypsum board; fire-rated.
.3 Water resistant backing board; paper faced gypsum.
.4 Gypsum board accessories and miscellaneous related materials.

1.3 QUALITY ASSURANCE

.1 *Subcity*
executing the work of this section shall have a minimum of 10 years continuous experience in successful installation of work of type and quality indicated and specified.
.2 Single source responsibility: Obtain gypsum board products from a single manufacturer, or from manufacturer's recommended by the prime manufacturer of gypsum boards.
.3 Fire resistance rating: Where gypsum board systems with fire resistance ratings are indicated or required, provide materials and installations that are identical with those of applicable assemblies tested by fire testing laboratories acceptable to authorities having jurisdiction.

1.4 SUBMITTALS

.1 Submit required submittals in accordance with Division 1.
.2 *Product* data sheets:
  .1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this section.
.3 Fire-rated assembly listings:
  .1 Submit fire-rated assembly listings for each required fire resistance rated assembly for work of this section.

1.5 ENVIRONMENTAL REQUIREMENTS

.1 Environmental requirements, general: Comply with requirements of referenced gypsum board application standards and recommendations of gypsum board manufacturer, for environmental conditions before, during and after application of gypsum boards.
.2 Cold Weather Protection: When ambient outdoor temperatures are below 12°C maintain continuous, uniform comfortable building working temperatures of not less than 12°C for a minimum period of 48 hours before, during and following application of gypsum board and joint treatment materials or bonding of adhesives.
.3 Ventilation: Ventilate building spaces as required to remove water in excess of that required for drying of joint treatment material immediately after its application. Avoid drafts during dry, hot weather to prevent too rapid drying.
Protection: *Provide* adequate protection of materials and work of this section from damage by weather and other causes. Protect work of other trades from damage resulting from work of this section. Make good such damage at no additional cost to the *Owner*.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Store materials in protected dry areas. Store gypsum board flat in piles with edges protected.
.2 Ensure that finish metal members are not bent, dented, or otherwise deformed.
.3 Deliver *Products* supplied under the work of this section only to those who are responsible for installation, to the place they direct, and to meet installation schedules.
.4 Package fire rated materials with labels attached.

PART 2 – PRODUCTS

2.1 GYPSUM BOARD PANELS

.1 Plain gypsum board: Paper faced gypsum core panel solid set core enclosed in paper, 12.7 mm (1/2") or 16 mm (5/8") thick unless otherwise indicated, 1220 mm (48") wide x maximum practical length, ends square cut, tapered edges, to ASTM C1396/C1396M-06a.

.1 Acceptable *Products*:

.1 CertainTeed 'ProRoc Regular Gypsum Board'.
.2 CGC 'SHEETROCK Gypsum Panel, Regular'.
.3 Georgia-Pacific 'ToughRock Gypsum Board'.
.4 Lafarge 'Gypboard'.
.5 National Gypsum 'Gold Bond Gypsum Board'.

.2 Fire-rated gypsum board: Paper faced gypsum core panel with a specially formulated core for use in fire-resistive Type X or Type C designs, to ASTM C1396/C1396M-06a.

.1 Acceptable *Products*:

.1 CertainTeed 'ProRoc X and C'.
.2 CGC 'SHEETROCK Firecode and Firecode C'.
.3 Georgia-Pacific 'ToughRock Fireguard and Fireguard Gypsum Board'.
.4 Lafarge 'Firecheck C and X'.
.5 National Gypsum 'Gold Bond Fire-Shield and Fire Shield C Gypsum Board'.

.3 Water resistant gypsum backing board (greenboard), wall applications: Paper faced gypsum core panel with enhanced water and water resistant paper facers to ASTM C1396/C1396M-06a, fire rated where indicated.

.1 Acceptable *Products*:

.1 CertainTeed 'ProRoc Moisture Resistant'.
.2 CGC 'SHEETROCK Water Resistant'.
.3 Georgia-Pacific 'ToughRock Moisture-Guard'.
.4 Lafarge 'Watercheck and Fire Watercheck'.

2.2 FASTENERS

.1 Screws; for gypsum board: bugle head, fine thread, self-tapping, Type W or S or S-12 point to suit framing type and metal gauge, with corrosion resistant finish to ASTM C1002-04/ASTM C954-10. Screw sizing:

.1 #6 x 25 mm (1") for single thickness board fastening.
.2 #6 x 32 mm (1-1/4") for single thickness 15.9 mm (5/8") board fastening.
.3 #7 x 41 mm (1 5/8") for double thickness board fastening.

.2 Tie wire: 1.6 mm (0.063") diameter galvanized soft annealed steel wire.

2.3 ACCESSORIES

.1 Accessories: to ASTM C1047-10a unless otherwise indicated, maximum length pieces per location. Flanges shall be free from dirt, grease, or other material that adversely affects the bond of joint treatment or decoration.

.2 Casing trim; "L" or "LC" beads: Bailey D200 and 4411, Nicholson Rollforming Metal Trim 200-A and 200-B fillable edge trim, 0.55 mm (0.022") base thickness commercial grade sheet steel with zinc wiped coating to ASTM A653/A653M-06a; perforated flanges.

.3 Corner bead: Bailey D100, Nicholson Rollforming No. 114, fillable edge trim, 0.55 mm (0.022") base thickness commercial grade sheet steel with zinc wiped coating to ASTM A653/A653M-06a; perforated flanges.

.4 Control joints:

.1 No. 093 Zinc Control Joint by CGC Inc. or approved alternate, certified by manufacturer for use at fire resistance rated assemblies.

2.4 RELATED SUPPORT ASSEMBLIES AND BACKER PLATES

.1 Wind bearing metal studs at wind bearing exterior assemblies:

.2 Metal support systems and backer plates at interior assemblies: in accordance with Section 09100.

2.5 JOINT AND ADHESIVE MATERIALS

.1 Joint compound:
- .1 Gypsum board work: asbestos-free. Latex resin base, possessing good adhesion, mixed with fresh, unadulterated water having no detrimental effect on compounds, to ASTM C475/C475M-02(2007); type recommended by manufacturer for application indicated.
- .2 Gypsum board to receive tile finish: setting-type powder based joint finishing compound. 'Durabond' by CGC or approved alternate.

.2 Joint reinforcing tape:
- .1 Gypsum board: 50 mm x 0.3 mm (2" x 0.01") thick, perforated paper, with chamfered edges.

PART 3 EXECUTION

3.1 INSTALLATION

.1 General: Comply with ASTM C840-08, GA-216, GA-600, and manufacturer's instructions, except as otherwise indicated. Do not bridge building expansion joints with support system. Frame both sides of joints with furring and other supports as indicated.

.2 Install exposed gypsum board with face side out. Do not install imperfect, damaged or damp boards. Butt boards together for a light contact at edges and ends with not more than 1.6 mm (1/16") open space between boards. Do not force into place.

.3 Cover both faces of stud partition framing with gypsum board in concealed spaces (above ceiling, and the like) unless otherwise indicated, except in chase walls which are properly braced internally.

.4 Attach gypsum board to supplementary framing and blocking provided for additional support at openings and cut-outs.

.5 Securely attach trim, casings, framing, and accessories.

.6 Apply components of fire-rated assemblies in conformance with indicated designs.

.7 Erect materials to dimensions indicated, plumb, level, straight, and square to adjoining elements.

.8 Do not apply gypsum board in close proximity to hot pipes or heating ducts.

.9 Install materials with the minimum number of joints. Tightly butt joints, without force, and neatly align them.

.10 Frame openings on every side. Provide clearances with services.

.11 Work shall include bulkheads over doors, frames, screens, and changes in ceiling levels, pipe space and as indicated.

.12 Provide clearances between work of this section and structural elements to prevent transference of structural loads in accordance with Section 09100.

.13 Tolerances:
- .1 Do not exceed 3 mm (1/8") in 3 m (10') variation from plumb, level, and plane in exposed surfaces, except at end joint between gypsum board panels.
- .2 Do not exceed 10 mm (3/8") from indicated location.
- .3 Do not exceed 1.5 mm (1/16") variation between planes of abutting edges or ends.
- .4 Surface flatness shall not exceed 1.5 mm (1/16") within 305 mm (12") straight edge. For non-tapered-edge end joints between boards, measure flatness tolerance with end of straight end at centreline of joint.

3.2 ACCESSORIES

.1 At external corners install corner trim secured to framing at 230 mm (9-1/16") on centre on both flanges with screw fasteners or clinch tool.

.2 Secure casing trim at board edges where exposed to view, where board butts against other materials with no trim to conceal junction, at perimeter of ceiling surfaces at tops of partitions where they stop against continuous ceiling surfaces, and where indicated.

.3 Erect accessories straight, plumb or level, rigid and at proper plane.
.4 Use full length pieces.
.5 Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners, free from rough edges. Secure in accordance with manufacturer's specifications unless otherwise required.
.6 Installation tolerances:
  .1 Alignment with board panels shall not exceed tolerances specified above.
  .2 End joints shall be flush aligned to maximum offset of 0.5 mm (0.020”).

3.3 BOARD APPLICATION - GENERAL

.1 Before application of gypsum board commences, ensure that internal services have been installed, tested, and approved; that conduits, pipes, cables, and outlets are plugged, capped, or covered; and that fastenings and supports installed by others are in place.
.2 Extend board into door, window, and other openings, reveals, behind fitments, and other applied items and on metal stud partitions to structure above unless indicated otherwise.
.3 Apply board with long dimension perpendicular to supports, unless otherwise indicated.
.4 Locate joints on opposite sides of partitions on different studs, and at least 305 mm (12") from opening jambs.
.5 Install board to minimize joints and align end joints to be the least objectionable (where they are unavoidable), according to the indicated lighting design. Locate joints in ceilings where least prominently discerned, and never line them up with opening edges.
.6 Form smooth joints at ends and at field cut edges of board panels.
.7 Fasten board to metal support members by metal gypsum board screws, 9.5 mm (0.374") minimum to, and 12.7 mm (1/2") maximum from, center of joints. Space screws:
  .1 At fire rated board as per fire-rated assembly.
  .2 At typical board walls at 400 mm (16") on centre at edges and field unless otherwise required.
  .3 At typical board ceilings at 305 mm (12") on centre at edges and field unless otherwise required.
.8 Offset gypsum board joints 150 mm (6") minimum from corners of openings.
.9 Gypsum panel product joints shall be located so that no joint will align with the edge of an opening unless control joints are to be installed at these locations.

3.4 WATER RESISTANT GYPSUM BOARD APPLICATION

.1 Apply water resistant sealant to edges, ends, cut-outs which expose gypsum core and to fastener heads. Do not apply joint treatment on areas to receive tile finish.

3.5 FINISHING

.1 Interior gypsum board:
  .1 Prefill:
    .1 Use setting-type joint compound. Mix joint compound according to manufacturer's directions.
    .2 Fill joints between boards flush to top of eased or beveled edge.
    .3 Fill joints of gypsum board above suspended ceilings in fire rated partitions.
    .4 Wipe off excess compound and allow compound to harden.
    .5 Joint gaps not greater than 3.2 mm (1/8") shall be prefilled with either ready-mix or setting type joint compound; joint gaps greater than 3.2 mm (1/8") shall be prefilled with setting-type joint compound.
  .2 Taping (Level 1):
    .1 Butter taping compound into inside corners and joints.
    .2 Center tape over joints and press down into fresh compound.
    .3 Remove excess compound.
    .4 Tape joints of gypsum board above suspended ceilings.
  .3 First coat (Level 2):
    .1 Use taping or all-purpose drying-type compound.

.2 Immediately after bedding tape, apply skim coat of compound and allow to dry completely in accordance with manufacturer's instructions.
.3 Apply first coat of compound over flanges of trim and accessories, and over exposed fastener heads and finish level with board surface.
.4 Fastener heads and accessories shall be covered with 1 coat of joint compound.

.4 Second coat (Level 3): After first coat treatment is dried, apply second coat of compound over tape and trim, feathering compound 50 mm (2") beyond edge of first coat.
.1 Fastener heads and accessories shall be covered with total of 2 separate coats of joint compound.

.5 Third coat (Level 4):
.1 After second coat has dried, sand surface lightly and apply thin finish coat to joints, fasteners and trim, feathering compound 50 mm (2") beyond edge of second coat.
.2 Allow third coat to dry. Apply additional compound, and touch-up and sand, to provide surface free of visual defects, tool marks, and ridges, and ready for application of finish.
.3 Finished joints will be accepted with a camber not greater than 1 mm (1/32") and shall be seamless, plumb, true and flush and with square, neat corners.
.4 Fastener heads and accessories shall be covered with total of 3 separate coats of joint compound.
.5 Where new partitions align with existing gypsum board, apply required amount of skim coats to make transition inconspicuous from a distance of 914 mm (36”).
.6 Completed installation at interface between new and existing construction shall provide an inconspicuous joint.

.6 Skim coat (Level 5):
.1 After the fourth coat has dried, apply skim coat of topping or all-purpose drying-type compound over exposed surfaces of gypsum board.
.2 After skim coat has dried, touch-up and sand to provide surface free of visualdefects, tool marks, and ridges, and ready for application of finish.

.2 Water-resistant gypsum board: Treat fastener heads and joints with setting-type joint compound.
.1 For joints to be covered with tile, apply tape and joint compound bedding coat and skim coat only; do not apply finish coats.
.2 Do not crown joints or leave excess compound on panels.
.3 Remove tool marks and ridges.
.4 For fastener heads to be covered with tile, apply one coat of joint compound.

.3 Joint compound:
.1 Apply finish coat of compound feathering 75 to 100 mm (3” to 4”) beyond tape edges.
.2 Feather coats onto adjoining surfaces so that camber is maximum 0.79 mm (1/32”).

.4 Trim:
.1 Use same fasteners to anchor trim accessory flanges as required to fasten gypsum board to supports, unless otherwise recommended by trim manufacturer.
.2 Install metal corner beads at external corners.
.3 Install metal casing bead trim whenever edge of gypsum base would otherwise be exposed or semi exposed, and where gypsum base terminates against dissimilar material.
.4 Erect beads plumb or level, with minimum joints.

.5 Control joints:
.1 Provide control joints set in board facing. Support control joints with studs or furring channels on both sides of joint.
.2 Provide control joints in required locations.
.1 Review control joint locations with *Consultant* prior to installation.
.3 Full height door frames shall be considered equivalent to a control joint.
.4 Install control joints where a partition, wall, or ceiling traverses a construction joint (expansion, seismic or building control element) in the building structure.

.5 Install control joints where a wall or partition runs in an uninterrupted straight plane exceeding 9100 mm (30 linear feet).
.6 Install control joints in interior ceilings:
.1 With perimeter relief:
.1 Linear dimensions between control joints shall not exceed 15000 mm (50 ft) and total area between control joints shall not exceed 230 m² (2500 ft²).
.2 Without perimeter relief:
.1 Linear dimensions between control joints shall not exceed 9100 mm (30 ft) and total area between control joints shall not exceed 84 m² (900 ft²).
.7 Install control joints where ceiling framing members change direction.
.8 Where a control joint occurs in an acoustical or fire-rated system, blocking shall be provided behind the control joint by using a backing material such as 16 mm (5/8") type X gypsum panel products, mineral fibre, or other tested equivalent. Construct through-wall control joints at fire-rated assemblies in accordance with assembly listing requirements.
.9 Line up control joints with joints in other construction or with centre lines of mullions, columns, piers, or similar building elements, where accepted by *Consultant*.
.10 Install control joints straight and true.
.11 Ceiling height door frames may be used as control joints. Less than ceiling height frames shall have control joints extending to the ceiling from both corners. If control joints are not used, additional reinforcement is required at corners to distribute concentrated stresses.
.12 Board joints shall be located so that no joint will align with the edge of an opening unless control joints are to be installed at these locations.

.6 Construct light troughs and ceiling coves as indicated to profiles as shown and prepare to receive lighting fixtures supplied and installed where required.
.7 Gypsum wallboard column enclosure must be finished smooth, seamless, plumb, true and flush; having square, neat corners where rectilinear. Finished face of each side must be 90° to adjacent side unless indicated otherwise.

3.6 FIRE SEPARATIONS

.1 Install fire-rated assemblies in accordance with assembly listing requirements in order to obtain fire ratings indicated and as required by authorities having jurisdiction.
.2 Vertical bulkheads in ceiling spaces over fire rated partitions, doors and the like shall have same fire rating as the partition over which they occur. Such bulkheads shall be of gypsum board construction unless otherwise indicated.
.3 Use fire rated gypsum wallboard as specified.
.4 Where lighting fixtures, diffusers, and the like are recessed into fire rated ceilings or bulkheads, provide enclosure to maintain required fire rating. Form removable panel to give access to fixture outlet box.
.5 Where fire hose cabinets or other fixtures or equipment are recessed in fire rated walls or partitions, provide gypsum board enclosure or backing to maintain required fire rating, unless otherwise detailed.

3.7 ACCESS DOORS

.1 Install access doors to mechanical and electrical fixtures.
.2 Access doors shall be as per Mechanical and Electrical Drawings. Locations to be reviewed and confirmed by *Consultant*.
.3 Install access panels in locations to be determined by coordination with trades installing mechanical, electrical and other building services and consultation with *Consultant*.
.4 Rigidly secure frames to furring or framing systems.

3.8 SPECIAL CLEANING

.1 Remove debris and rubbish from wall and ceiling cavities before enclosing with board.

.2 Clean up and remove surplus materials and rubbish resulting from the work of this section upon completion.
.3 Clean off beads, casings, joint compound droppings and the like, leave the work of this section ready for painting trades.

END OF SECTION

PART 1 – GENERAL

1.1 SCOPE

.1 Comply with Division 1: General Requirements.

.2 Provide materials, labour and equipment for the installation of vinyl tile, thresholds, wall bases and trim as shown on the drawings described herein, or as necessary to complete the work.

1.2 RELATED WORK UNDER OTHER SECTIONS

None

1.3 STANDARDS

.1 Install carpet using glue-down method to brick style.

.2 Install thresholds, bases and trim in accordance with the recommendations of the material manufacturer.

1.4 SAMPLES

.1 Submit full tile sample of selected color for approval.

1.5 SHOP DRAWINGS

.1 Submit duplicate copies of drawings showing locations prior to commencing work.

1.6 MAINTENANCE DATA

.1 Provide data for care and maintenance.

1.7 MAINTENANCE MATERIALS

.1 Deliver a 2 percent extra supply ,used on the project and a 2 percent extra supply of threshold, base and trim from the same production runs as the materials used in the installation. Store where directed for future maintenance use.

1.8 EXAMINATION

.1 Visit site, determine existing conditions, limitations and requirements for protection of adjacent areas. Verify dimensions and base the bid on measurements taken on site.

1.9 DELIVERY AND STORAGE

.1 Deliver in boxes. Handle materials carefully to prevent damage to new and existing work. Store materials inside the building under suitable protective coverings and on skids off moist or wet floors. Keep absolutely dry and free of foreign matter.

1.10 ENVIRONMENTAL CONDITIONS

.1 Maintain air temperatures at 20 degrees C or more for 48 hours before, during and for 48 hours after installation.

1.11 WARRANTY

.1 limited 10 year commercial.

PART 2 – PRODUCTS

2.1 CARPET TILE

1. Collection : Hot & Heavy Collection
2. Style / Name/Name / Number : Grown Up (C0075)
3. Brand : Mohawk Group – Hard Surface
4. Product Type : Loose Lay Luxury Vinyl Tile
5. Size : 9" x 59"
6. Overall Gauge : 0.20"
7. Waer Layer 20mil
8. Finish : M-Force Enhanced Urethane
9. Texture : Registered Emboss
10. Color Available :10
11. Installation :Perimeter Glue
12. Recommendation Adhesive : Premier Glue only with MS160 Spray
13. Construction : Commercial Grade Floating Luxury Vinyl Tile
14. Onstruction : Commercial Grade Loose Lay Enhanced Resilient Tile
15. Wear Layer: 20 mil (0.5 mm)
16. Static Load : ASTM F970 - Passes – Exceeds 1000 psi
17. Finish: M-Force Ultra
18. Surface Profile :Registered Emboss
19. Square Feet By Carton 22.4 sf/ctn (2.12 m2/ctn)
20. Pieces Per Carton : 6 pieces/ctn
21. Pound Per Carton : 40.78 lbs/ctn (18.49 kg/ctn)
22. RECOMMENDED ADHESIVE
23. Classification :ASTM F-1700 - Class III, Type A - Smooth, Type B - Embossed
24. Squareness: ASTM F2055 -10 Passes - maximum 0.010 in. (0.25mm)
25. Size & Tolerance : ASTM F2055 - Passes - at ±0.016 in./lin. Ft. (0.4 mm/305 mm)
26. Thickness: ASTM F386 - Passes - as specified ±0.005 in. (0.13 mm)
27. Flexibility : ASTM F137 - Passes - 1 in. (25.4-mm mandrel, no crack or break)
28. Dimensional Stability ASTM F2199 - Passes - no greater than 0.020 in./lin. Ft. (0.51 mm/305 mm)
29. Residual Indentation : ASTM F1914 - Passes - average less than 8%
30. Resistance to Chemicals : ASTM F925 - Passes - no change
31. Resistance to Light : ASTM F1515 - Passes - less than 8 ave., max
32. Resistance to Heat : ASTM F1514 - Passes - less than 8 ave., max
33. Critical Radiant flux :ASTM E648 - Passes - > 0.45 watts/cm², Class 1
34. Overall Thickness :5 mm (.2")

Acceptable Products:

Mohawk Group — 'Hot & Heavy Collection Grown Up |132 Vera

2.2 THRESHOLDS: ($^1/_{12}$") thick in maximum lengths, of sections listed below; colour as selected.

Acceptable Products:

Finercraft	'Type 501B' [Carpet to Resilient Tile]
Flextile	'CTA-XX-A' [Carpet to Resilient Tile]
Finercraft	'Type 509T' [Carpet to Ceramic Tile]
Flextile	'CDB-XX-B/CE-XX-A' [Carpet to Ceramic Tile]

2.3 VINYL BASE:

Acceptable Products:

Johnsonite	' 8" (200mm) Moon Rock WG

2.4 PRIMERS: As recommended by Vinyl and adhesive manufacturer.

2.5 ADHESIVE FOR VINYL: Brand recommended by vinyl manufacturer, fire retardant material, for polypropylene backed Vinyl.

2.6 ADHESIVE FOR VINYL SEAMS: Brand recommended by Vinyl and adhesive manufacturer, fire retardant material, for polypropylene backed Vinyl.

2.7 ADHESIVES:

.1 **For Thresholds, Reducing Strips:** Waterproof, contact type, selected to suit all substrates and locations to flooring manufacturers printed directions.

.2 **For Bases:** Brand recommended by Vinyl and adhesive manufacturer, fire retardant material, for polypropylene backed vinyl.

2.8 FILLER/LEVELLER: Purpose-made pre-mixed latex-cement underlayment.

Acceptable Products:

Flextile	'87 Latex Underlayment'
Bakelite	existing tile to be remain

PART 3 – EXECUTION

3.1 PRELIMINARY WORK

.1 Give at least [5] days' notice to before starting work.

3.2 PREPARATION OF EXISTING SURFACES

.1 Immediately prior to installing new vynil, vacuum surface.

.2 Apply filler/leveller to ensure existing sub-floor is dead level and to prevent high or low spots from telegraphing through to vinyl surface causing uneven surface wear.

3.3 CARPET INSTALLATION

.1 Estimate vinyl layout to ensure vinyl width is divided to suit room width without seams.

.2 Install vinyl in accordance with brick style installation

.3 Dry-lay vinyl; ensure material is free from manufacturing defects before applying adhesive.

.4 Install vinyl tightly and fit neatly around architectural, mechanical and electrical installations, furniture fitments, from one wall then lay out the vinyl to the rest of the floor to the end of the room then cut our the extra edges

.5 Lay out vinyl in full length of room with additional length and width for finishing. If design is involved, ensure it is centered in the room and with the design properly matched at seams and cross joints.

.6 Where seams are necessary, apply a bead of seaming adhesive to both cut edges before positioning.

3.4 BASE INSTALLATION - VINYL

.1 Apply adhesive to wall.

.2 Vinyl base to match colour of floor carpet.

.3 Install taped sewn edges in straight and level alignment at base height.

.4 Attach Vinyl to wall. Neatly fit vinyl against floor

3.5 ACCESS COVER APPLICATION

.1 . Ensure accessibility to underfloor services [e.g. sewer clean-outs, telephone pull boxes, control valve access, etc.].

3.6 PROTECTION OF FINISHED WORK

.1 Vacuum vinyl clean. Protect traffic areas of vinyl floors with polyethylene drop sheets; tape edges and joints to prevent shifting.

3.7 CLEAN-UP

.1 Remove protection; make good any damage sustained resulting from this work. Dispose of surplus material daily and at completion of work and remove debris, tools, plant and equipment from the premises. Leave buildings and site 'cleaned and vacuumed'.

-End-

PART 1 – GENERAL

1.1 SCOPE

.1 Comply with Division 1: General Requirements and Owner's General Conditions.

.2 Provide materials, labor and equipment for painting and finishing new and existing materials as shown on the drawings, described herein, or as necessary to complete the work.

1.2 RELATED WORK UNDER OTHER SECTIONS

1.3 STANDARDS

.1 **Paint Materials:** To MPI Architectural Painting Specification Manual and MPI Maintenance Repainting Manual Interior Systems. Provide signed certificate stating materials comply with the standards and that paint materials for each coating are products of one manufacturer only. Use only odorless solvent products in all interior locations. Do not mix or thin. Use materials and colors directly from the manufacturer's containers.

.2 **Workmanship Standards:** To MPI Architectural Painting Specification Manual and MPI Maintenance Repainting Manual, Exterior and Interior Systems as applicable with sufficient coats to provide full coverage, color match and uniform sheen, but using minimum number of coats specified. Conform to regulations of authorities having jurisdiction.

1.4 SAMPLES

.1 Submit the successful manufacturers color system with the approved colors marked and related to those used on the approved color schedule. Submit the colors to the Consultant for approval and retention in the project file. Ensure finished work matches manufacturers color sample.

1.5 ENVIRONMENTAL REQUIREMENTS

.1 Do not apply paint finish in areas where dust is being generated.

.2 Do not clean equipment, brushes, rollers, etc. on the premises.

.3 During paint operations, provide sufficient fresh air circulation.

.4 In cold weather, use temporary exhaust fans or ozone air purifier.

2 DELIVERY AND STORAGE

.1 Deliver materials in original containers with labels intact and seals unbroken.

.2 Store materials under covers and protect from fire at all times. The Consultant will not provide material storage space.

2.1 PROTECTION

.1 Before commencement of work, remove cover plates of service devices, surface hardware, frames of lighting fixtures and all other obstructions. Replace them in satisfactory condition when work of this section is completed, to the approval of Consultant.

.2 Before commencement of work, protect all surface hardware that is impractical to remove. Protect all weather stripping, acoustic and smoke seal gaskets in an approved manner.

.3 Remove soiled and used rags, waste and empty containers from the building daily. Take all precautions to preclude a fire.

.4 Post legible signs at all points of entry to the areas in which work of this section is being applied.

.5 Erect suitable barriers to prevent traffic and other trades from working in such areas during application of this work.

2.2 INSPECTION

.1 Have material suppliers' representatives visit site in company with Contractor and painter prior to commencement of operations to discuss finishing procedures to be used and to analyze conditions of surfaces to be coated, in order that alternative recommendations may be accorded consideration, should adverse conditions exist.

.2 Ensure that material suppliers' representatives visit site at intervals during surface preparation and application operations, to ensure that specified surface preparation has been completed, specified products are being used, proper number of coats are being applied, and specified finishing procedures are being implemented.

.3 Submit to Contractor and Consultant a written report of material suppliers' representatives verify conformance to Specifications.

2.3 MAINTENANCE MATERIALS

.1 Provide extra (1) 4L unopened can of each color of paint and stain. Store where directed for future maintenance use.

PART 2 – PRODUCTS

2.1 COLOURS: To match existing or as selected by the Owner (Maximum 5 colours.)

2.2 VOC'S: All interior paints to be zero VOC's type.

2.3 GLOSS VALUES

.1 Gloss values at 60% and Sheen Values at 85% determined in accordance with MPI Gloss:

.1	0 to 5 for flat.	max. 10 sheen
.2	5 to 10 for high sheen flat.	10-35 sheen
.3	10 to 25 for eggshell.	10-35 sheen
.4	25 to 35 for satin.	min. 35 sheen
.5	35 to 70 for semi-gloss	
.6	70 to 85 for gloss	
.7	85 to 100 for high gloss	

2.4 INTERIOR FINISH MATERIALS:

.1 For Existing Concrete Block
One coat Multi Surface Primer Sealer for oil or latex based original paint
Two coats Semi-Gloss Enamel

.2 For Epoxy Existing Concrete Block
One coat Epoxy Multi Surface Primer for oil or latex based original paint
Two coat Epoxy Color Coat

.3 For New Gypsum Board and Plaster Walls
One coat Primer Sealer
Two coats Flat Paint on Ceiling and Two coats Eggshell on Walls

.4 For Existing Gypsum Board and Plaster Walls
One coat Multi Surface Primer Sealer for oil or latex based original paint
two coats Flat Paint on Ceiling and Two coats Semi-Gloss on Walls

.5 For Painted New Wood Doors (on exposed edges)
One coat Primer Sealer
Two coats Semi-Gloss Enamel

.6 For Painted Existing Wood Doors (on exposed edges)
One coat Multi Surface Primer for oil or latex based original paint
Two coats Semi-Gloss Enamel

.7 For New Primed Ferrous
Metal Surfaces
One coat Spot Priming
One coat Multi Surface Primer for oil or latex based original paint
Two coats Gloss Enamel

.8 For Existing Primed Ferrous
Metal Surfaces
One coat Spot Priming Rust Inhibitor Type
One coat Multi Surface Primer for oil or latex based original paint
Two coats Gloss Enamel

.9 For New Galvanized and Zinc Coated Metal
One coat Cementitious Galvanized Metal if bare metal or
One coat Primer
Two coats Semi-Gloss Enamel

.10 For Existing Galvanized and Zinc Coated Metal
One coat Cementitious Galvanized Metal if bare metal or
One coat Spot Priming Rust Inhibitor Type
One coat Multi Surface Primer for oil or latex based original paint
Two coats Semi-Gloss Enamel

.11 For Pipe Insulation Covering
One coat Tinted Primer
Sealer
One coat Semi-Gloss Enamel

.12 Existing Interior Wood Stained
Two coats Semi-Gloss Varnish

PART 3 – EXECUTION

3.1 PRELIMINARY REPAIRS

.1 Cut away the cracked or fissured finish to expose the primary substrate for a minimum of 300 mm (12") on both sides of the crack[s] or fissure[s].

.2 Examine substrate surface and where cracks or fissures are due to normal settlement or acceptable building movement, fill with compatible materials to material manufacturer's directions and the Consultant's approval.

.3 Fill and neatly join repairs to existing work for both substrate and finish; trowel to an even, level and matching texture; cure and sand as required.

.4 Re-prime entire repair to ensure colour and texture matches the surrounding finished surfaces prior to normal repainting operations.

3.2 PREPARATION OF SURFACES

.1 Prepare wood surfaces to MPI standards:

.1 Use CAN/CGSB 10-GP-126M vinyl sealer over knots and resinous areas.

.2 Applywood paste filler to nail holes and cracks.

.3 Tint filler to match stains used to finish woodwork.

.2 Touch up shop primer on steel with MPI approved primer applied to MPI procedures.

.3 Prepare galvanized steel and zinc coated surfaces to CAN/CGSB 85-GP-16.

.4 Prepare masonry, surfaces to MPI procedures.

.5 Prepare new and existing metal surfaces, surfaces to MPI procedures.

.6 Prepare new wallboard surfaces to MPI procedures. Fill cracks with plaster patching compound.

.7 Prepare copper piping and accessories to MPI procedures.

.8 Thoroughly clean all existing surfaces, sand and scrape loose paint from existing surfaces, remove all abandoned wall plugs, nails, screws, remove all oil, grease, tar, etc., fill all holes and low areas flush with existing surfaces, sand and prime paint.

3.3 APPLICATION

.1 Sand and dust between each coat to remove defects visible from a distance up to 1.5 m (5 ft).

.2 Finish bottoms, edges, tops and cut-outs of doors after fitting as specified for door surfaces.

.3 Finish tops of cabinets and projecting ledges, above and below sight lines as specified for surrounding surfaces.

.4 Finish closets and alcoves as specified for adjoining rooms.

.5 Repainted surfaces within already painted areas must colour match existing.

.6 After painting, drawers, window sashes and doors must operate freely.

3.4 MECHANICAL AND ELECTRICAL EQUIPMENT

.1 Paint exposed conduits, pipes, hangers and other mechanical and electrical equipment occurring in finished areas including inside cupboards and cabinet work. Colour and texture to match adjacent surfaces, except where noted otherwise.

.2 Paint interior of ductwork where visible with primer and one coat matte black paint.

.3 Paint both sides and edges of plywood backboards for mounting equipment before installation. Leave equipment in original finish except for touch-up as required; paint conduits, mounting accessories and other unfinished items.

3.5 COMPLETION

.1 Remove protection; make good damage to this and adjacent work.

2 Remove materials, debris, tools, plant and equipment from the premises.

3.6 CLEAN-UP

.1 Remove rubbish, rags and oily waste from the site daily and at final completion and keep areas clean.

.2 Upon completion, clean blemished surfaces to the Consultant's satisfaction. Repair any damage. Replace hardware plates, drapes, pulls, etc.

.3 Leave building and painted site equipment in a 'cleaned and polished' condition.

END OF SECTION

PART 1 GENERAL

1.1 General and Related Work

.1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of the General Conditions of the Contract.

.2 Related work specified elsewhere:

.1 Section 02 82 00.01 Asbestos Abatement – Type 1 Procedures

.2 Section 02 82 00.02 Asbestos Abatement – Type 2 Procedures

.3 Section 02 82 00.04 Asbestos Abatement – Type 2 Glove Bag Method

.3 Site Conditions identifies all known hazardous building materials within the Project Area. The information provided is for general reference only. Each Contractor must confirm existing conditions on site prior to tender close.

.1 The specification fulfils the requirements of Section 30 of the Ontario Occupational Health and Safety Act.

.2 The specification fulfils the requirements of the Section 10 of Ontario Regulation 278/05.

.4 The Outline of Work identifies the location, condition and quantities of hazardous building materials to be removed as part of this project.

.1 It is the intent that work prescribed this Section will result in the removal of all hazardous materials as outlined and the decontamination of all surfaces or materials which may have been or become contaminated by hazardous materials either during or prior to work of this Contract.

1.2 Site Conditions

.1 Refer to the report entitled “Revised 2 Hazardous Building Materials Assessment (Pre-construction) Fourth Floor Renovations”, dated January 15, 2025, prepared by Pinchin Ltd., file number 336569.005.

1.3 Outline of Work

.1 Coordinate the following items with the Owner’s Project Manager and the Construction Manager, including but not limited to: electrical isolations, GFI connection, water connections, HVAC and exhaust ventilation system isolation, bin placement, schedule, disconnects, etc.

.2 Using Type 1 procedures prescribed in the Section identified in Related Work, remove and dispose of the following.

.1 Sink and associated asbestos-containing mastic from Location 30 (1 sink).

.2 Asbestos-containing sweatwrap pipe insulation from Locations 20-27 (approximately 240 LF).

.1 Include to remove pipe insulation where discovered during demolition work (allow for 20 LF)

.3 Using Type 2 procedures prescribed in the Section identified in Related Work, perform the following work using a grinder/machine equipped with a HEPA filtered dust collection device.

.1 Floor mastic from Locations 19-27 (approximately 2,000 SF).

.1 Remove mastic completely from substrate.

.2 Remove all mastic where present below floor finishes, walls, millwork etc.

.4 Using Glove Bag procedures prescribed in the Section identified in Related Work, remove and dispose of the following.

.1 All asbestos-containing pipe insulation (approximately 261 LF and 44 fittings).

.1 Include to remove pipe insulation where discovered during demolition work (allow for 20 LF, and 20 fittings)

.2 Reinsulate removed pipe insulation with fiberglass and ASJ jacketing.

.3 If for reasons of pipe geometry or access, Glove Bag procedures cannot be used, remove and dispose of asbestos-containing insulations in accordance with Section 02 82 00.02 for less than 1 square meter, or following Type 3 procedures in accordance with Ontario Regulation 278/05 for greater than 1 square metre.

.5 Follow lead procedures prescribed in the EACC Lead Guideline when disturbing lead materials, lead paint and/or materials with lead paint.

.6 Follow mercury procedures when removing all light fixtures and fluorescent light tubes and light ballasts presumed to contain PCB. Place all light fixtures into containers to avoid breakage.

.7 Follow silica procedures prescribed in the MOL Silica Guideline when disturbing silica containing materials.

.8 Refer to Specification Sections identified in the Related Work for specified personnel protective measures for the safe handling, removal, clean-up, enclosure, or repair of hazardous materials in each phase or work area.

.9 Visit the site prior to tender close to confirm the location and extent of any hazardous building materials or materials contaminated by hazardous materials.

.10 Protect surfaces, building fabrics and items remaining within the Abatement Work Area.

.11 Without disturbing hazardous materials, perform removals where required, prior to abatement work.

.1 Maximize waste diversion by use of resale of building materials, or recycling.

.12 Isolate the Abatement Work Area from adjoining Occupied and Non-Occupied Areas whether present at an interior or exterior location.

.13 Maintain emergency and fire exits from Abatement Work Area, or establish alternative exits satisfactory to Provincial Fire Marshall and local authorities having jurisdiction. Maintain extra routes from occupied areas. Place emergency exit signs at locations to clearly mark exit route. Seal emergency exit doors so as not to impede use of door during emergency evacuation.

.14 Remove, clean, store and replace at completion of work, non-operating mechanical and electrical equipment, ducts, building components, materials or items removed to accommodate asbestos removal.

.15 Perform selective demolition of mechanical and electrical equipment, building components, materials and items scheduled for demolition at locations required to facilitate asbestos removal. Refer to all Contract Documents for responsibility of demolition work and disposal.

.16 Remove and dispose of as appropriate waste, building components, materials and items contaminated by hazardous materials that cannot be effectively cleaned.

.17 Encapsulation will not be permitted where removal of building materials or structures scheduled for demolition will facilitate access to the asbestos materials in question.

.18 Final clean work area to remove visible signs of asbestos and other hazardous materials, other debris or settled dust.

.19 Apply lock-down agent to exposed surfaces throughout the work area and to surfaces from which any hazardous materials have been removed.

.1 Do not apply lock-down to materials which would be damaged by its application.

.20 Label mechanical systems and services to clearly identify location of remaining asbestos-containing materials.

.21 Unless otherwise specified, the handling, removal, clean-up or repair of hazardous materials or surfaces contaminated with hazardous materials is to be performed following wet removal techniques.

1.4 Schedule

.1 Provide necessary manpower, supervision, equipment and materials to maintain and complete the project on schedule.

.2 Work Hours:

.1 Coordinate all work, scheduling and phasing with the Owner.

.2 Duration for which HVAC systems may remain shutdown to accommodate quiet hours work will vary in accordance with outside weather conditions and internal demand. Duration of quiet hours work will have to be scheduled accordingly and in consultation with the Abatement Consultant and Owner.

.3 Provide 48 hours written notice to the Abatement Consultant of any request to work outside normal working hours. Obtain written approval before proceeding.

1.5 Definitions

.1 Abatement Consultant: Owner's Representative providing inspection and air monitoring.

.2 Abatement Contractor: Contractor or sub-contractor performing work of this section.

.3 Abatement Work Area: Area where work takes place which will, or may, disturb hazardous materials.

.4 Amended Water: Water with wetting agent added for the purpose of reducing surface tension to allow thorough wetting of materials.

.5 Asbestos: Any of the fibrous silicates defined in Regulation 278/05 including: actinolite, amosite, anthophyllite, chrysotile, crocidolite and tremolite.

.6 Asbestos-Containing Material (ACM): Material identified under Site Conditions including any debris, overspray, fallen material and settled dust.

.7 Authorized Visitors: Building Owner, Abatement Consultant, or designated representative, and persons representing regulatory agencies.

.8 Competent Worker: A worker who is qualified because of knowledge, training and experience to perform the work, is familiar with Regulation 278/05 and the Occupational Health and Safety Act, and has knowledge of the potential or actual danger to health and safety in the work.

.9 Contaminated Waste: Material identified under Site Conditions, including fallen material, settled dust, other debris and materials or equipment deemed to be contaminated by the Abatement Consultant.

.10 Curtained Doorway: Doorway consisting of two (2) overlapping flaps of rip-proof polyethylene arranged to permit ingress and egress from one room to another while permitting minimal air movement between rooms.

.11 DOP Test: A testing method used to determine the integrity of the Negative Pressure unit or vacuum using a Dispersed Oil Particulate (DOP) or Poly Alpha Olefin (PAO) HEPA filter leak test. This test is to be conducted on site where units are to be installed. Refer to the Environmental Abatement Council of Ontario (EACO) DOP/PAO Testing Guideline 2013 or ANSI/ASME N510-2007.

.12 Fitting: Individual segments or pieces of a mechanical service line which may include but is not limited to the hangers, tees, elbows, joints, valves, unions, etc.

.13 Friable Material: Material that when dry can be crumbled, pulverized or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.

.14 HEPA: High Efficiency Particulate Aerosol filter that is at least 99.97 percent efficient in collecting a 0.3 micrometre aerosol.

.15 Lead-Containing: 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.).

.16 Lead Waste: Waste generated from removal of lead-containing materials, or the substrate and paint finish where left intact.

.17 Mercury Waste: Equipment, materials or items containing mercury or contaminated with mercury.

.18 Milestone Inspection: Inspection of the Abatement Work Area at a defined point in the abatement operation.

.19 Negative Pressure: A reduced pressure within the Abatement Work Area (> 0.02 inches of water column) established by extracting air directly from Abatement Work Area and discharging it to exterior of building.

.20 Non-Friable Material: Material that when dry cannot be crumbled, pulverized or powdered by hand pressure.

.21 Occupied Area: Any area of the building or adjoining space outside the Abatement Work Area.

.22 Personnel: All Contractor's employees, sub-contractors employees, supervisors.

.23 PCM: Phase Contrast Microscopy.

.24 Remove: Remove means remove and dispose of (as applicable type of waste) unless followed by other instruction (e.g. remove and turn over to Owner).

.25 TEM: Transmission Electron Microscopy.

1.6 Regulations and Guidelines

.1 Comply with Federal, Provincial, and local requirements, provided that in any case of conflict among those requirements or with these Specifications, the more stringent requirements shall apply. Work shall be performed under regulations in effect at the time work is performed.

.2 Where regulations are not present, follow accepted industry standards and applicable Guideline documents.

.3 Regulations and Guidelines include but are not limited to the following:

.1 Ministry of Labour Occupational Health and Safety Act Regulations for Construction Projects including Revised Statutes of Ontario 1990, Chapter 0.1 and Ontario Regulation 278/05.

.2 Ministry of the Environment and Climate Change Regulation for the disposal of waste, including R.R.O. 1990, Reg. 347 as amended.

.3 Regulation 490/09 Designated Substances.

.4 Environmental Abatement Council of Ontario (EACO), Lead Guideline For Construction, Renovation, Maintenance or Repair, October 2014.

.5 Ministry of Labour, Guideline, Silica on Construction Projects, 2011.

1.7 Quality Assurance

.1 Removal and handling of hazardous materials is to be performed by persons trained in the methods, procedures and industry practices for Abatement.

.2 Ensure work proceeds to schedule, meeting all requirements of this Specification.

.3 Complete work so that at no time airborne dust, visible debris, or water runoff contaminate areas outside the Abatement Work Area.

.4 Any contamination of surrounding area (indicated by visual inspection or air monitoring) shall necessitate the clean-up of affected area, and in the same manner applicable to an Abatement Work Area at no cost to the Owner.

.5 All work involving electrical, mechanical, carpentry, glazing, etc., shall be performed by licensed persons experienced and qualified for the work required.

1.8 Supervision

.1 Provide on site for each work shift, a Shift Superintendent(s), who has authority regarding all aspects related to manpower, equipment and production.

.2 Supervisory personnel must hold a recognized certificate proving attendance at an asbestos removal training course (2 day minimum duration) and have performed supervisory functions on at least five (5) other asbestos abatement projects of similar size and complexity.

.3 At all times during work, the Overall or Shift Superintendent(s) must be on site. Failure to comply with this requirement will result in a stoppage of all work, at no cost to the Owner.

.4 Replace supervisory personnel, with approved replacements, within three (3) working days of a written request from the Owner. Owner reserves the right to request replacement of supervisory personnel without explanation.

.5 Do not replace supervisory personnel without written approval from the Owner.

1.9 Instruction and Training

.1 Instruction and training must be provided by a competent person.

.2 All workers completing Type 1, 2 or 3 asbestos abatement must be trained in compliance with Section 19 of O.Reg. 278/05.

1.10 Notification

.1 Before commencing work, notify orally and in writing, an inspector at the office of the Ontario Ministry of Labour nearest the project site, where required.

.2 Inform all trades on site of the presence and location of hazardous materials identified in the Contract documents.

.3 Notify the Owner or Owner's Representative, the Joint Occupational Health and Safety Committee and the Provincial Ministry of Labour, if suspected asbestos-containing materials not identified in the contract documents are discovered during the course of the work. Stop work in these areas immediately.

.4 Notify Sanitary Landfill site as per O.Reg. 347/90 as amended.

1.11 Submittals

.1 Submit prior to starting work:

.1 Provincial Workers' Compensation Board Clearance Certificate.

.2 Insurance certificates.

.3 Copy of Company Health and Safety Policy and applicable programs.

.4 Copy of Certificate of Approval for disposal of hazardous materials waste and location of landfill.

.2 Submit the following information regarding personnel prior to starting work:

.1 Resumes of the supervisory personnel.

.2 Proof in the form of a certificate that supervisory personnel have attended a training course on asbestos removal or are certified as supervisors under the Ministry of Training, Colleges and Universities course 253S.

.3 WHMIS training certificates for all personnel.

.4 Certificate proving that each worker on site has been fit tested for the respirator appropriate for the work being performed.

.3 Submit the following information regarding HEPA filtered devices prior to construction of enclosure or asbestos abatement:

.1 Performance data on HEPA filtered vacuums including DOP tests no more than 3 months old.

.2 DOP tests to be performed by an independent testing company.

.1 DOP testing company is required to submit a detailed technical report of testing protocol, including Introduction, Methodology, Results, Conclusions, and Recommendations, including results of the Air-Aerosol Mixing Uniformity test as per ASME N510-1989 (1995).

.2 DOP testing company must also provide calibration certificates from an independent calibration firm or from the manufacturer of the testing equipment for both the aerosol photometer and the pressure gauge on the aerosol generator dated within 1 calendar year from the on-site testing date.

.3 DOP testing company must also provide the National Sanitation Foundation (NSF) certification name and number of the on-site technician performing the testing.

.3 Proof of calibration of DOP testing equipment.

.4 Submit the following upon completion of the work.

.1 Manifests, waybills, bills of ladings etc. as applicable for each type of waste.

1.12 Insurance

.1 Maintain a Commercial General Liability Policy with an insurance company acceptable to Pinchin Ltd. And0 OWNER. The intent of this policy is to hold Construction Manager and Hamilton-Oshawa Port Authority harmless as it relates to claims for Bodily Injury or Property Damage or both, relating to the contract. Commercial General Liability insurance shall be provided on an "occurrence" basis to cover injury or damage (whether detected or not during the policy period) which happens during the policy period.

.2 Maintain an Automobile or Fleet Policy, and Non-owned Automobile Policy with an insurance company acceptable to Pinchin Ltd. And0 OWNER. The intent of these policies is to hold Pinchin Ltd. And0 OWNER harmless as it relates to claims for Bodily Injury or Property Damage or both, relating to the contract.

.3 Maintain a Pollution Liability Policy (or asbestos/lead liability policy or specific coverage under the CGL for asbestos/lead abatement) with an insurance company acceptable to Pinchin Ltd. And0 OWNER. The intent of this policy is to hold Pinchin Ltd. And0 OWNER harmless as it relates to claims for Bodily Injury or Property Damage or both, relating to the contract. Pollution Liability shall be provided on an "occurrence" basis to cover injury or damage (whether detected or not during the policy period) which happens during the policy period. Without limiting the generality of the foregoing, the policy shall insure the operations of abatement and shall not contain any environmental and/or health hazard exclusions relating to remediation operations.

.4 Forward all certificates to Pinchin Ltd. And0 OWNER before work is commenced, showing Pinchin Ltd. And0 OWNER as additional insured as their interest may appear.

.5 Pinchin Ltd. And0 OWNER may request a certified true copy of the policies.

.6 The limits will not be less than:

.1	Commercial General Liability	$5,000,000.00
.2	Automobile	$2,000,000.00
.3	Pollution Policy	$5,000,000.00

1.13 Inspection

.1 From commencement of work until completion of clean-up operations, the Abatement Consultant is empowered by the Owner to inspect for compliance with the requirements of governing authorities, adherence to specified procedures and materials, and to inspect for final cleanliness and completion.

.2 The Abatement Consultant is empowered by the Owner to order a shutdown of work when leakage of asbestos from the controlled work area has occurred or is likely to occur.

.3 Any deviation from the requirements of the Specifications or governing authorities that is not approved in writing may result in a stoppage of work, at no cost to the Owner.

.4 Additional labour or materials expended by the Contractor to rectify unsatisfactory conditions and to provide performance to the level specified shall be at no additional cost to the Owner.

.5 Inspection and air monitoring performed as a result of Contractor's failure to perform satisfactorily regarding quality, safety, or schedule, shall be back-charged to the Contractor.

.6 Facilitate inspection and provide access as necessary. Make good work disturbed by inspection and testing at no cost to the Owner.

.7 Refer to the Sections identified in Related Work for specified milestone inspections which are to take place at defined points throughout the abatement operation specific to each phase or work area.

.8 Provide 24 hours written notice to the Abatement Consultant of any request for scheduling of milestone inspections or transportation of waste through Occupied Areas.

.9 The following Milestone Inspections may take place, at the Owner's cost, as outlined in each related specification section OR which will be confirmed at the initial start-up meeting:

.1 Milestone Inspection - Clean Site Preparation

.1 Inspection of preparations and set-up prior to contaminated work in the Abatement Work Area.

.2 Milestone Inspection – Bulk Removal Inspection

.1 Inspection during asbestos removal, monitoring removal methods, site deficiencies, performing occupied air monitoring, etc.

.3 Milestone Inspection - Visual Clearance

.1 Inspection of Abatement Work Area after completion of all abatement, but prior to application of lock-down agents or dismantling of enclosure.

.4 Milestone Inspection – Clearance Sampling

.1 Air monitoring performed following removal of asbestos and application of slow drying sealer to ensure fibre levels inside the Type 2 enclosure(s) are within the acceptable limits. The number of samples to be collected and analysed are based on the requirements of O.Reg. 278/05.

.10 Refer to the Sections identified in Related Work for specified milestone inspections which are to take place at defined points throughout the abatement operation specific to each phase or work area.

.11 Do not proceed with next phase of work until written approval of each milestone is received from the Abatement Consultant.

1.14 Worker Protection

.1 Instruct workers before allowing entry to the Abatement Work Area. Instruction shall include training in use of respirators, dress, showering, entry and exiting from an Abatement Work Area, and all other aspects of work procedures and protective measures.

.2 Workers shall not eat, drink, chew gum or tobacco, vape or smoke in the Abatement Work Area.

.3 Workers shall be fully protected at all times when possibility of disturbance of hazardous materials exists.

.4 Provide soap, towels and facilities for washing of hands and face, which shall be used by all personnel when leaving the Abatement Work Area.

.5 Respiratory Protection

.1 Refer to each particular Section of the Specification for specified type of respiratory equipment specific to each phase or work area.

.2 Respirators shall be:

.1 Certified by the National Institute of Occupational Safety and Health (NIOSH) or other testing agency acceptable to the Ministry of Labour.
.2 Fitted so that there is an effective seal between the respirator and the worker’s face. Ensure that no person required to enter an Abatement Work Area has facial hair which affects the seal between respirator and face.
.3 Assigned to a worker for their exclusive use.
.4 Maintained in accordance with manufacturer’s specifications.
.5 Cleaned, disinfected and inspected by a competent person after use on each shift, or more often if required.

.6 Repaired or have damaged or deteriorated parts replaced.
.7 Stored in a clean and sanitary location.
.8 Provided with new filters as necessary, according to manufacturer's instructions.
.9 Worn by personnel who have been fit checked by qualitative or quantitative fit-testing.
.10 Instruction on proper use of respirators must be provided by a competent person as defined by the Occupational Health and Safety Act.

.3 Provide protective clothing, to all personnel which:

.1 Is made of a material that does not readily retain nor permit penetration of asbestos fibres or lead/silica dust.
.2 Consists of head covering and full body covering that fits snugly at the ankles, wrists and neck.
.3 Once coveralls are worn, treat and dispose of as contaminated waste.
.4 Is replaced or repaired if torn or ripped.

.4 Use hard hats, safety footwear and other protective equipment and apparel required by applicable construction safety regulations.

1.15 Visitor Protection

.1 Provide clean protective clothing and equipment to Authorized Visitors.

.2 Instruct Authorized Visitors in the use of protective clothing and Abatement Work Area entry and exit procedures.

.3 Authorized visitors are required to be fit tested on respirators, prior to entering Abatement Work Area.

.1 Respirator worn must be compliant with Section 13 and Table 2 of O.Reg. 278/05.

1.16 Signage

.1 Asbestos Abatement Signs: Post signs at access points to the Abatement Work Area, stating at minimum, the following:

.1 There is an asbestos dust hazard.

.2 Access to the work area is restricted to persons wearing protective clothing and equipment.

.2 Lead Abatement Signs: Post signs at access points to the Abatement Work Area, stating at minimum, the following:

.1 There is a lead dust, fume or mist hazard.

.2 Access to the work area is restricted to authorized persons.

.3 Respirators must be worn in the work area.

.3 Silica Warning Signs: Post signs at access points to the Abatement Work Area, stating at minimum, the following:

.1 There is a silica dust hazard.

.2 Access to the work area is restricted to authorized persons.

.3 Respirators must be worn in the work area.

.4 Vehicles, Bins and Asbestos Waste Containers: Post signs on both sides of every vehicle used for the transportation of asbestos waste and on every asbestos waste container. Signs must display thereon in large, easily legible letters that contrast in colour with the background the word "CAUTION" in letters not less than ten centimetres in height and the words:

.1 CONTAINS ASBESTOS FIBRES

.2 Avoid Creating Dust and Spillage

.3 Asbestos May be Harmful To Your Health

.4 Wear Approved Protective Equipment.

.5 Place placards in accordance with Transportation of Dangerous Goods Act.

1.17 Waste and Material Handling

.1 Waste bins must be placed on grade or in receiving.

.2 All bins for hazardous materials must be covered and locked when waste transfer is not being performed.

.3 Ensure redundant non-ACM, rubble, debris, etc. removed during contaminated work are treated, packaged, transported and disposed of as appropriate waste.

.4 Clean, wash and apply Post Removal Sealant to metal waste prior to removal from Abatement Work Area. Recycle metals.

.5 Clean, wash and apply Post Removal Sealant to non-porous materials prior to disposal as clean waste. Obtain prior written approval from the Abatement Consultant for each individual type of material.

.6 Clean and wash equipment prior to removal from Abatement Work Area if removed prior to completion.

.7 Place all equipment, tools and unused materials that cannot be cleaned in Abatement Waste Containers.

.8 As work progresses, and at regular intervals, transport the sealed and labelled waste containers from the Abatement Work Area to waste bin.

.9 Place items in bins according to waste classification. Place asbestos waste, lead waste, metals, non-asbestos waste, etc. in separate bins.

.10 Removal of waste containers and decontaminated tools and materials from the Abatement Work Area shall be performed as follows:

.1 Remove any visible contamination from the surface of non-porous or cleanable waste being removed from the Abatement Work Area. If the item can be cleaned, remove it from the site as clean waste.

.2 Place waste or item in Waste Container and seal closed.

.3 Wet wipe outside of Waste Container.

.4 Within Decontamination Facility, Transfer Room or at the perimeter of the Abatement Work Area, place in second Waste Container. Seal closed.

.5 Remove waste containers and transport to appropriate bin.

.11 Transport waste and materials via the predetermined routes and exits. Arrange waste transfer route with Owner. Use a closed, covered cart to transport through Occupied Areas.

.12 Provide workers transporting waste with means to access full personal protective equipment and all tools required to properly clean up spilled material in the case of a rupture of a Waste Container.

.13 Pick-up and drop off of garbage bin shall be at pre-approved times, and must not interfere with the Owners operations.

.14 Transport hazardous waste to landfill or waste transfer station licensed by the provincial Ministry of the Environment.

.15 Cooperate with the provincial Ministry of the Environment inspectors and immediately carry out instructions for remedial work at dump to maintain environment, at no additional cost to the Owner.

1.18 Re-establishment of Objects and Systems

.1 Re-establish objects and items relocated by the Contractor's workforce to facilitate work.

.2 Re-establish electrical, communication, HVAC and other services previously disconnected or otherwise isolated to accommodate work by this Section.

.3 Make good at completion of work, all damage not identified in pre-removal survey.

PART 2 PRODUCTS AND FACILITIES

2.1 Materials and Equipment

.1 Refer to the Sections identified in Related Work for specified materials, equipment or facilities specific to each phase or work area.

.2 Materials and equipment must be in good condition and free of debris and fibrous materials. Disposable items must be of new materials only.

.3 Airless Sprayer: AC powered pressure washer that allows wetting agent to mix with water, uses no air or compressed air, and has a nozzle to regulate power and pressure.

.4 Amended Water: Water with wetting agent added for purpose of reducing surface tension to allow thorough wetting of materials.

.5 Asbestos Waste Container: A container acceptable to disposal site, Ministry of the Environment, and Ministry of Labour, comprised of the following:

.1 Dust tight.

.2 Suitable for the type of waste.

.3 Impervious to asbestos.

.4 Identified as asbestos waste.

.6 Differential Pressure Monitor: a high precision instrument for measuring and controlling pressure differences in the low range, between the Abatement Work Area and Occupied Area. Calibrate regularly to manufacturer's instructions.

.7 Discharge Ducting: Polyethylene Tubing. Reinforced with wire. Diameter to equal negative pressure machine discharge. Not to be longer than required, or so long that negative pressure is compromised.

.8 Ground Fault Panel: Electrical panel as follows:

.1 Ground fault circuit interrupters of sufficient capacity to power temporary electrical equipment and lights in Asbestos Work Area.

.2 Interrupters to have a 5 mA ground fault protection.

.3 Necessary accessories including main switch disconnect, ground fault interrupter lights, test switch to ensure unit is working, and reset switch.

.4 Openings sealed to prevent moisture or dust penetration.

.5 Inspected by the Electrical Safety Authority.

.6 Panel uses CSA approved parts and been constructed, inspected and installed by a licensed electrician.

.7 Provide one Ground Fault Panel for each 5,000 square feet (500 square metres) of Abatement Work Area.

.9 HEPA Filtered Negative Pressure Machine: Portable air handling system which extracts air directly from the Abatement Work Area and discharges the air to the exterior of the building. Equipped as follows:

.1 Prefilter and HEPA filter. Air must pass HEPA filter before discharge.

.2 Pressure differential gauge to monitor filter loading.

.3 Auto shut off and warning system for HEPA filter failure.

.4 Separate hold down clamps to retain HEPA filter in place during change of prefilter.

.10 HEPA Vacuum: Vacuum with necessary fittings, tools and attachments. Discharged air must pass through a HEPA filter.

.11 Hose: Leak-proof, minimum busting strength of 500 PSI or greater if required, abrasion resistant covering, reinforcing, and machined-brass couplings. Maintained and tested. Hose to be temperature resistant if it is to carry domestic hot water.

.12 OSB: Oriented Strand Board.

.13 Polyethylene Sheeting: 6 mil (0.15 mm) minimum thickness unless otherwise specified, in sheet size to minimize joints.: 6 mil (0.15 mm) minimum thickness unless otherwise specified, in sheet size to minimize joints.

.14 Post Removal Sealant (or Lockdown): Sealant that when applied to surfaces serves the function of trapping residual asbestos fibres or other dust. Product must have flame spread and smoke development ratings both less than 50. Product shall leave no stain when dry. Post Removal Sealant shall be compatible with replacement insulation or fireproofing where required and capable of withstanding service temperature of substrate. Apply to manufacturer's instructions.

.15 Protective Clothing: Disposable coveralls complete with head covering and full body covering that fits snugly at the ankles, wrists and neck.

.16 Rip-Proof Polyethylene Sheeting: 8 mil (0.20 mm) fabric made up from 5 mil (0.13 mm) weave and two (2) layers of 1.5 mil (0.05 mm) poly laminate or approved equal. In sheet size to minimize on-site seams and overlaps.

.17 Shower Hose: Water lines for supply of hot & cold water to shower facilities to be rated for use at 200 PSI (1380 kPa) or twice the working pressure whichever is greater. Supply lines to be continuous and free of fittings, joints or couplings.

.18 Sprayer: Garden type portable manual sprayer or water hose with spray attachment if suitable.

.19 Tape: Duct tape or tape suitable for sealing polyethylene to surfaces under both dry and wet conditions in the presence of Amended Water.

.20 Wetting Agent: Non-sudsing surfactant added to water to reduce surface tension and increase wetting ability.

PART 3 EXECUTION

.1 Refer to the Sections identified in Related Work for specified procedures for work area preparation, maintenance, site dismantlement, application of lock-down agent and all other procedures for the safe handling, removal and clean-up of hazardous materials specific to each phase or work area.

END OF SECTION

PART 1 GENERAL

1.1 General and Related Work

.1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of Division 1 and the General Conditions of the Contract.

.2 Requirements specified elsewhere:

.1 Section 02 81 00 Hazardous Materials – General Provisions

1.2 Outline of Work

.1 Refer to Section 02 81 00 Hazardous Materials – General Provisions for the Outline of Work.

.2 The intent of this Section is to provide safe work practices and procedures to govern the handling, removal, clean-up and disposal of asbestos-containing materials following Type 1 or Low Risk procedures, and Pinchin and Owner specific requirements.

1.3 Personal Protection

.1 Protect all personnel at all times when possibility of disturbance of ACM exists.

.1 Provide non-powered half-face respirators with P100 high efficiency (HEPA) cartridge filters when requested by personnel.

.2 When requested by personnel, provide protective clothing.

.2 Provide protective clothing, to all personnel entering the Abatement Work Area.

.3 Wear hard hats, safety shoes and other personal protective equipment required by applicable construction safety regulations.

1.4 Inspections

.1 Refer to Section 02 81 00 – General Provisions.

.2 The following Milestone Inspections are to be scheduled:

.1 Milestone Inspection - Clean Site Preparation

.2 Milestone Inspection – Bulk Removal Inspection

.3 Milestone Inspection - Visual Clearance

PART 2 PRODUCTS AND FACILITIES

.1 Refer to Section 02 81 00.

PART 3 EXECUTION

3.1 Site Preparation

.1 Remove stored or non-fixed items from the Abatement Work Area including but not limited to equipment, furniture, waste etc. Store in area provided by Owner.

.2 Moving of equipment, tools, supplies, and stored materials that can be performed without disturbing ACM will be performed by others.

.3 Remove visible dust and friable material from all surfaces in the work area including those to be worked on, using HEPA Vacuums or wet wiping.

.4 Install one layer of polyethylene sheeting on walls, floors, finishes, millwork, electrical equipment, equipment and furnishings remaining in the Abatement Work Area.

.5 Install one layer of rip-proofing polyethylene sheeting over one layer of polyethylene sheeting on walls, floors, finishes, millwork, electrical equipment, equipment and furnishings remaining in the Abatement Work Area.

.6 Install polyethylene drop sheets below areas of work.

.7 Install polyethylene sheeting on openings in walls and floors (as required) and seal.

.8 Install signage in clearly visible locations and in sufficient numbers to adequately warn of an asbestos dust hazard.

.9 Isolate, at panel, and disconnect existing power supply to Abatement Work Area. Power supply to remaining areas of building must not be disrupted during work of this section.

.1 Lock-out/tag-out power at electrical panels.

.2 Mark/tag any items within or passing through the Abatement Work Area that are to remain live including but not limited to cable, conduit, wire, fixtures, equipment panels, etc.

.10 Provide power from ground fault interrupt circuits.

.11 Shut down HVAC systems serving the Abatement Work Area.

.1 Install polyethylene sheeting over openings in ducts and diffusers and seal.

.2 HVAC to remaining areas of building must not be disrupted during work of this section.

.3 System shall remain inoperative until completion of work, unless ducts can be effectively capped.

.4 Perform work at scheduled times after shutting down HVAC systems affecting the Abatement Work Area.

.12 Provide amended water for wetting ACM, and adequate method of wetting (garden sprayers, airless sprayers, etc).

.13 Without disturbing asbestos-containing materials, remove and dispose of non-hazardous materials as clean waste prior to asbestos removal work, where possible.

3.2 Maintenance of Abatement Work Area

.1 Inspect polyethylene sheeting and ensure it is effectively sealed and taped. Repair damage and remedy defects immediately.

.2 Inspect electrical panels and ensure locks and tags are on panels prior to entering the Abatement Work Area.

.3 Maintain Abatement Work Area in tidy condition.

.4 Remove any standing water on polyethylene/floor at the end of every shift.

.5 Turn off water supply to any hoses and reduce pressure in hose, prior to leaving the Abatement Work Area at end of shift.

3.3 Asbestos Removal - General

.1 Do not use powered tools or non-hand held tools.

.2 Do not use compressed air to clean or remove dust or debris.

.3 Do not break, cut, drill, abrade, grind, sand or vibrate ACM if it cannot be wetted. Type

2 procedures would be required if the material cannot be wetted due to hazard or damage.

.4 Wet ACM prior to work and keep ACM wet throughout the removal process.

.5 Frequently and at regular intervals during the work, clean up dust and waste using HEPA vacuums and/or wet sweeping or mopping.

.6 Frequently and at regular intervals, place all waste in asbestos waste containers.

.7 Immediately upon completion of work, clean area with HEPA vacuum and/or wet sweeping or mopping.

3.4 Asbestos Removal - Removal of Other Non-Friable Asbestos Materials – Sinks and Pipe Insulation

.1 Wet all material to be disturbed.

.2 Undo fasteners if necessary, to remove sink.

.3 Use only non-powered hand-held tools to remove ACM.

.4 Place removed sink directly into an asbestos waste container.

3.5 Abatement Work Area Dismantling

.1 Wash or HEPA vacuum equipment and tools used in contaminated Abatement Work Area to remove all asbestos contamination, or place in Asbestos Waste Containers prior to being removed from Abatement Work Area.

.2 Place tools and equipment used in contaminated work site but not cleaned in polyethylene bags prior to removal from Abatement Work Area.

.3 Clean polyethylene sheeting and drop sheets which with HEPA vacuum or wet cleaning methods at completion of work.

.4 Wet drop sheets and polyethylene sheeting.

.5 Carefully roll polyethylene sheeting and drop sheets toward the centre. As polyethylene is rolled away, immediately remove visible debris beneath with a HEPA vacuum.

.6 Remove remaining polyethylene sheeting and tape.

.7 Place polyethylene sheeting, drop sheets, tape, disposal clothing and other contaminated waste in asbestos waste containers, wet wipe and place in second asbestos waste container.

3.6 Waste and Material Handling

.1 Refer to Section 02 81 00.

END OF SECTION

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PART 1 GENERAL

1.1 General and Related Work

.1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of the General Conditions of the Contract.

.2 Requirements specified elsewhere:

.1 Section 02 81 00 Hazardous Materials – General Provisions

1.2 Outline of Work

.1 Refer to Section 02 81 00 Hazardous Materials – General Provisions for the Outline of Work.

.2 The intent of this Section is to provide safe work practices and procedures to govern the handling, removal, clean-up and disposal of asbestos-containing materials following Type 2 or Moderate Risk procedures, and Pinchin and Owner specific requirements.

1.3 Personal Protection

.1 Protect all personnel at all times when possibility of disturbance of ACM exists.

.2 Provide the following minimum respiratory protection to all personnel:

.1 Full face respirators with P100 high efficiency (HEPA) cartridge filters, for:

.1 Removal of all or part of a ceiling if asbestos is likely lying on the surface.

.2 Use of a HEPA filtered power tool on non-friable ACM if the material is not wetted.

.2 Non-powered half-face respirators with P100 high efficiency (HEPA) cartridge filters.

.3 Provide protective clothing, to all personnel entering the Abatement Work Area.

.4 Wear hard hats, safety shoes and other personal protective equipment required by applicable construction safety regulations.

1.4 Inspections

.1 Refer to Section 02 81 00 – General Provisions.

.2 The following Milestone Inspections are to be scheduled:

.1 Milestone Inspection - Clean Site Preparation

.2 Milestone Inspection – Bulk Removal Inspection

.3 Milestone Inspection - Visual Clearance

PART 2 PRODUCTS AND FACILITIES

.1 Refer to Section 02 81 00.

2.2 Hoarding Walls

.1 Type A Hoarding Wall: One layer of rip-proof polyethylene sheeting installed floor to ceiling, secured with telescopic poles, clips, or other suitable methods.

2.3 Transfer Room

.1 Install vented wood door in wood frame at doorway to Occupied Area. Door must have

locking passage set.

.1 Provide a lock box with key to the door.

.2 Provide lock box code to Abatement Consultant and Owner.

.2 Transfer Room to be generally 2000 mm x 2000 mm x 2200 mm high. Increase size accordingly to accommodate number of workers.

.3 Install walls as follows:

.1 Install 38 x 89 mm wood framing at 610 mm o/c with continuous top and sill plates.

.2 Install one layer rip-proof polyethylene sheeting on interior walls of Transfer Room.

.4 Install one layer of rip-proof polyethylene sheeting over two layers of 6 mil polyethylene sheeting beneath entire Transfer Room.

.5 Install one layer rip-proof polyethylene sheeting over roof.

.6 Turn 600 mm of polyethylene down the sides over polyethylene on the perimeter walls.

.7 Install a fire extinguisher, mount to wall.

2.4 Curtained Doorways

.1 Construct as follows:

.1 Install two flap doors, full width and height of door opening at all doors to Abatement Work Area and both ends of Transfer Room.

.2 Construct each flap door of two layers of polyethylene sheeting with all edges reinforced with tape. Use wood strapping to securely fasten flap doors to head and alternate jambs.

.3 Install weights attached to bottom edge of each door flap.

.4 Provide direction arrows on flaps to indicate opening.

PART 3 EXECUTION

3.1 Site Preparation - General

.1 Remove stored or non-fixed items from the Abatement Work Area including but not limited to equipment, furniture, waste etc. Store in area provided by Owner.

.2 Moving of equipment, tools, supplies, and stored materials that can be performed without disturbing ACM will be performed by others.

.3 Remove visible dust and friable material from all surfaces in the work area including those to be worked on, using HEPA Vacuums or wet wiping.

.4 Isolate, at panel, and disconnect existing power supply to Abatement Work Area. Power supply to remaining areas of building must not be disrupted during work of this section.

.1 Lock-out/tag-out power at electrical panels.

.2 Mark/tag any items within or passing through the Abatement Work Area that are to remain live including but not limited to cable, conduit, wire, fixtures, equipment panels, etc.

.5 Provide power from ground fault interrupt circuits.

.6 Shut down HVAC systems serving the Abatement Work Area.

.1 Install polyethylene sheeting over openings in ducts and diffusers and seal.

.2 HVAC to remaining areas of building must not be disrupted during work of this section.

.3 System shall remain inoperative until completion of work, unless ducts can be effectively capped.

.4 Perform work at scheduled times after shutting down HVAC systems affecting the Abatement Work Area.

.7 Provide amended water for wetting ACM, and adequate method of wetting (garden sprayers, airless sprayers, etc).

3.2 Site Preparation –Enclosure Required

.1 Install polyethylene enclosure complete with Windows at Abatement Work Areas for the following work:

.1 Removal of friable asbestos-containing materials (less than 1 square metre).

.2 Removal of a false ceiling (or part of) where asbestos-containing material is presumed or known to be present on the surface.

.2 Install Transfer Room where duration of work is to last longer than one 8 hour shift.

.3 Seal openings in floor using tape, caulking, polyethylene, etc. Floor openings are to be sealed independently prior to installation of floor polyethylene.

.4 Install polyethylene sheeting on floors of Abatement Work Area. Use sufficient layers to provide adequate protection for carpeting and equipment.

.1 Minimum requirement over carpet is one layer of 6 mil polyethylene under one layer of rip-proof polyethylene.

.2 Cover floors first so that polyethylene on walls is overlapped by at least 305 mm.

.5 Construct Type A Hoarding Walls between Abatement Work Area perimeter and occupied areas.

.6 Install polyethylene sheeting at openings in walls (as required) and seal.

.7 Install 6 mil polyethylene sheeting on walls within the Abatement Work Area., including existing walls that make up, or are within, the Abatement Work Area.

.8 Provide a completely sealed polyethylene top for free standing enclosures.

.9 Extend to underside of ceiling system, enclosures for access into ceilings. Enclosure may be supported from the ceiling system if ceiling can support the polyethylene.

.10 Install Curtained Doorways.

.11 Install one layer of 6 mil polyethylene sheeting so as to protect all equipment and finishes in the Abatement Work Area that may be damaged. Items to remain include but are not limited to:

.1 Millwork.

.2 Doors.

.3 Bulkheads.

.4 Toilet Partitions.

.5 Plumbing fixtures.

.6 Electrical Equipment.

.7 Mechanical Equipment.

.8 Kitchen Equipment.

.12 Install temporary lighting in enclosure to a level that will provide for safe and efficient use of work area - minimum 550 LUX.

.13 Establish negative pressure in Abatement Work Areas as follows:

.1 Provide sufficient HEPA filtered negative pressure machines to exchange a volume of air equivalent to that of the Abatement Work Area a minimum of every 20 minutes.

.2 Provide additional HEPA filtered negative pressure machines as required to ensure air flow from Occupied Area into Abatement Work Area.

.3 Arrange negative air units to maximize the distance between units and decontamination facilities.

.4 Provide weighted flaps in perimeter Hoarding Walls as necessary to provide make-up air.

.5 Operate HEPA filtered negative pressure machines continuously from first disturbance of ACM until completion of dismantling.

.6 Replace prefilters to maintain specified flow rate.

.7 Replace HEPA filter as required to maintain flow rate and integrity of unit.

.8 Discharge HEPA filtered negative air machines as follows:

.1 To building exterior.

.1 Remove existing glazing where necessary and replace with a 19 mm plywood panel.

.2 Install panel securely in window frame so that it cannot be pushed into the building and make weather-tight with caulking.

.3 For each negative pressure unit, provide a 300 mm diameter, screened, duct opening through panel.

.4 Direct discharge away from building access points.

.5 Reinstall glazing to match existing upon completion of work.

.2 Into Occupied Areas as required.

.1 Install and make airtight all negative air discharge ducting.

.2 Use metal reinforced polyethylene discharge ducting in locations where the ducting must be protected from damage or collapse.

.14 Establish negative pressure in Abatement Work Areas as follows:

.1 Use HEPA Vacuum.

.2 Insert vacuum hose into enclosure, leave HEPA vacuum outside enclosure. Provide enough hose to reach all areas of enclosure.

.3 Operate HEPA vacuum continuously at all times when ACM may be disturbed.

.15 Place required tools to complete the abatement with the Abatement Work Area.

.16 Install Signage in clearly visible locations and in sufficient numbers to adequately warn of an asbestos dust hazard.

3.3 Maintenance of Abatement Work Area

.1 Inspect polyethylene sheeting and ensure it is effectively sealed and taped. Repair damage and remedy defects immediately.

.2 Inspect electrical panels and ensure locks and tags are on panels prior to entering the Abatement Work Area.

.3 Inspect HEPA filtered negative pressure machines including discharge ducting at the beginning and end of each working period. Inspection must be performed by competent person.

.4 Maintain Abatement Work Area in tidy condition.

.5 Remove standing water on polyethylene/floor at the end of every shift.

.6 Turn off water supply to any hoses and reduce pressure in hose, prior to leaving the Abatement Work Area at end of shift.

3.4 Asbestos Removal - General

.1 Do not use compressed air to clean or remove dust or debris.

.2 Frequently and at regular intervals during the work, clean up dust and waste using HEPA vacuums and/or wet sweeping or mopping.

.3 Frequently and at regular intervals, place all waste in asbestos waste containers.

.4 Immediately upon completion of work, clean area with HEPA vacuum and/or wet sweeping or mopping.

3.5 Asbestos Removal – Thermal Systems Insulation (less than 1 Square Metre)

.1 Construct an enclosure around Abatement Work Area and use the procedures described above under *Site Preparation –Enclosure Required*.

.2 Adequately wet exterior of the ACM with amended water to suppress dust.

.3 Remove asbestos-containing mechanical insulations in layers, maintaining all exposed surfaces of insulation in a wet condition.

.4 Remove wetted ACM directly into waste containers. Do not allow ACM to fall to the floor of the Abatement Work Area.

.5 Clean all surfaces from which ACM has been removed with scouring pads, vacuuming or wet-sponging to remove all visible material after completion of removal of ACM.

.6 Remove visible dust and debris.

.7 Seal exposed ends of asbestos-containing insulation to remain, with canvas and lagging.

.8 HEPA vacuum or wet clean entire Abatement Work Area, including any surfaces not covered with polyethylene sheeting. Any materials removed to access ACM that are to be re-used, and any abatement equipment, must be wet cleaned or HEPA vacuumed prior to completion.

.9 Apply Post Removal Sealant to all surfaces within the Abatement Work Area including those from which ACM has been removed.

3.6 Asbestos Removal - Flooring Mastic with HEPA Filtered Power Tools and Machines

.1 Use the procedures described above under *Site Preparation – Enclosure Required*.

.2 Wet all material to be disturbed.

.3 Turn on power tool/machine and HEPA dust collection device. HEPA dust collection device to remain operational throughout work.

.4 Use the power tool/machine to remove all ACM.

.5 Place removed ACM directly into an asbestos waste container.

.6 Wet clean or HEPA vacuum the entire Abatement Work Area, including surfaces not covered with polyethylene sheeting. Any materials or equipment removed to access ACM that are to be reused, must be wet cleaned or vacuumed prior to reinstatement.

3.7 Abatement Work Area Dismantling

.1 Wash or HEPA vacuum equipment and tools used in contaminated Abatement Work Area to remove all asbestos contamination, or place in Asbestos Waste Containers prior to being removed from Abatement Work Area.

.2 Place tools and equipment used in contaminated work site but not cleaned in polyethylene bags prior to removal from Abatement Work Area.

.3 Clean polyethylene sheeting and drop sheets which with HEPA vacuum or wet cleaning methods at completion of work.

.4 Wet drop sheets and polyethylene sheeting.

.5 Carefully roll polyethylene sheeting and drop sheets toward the centre of enclosure. As polyethylene is rolled away, immediately remove visible debris beneath with a HEPA vacuum.

.6 Remove remaining polyethylene sheeting and tape, and dispose of as asbestos waste.

.7 Place polyethylene sheeting, drop sheets, tape, disposal clothing and other contaminated waste in asbestos waste containers, wet wipe and place in second asbestos waste container.

.8 Remove remaining site isolation, seals, tape, etc.

.9 Remove Transfer Room.

.10 Remove seals, tape, Signage etc.

.11 Immediately upon shutting down negative air units, seal air inlet grill and exhaust vent with polyethylene and tape.

.12 Seal openings in HEPA vacuums.

.13 Remove and dispose of the pre-filters from HEPA filtered negative pressure machines as asbestos waste.

.14 Remove HEPA filtered negative pressure machines and discharge ducting or HEPA vacuums.

.15 Remove temporary lights.

.16 Remove ground fault panels.

.17 Place contaminated materials including polyethylene sheeting, drop sheets, seals, tape, disposable coveralls, and other contaminated waste in asbestos waste containers.

3.8 Waste and Material Handling

.1 Refer to Section 02 81 00.

3.9 Re-Establishment of Items

.1 Upon completion of work:

.1 Move items that were removed from Abatement Work Area prior to work, back into same location within Abatement Work Area.

.2 Remove and disconnect Ground fault Panel, tags and locks from electrical panels and re-energize equipment and items.

.3 Remove hose bibs installed and repair pipe.

.4 Remove negative air discharge panel and reinstall glazing to match existing.

.5 Reinstall ducts removed to perform cleaning of ducts or to access ACM.

.6 Clean, mop and vacuum Abatement Work Area and area beneath any tunnels, platform and Decontamination Facilities.

.7 Enable building air handling systems.

.2 Notify Abatement Consultant to the need for Milestone Inspection – Re-establishment Inspection.

END OF SECTION

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PART 1 GENERAL

1.1 General and Related Work

.1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of the General Conditions of the Contract.

.2 Requirements specified elsewhere:

.1 Section 02 81 00 Hazardous Materials – General Provisions

1.2 Outline of Work

.1 Refer to Section 02 81 00 Hazardous Materials – General Provisions for the Outline of Work.

.2 The intent of this Section is to provide safe work practices and procedures to govern the handling, removal, clean-up and disposal of asbestos-containing materials following Glove Bag procedures, and Pinchin and Owner specific requirements.

.3 If for reasons of pipe temperature, geometry or access, Glove Bag procedures cannot be used, remove and dispose of asbestos-containing insulations as per Section 02 82 11 for less than 1 square meter, or Section 02 82 13 for greater than 1 square meter.

1.3 Personal Protection

.1 Protect all personnel at all times when possibility of disturbance of ACM exists.

.2 Provide the following minimum respiratory protection to all personnel:

.1 Non-powered half-face respirators with P100 high efficiency (HEPA) cartridge filters.

.3 Provide protective clothing, to all personnel entering the Abatement Work Area.

.4 Wear hard hats, safety shoes and other personal protective equipment required by applicable construction safety regulations.

1.4 Inspections

.1 Refer to Section 02 81 00 – General Provisions.

.2 The following Milestone Inspections are to be scheduled:

.1 Milestone Inspection - Clean Site Preparation

.2 Milestone Inspection – Bulk Removal Inspection

.3 Milestone Inspection - Visual Clearance

PART 2 PRODUCTS AND FACILITIES

2.1 Materials and Equipment

.1 Refer to Section 02 81 00.

.2 Glove Bag: Prefabricated bag which provides a completely sealed envelope surrounding a given section of piping to permit the removal of asbestos-containing insulation from within the bag while maintaining the integrity of the bag and preventing the spread of airborne asbestos fibres. The glove bag shall be equipped with,

.1 sleeves and gloves that are permanently sealed to the body of the bag to allow the worker to access and deal with the insulation and maintain a sealed enclosure throughout the work period,

.2 valves or openings to allow insertion of a vacuum hose and the nozzle of a water sprayer while maintaining the seal to the pipe, duct or similar structure,

.3 a tool pouch with a drain,

.4 a seamless bottom and a means of sealing off the lower portion of the bag, and

.5 a high strength double throw zipper and removable straps, if the bag is to be moved during the removal operation.

.3 Securing Straps: For some types of Glove Bag, reusable nylon straps at least 25mm wide with metal tightening buckle for sealing ends of bags around pipe and/or insulation.

PART 3 EXECUTION

3.1 Site Preparation - General

.1 Remove to the extent necessary to access piping, stored or non-fixed items from the Abatement Work Area including but not limited to equipment, furniture, waste etc. Store in area provided by Owner.

.2 Moving of equipment, tools, supplies, and stored materials that can be performed without disturbing ACM will be performed by others.

.3 Shut down HVAC systems serving the Abatement Work Area.

.1 Install polyethylene sheeting over openings in ducts and at diffusers and seal.

.2 HVAC to remaining areas of building must not be disrupted during work of this section.

.3 System shall remain inoperative until completion of work, unless ducts can be effectively capped.

.4 Perform work at scheduled times after shutting down HVAC systems affecting the Abatement Work Area.

.4 Install caution tape around work area where existing walls are not present.

.5 Install Signage in clearly visible locations and in sufficient numbers to adequately warn of an asbestos dust hazard.

.6 Remove visible dust and friable material from all surfaces in the work area including those to be worked on, using HEPA Vacuums or wet wiping.

.7 Cover walls, floors, finishes, millwork, equipment and furnishings below the pipe to be worked on in the Abatement Work Area with polyethylene sheets before disturbing ACM. Drop sheets shall extend a minimum of 1,800 mm from pipe.

.8 Use existing lighting or install temporary lighting to a level that will provide for safe and efficient use of work area - minimum 550 LUX.

.9 Provide Amended Water for wetting ACM, in garden sprayers. Provide one garden sprayer for each worker.

.10 Do not used compressed air to clean or remove and dust or debris when completing work of this section.

.11 Place HEPA Vacuum in Abatement Work Area for each worker.

.12 Place required tools to complete the abatement within the Abatement Work Area.

.13 Post Notice of Project, where required by O.Reg. 278/05.

3.2 Maintenance of Abatement Work Area

.1 Maintain Abatement Work Area in tidy condition.

3.3 Glove Bag Removal

.1 Do not use Glove Bags on hot pipes that may damage Glove Bag. Refer to manufacturer's limitations.

.2 Prior to use of Glove Bag on damaged or unjacketed insulation:

.1 Spray any areas of damaged insulation jacketing with mist of Amended Water.

.2 Tape over damaged insulation to provide temporary repair.

.3 Mist areas of insulation with no jacketing and wrap with polyethylene sheeting and seal with tape.

.3 Place any tools necessary to remove insulation in tool pouch built into Glove Bag.

.4 Inspect the Glove Bag for damage and defects immediately before it is attached to the pipe or duct.

.1 If damage or defects are observed, dispose of Glove Bag.

.5 Install Glove Bag as per manufacturer's instructions.

.6 Remove metal jacketing or banding carefully. Do not damage the Glove Bag.

.7 Remove insulation from pipe as per manufacturer's directions.

.1 Volume and weight of insulation must not exceed capacity of the Glove Bag or supports.

.2 Arrange insulation in the Glove Bag to maximize use of the Glove Bag.

.8 Only glove bags designed to be moved may be re-used on other sections of pipe or moved down same section of pipe (e.g. Safe-T-Strip).

.9 At regular intervals during its use, if damage or defects are observed during the use of the Glove Bag, which cannot be readily repaired with tape and not affect the integrity or strength of the glove bag.

.1 Discontinue use of Glove Bag.

.2 Wash inner surface of Glove Bag.

.3 Wet insulation.

.4 Pull an Asbestos Waste Container over Glove Bag before removing from pipe.

.5 Remove Glove Bag and Asbestos Waste Container, seal with tape.

.6 Place in a second Asbestos Waste Container and seal with tape.

.7 Clean immediate area with a HEPA Vacuum prior to resuming work.

.10 If bag is to be moved along pipe for use on adjacent section of insulation:

.1 Wash inner surface of Glove Bag.

.2 Wash tools and place tools in pouch.

.3 Wet surface of insulation in lower section of bag and any exposed end of asbestos insulation remaining on pipe with Amended Water.

.4 Insert nozzle of HEPA filtered vacuum cleaner into bag through valve and evacuate air from bag.

.5 Seal closure strip.

.6 Loosen securing straps to maintain a loose seal of Glove Bag to insulation or pipe.

.7 Use double throw zipper as necessary to pass hangers.

.8 Tighten straps once bag is in new position and continue insulation removal until Glove Bag is full, work is completed on the pipe or an obstruction prevents further movement of the bag.

.11 If bag is to be removed from a pipe for use on a new section of pipe, perform the following:

.1 Wash inner surface of Glove Bag.

.2 Wash tools and place tools in pouch.

.3 Wet surface of insulation in lower section of bag and any exposed end of asbestos insulation remaining on pipe with Amended Water.

.4 Insert nozzle of HEPA filtered vacuum cleaner into bag through valve and evacuate air from bag.

.5 Seal valve cover on valve Glove Bags.

.6 Seal closure strip.

.7 Wash top section of Glove Bag and tool pouch thoroughly.

.8 Undo securing straps, unfasten zipper and carefully move bag to new section of pipe.

.12 To remove bag after completion of insulation removal operation:

.1 Wash inner surface of Glove Bag.

.2 Wash and place all tools in one hand (glove), pull hand out inverted, twist to create a separate pouch, tape inverted hand at two separate locations 25 mm apart so as to seal pouch.

.1 Remove inverted hand and tools by cutting between the two tape seals.

.2 Place inverted hand pouch and tools into the next clean Glove Bag to be used or into a water bucket, open pouch underwater and clean tools.

.3 Wet surface of insulation in lower section of bag and any exposed end of asbestos insulation remaining on pipe with Amended Water.

.4 Insert nozzle of HEPA filtered vacuum cleaner into bag through valve and evacuate air from bag.

.5 Seal valve cover on valve Glove Bags.

.6 Seal closure strip if equipped with one. Twist bag at tapered point and secure with tape.

.7 Pull an Asbestos Waste Container over Glove Bag before removing from pipe.

.1 Undo straps and unzipper, or cut upper portion of single-use Glove Bag.

.2 Seal Asbestos Waste Container with tape.

.8 Ensure pipe is clean of all residue after removal of Glove Bag. If necessary, after removal of each section of asbestos, vacuum all surfaces of pipe, using HEPA vacuum or wipe with wet cloth.

.13 Seal all surfaces of freshly-exposed pipe with Post Removal Sealer.

.14 Cover exposed ends of any remaining asbestos insulation with canvas and lagging using Type 2 Procedures.

3.4 Clean-Up and Dismantling

.1 Clean and remove from Abatement Work Area:

.1 Equipment and tools.

.2 Temporary lighting if used.

.3 Polyethylene seals from HVAC systems.

.2 Place polyethylene sheeting, drop sheets, seals, tape, clothing and other contaminated waste in asbestos waste containers, wet wipe and place in second asbestos waste container.

.3 Clean Abatement Work Area with HEPA vacuums or wet wiping/mopping.

.4 Seal openings in HEPA vacuums.

.5 Proceed with the dismantlement of all barricades, etc. following receipt of authorization to proceed from the Asbestos Abatement Consultant.

.6 Remove barricades, fencing, caution tape, signs, etc.

3.5 Waste and Material Handling

.1 Refer to Section 02 81 00.

3.6 Re-Establishment of Items

.1 Upon completion of work:

.1 Move all items that were removed from Abatement Work Area prior to work, back into same location within Abatement Work Area.

.2 Remove tags and locks from electrical panels and re-energize equipment and items.

.3 Enable building air handling systems.

.4 Clean and vacuum Abatement Work Area.

END OF SECTION

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PART 1 GENERAL

1.1 General and Related Work

.1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of the General Conditions of the Contract.

.2 Requirements specified elsewhere:

.1 Section 02 81 00 Hazardous Materials – General Provisions

1.2 Outline of Work

.1 Unless otherwise shown or specified it is the intent that work performed as per this section will result in the removal and destruction of:

.1 PCB-containing ballasts and capacitors

.2 All Work shall be performed in strict accordance with the Project Documents and all governing codes, rules, and regulations. Where conflicts occur between the Project Documents and applicable codes, rules, and regulations, the more stringent shall apply.

1.3 Quality Assurance

.1 Use qualified contractors to isolate electrical services prior to the removal of lamps or other PCB-containing equipment.

.2 Ensure the removal and handling of PCBs is performed by persons experienced in the methods, procedures and industry practices.

.3 Complete work so that at no time do PCBs contaminate the building or environment.

1.4 Instruction and Training

.1 Instruction and training must be provided to all workers and supervisors. Instruction and training includes the following:

.1 Hazards of PCBs.

.2 Use, care and disposal of protective equipment (including but not limited to respirators and filters) and clothing that would be used and worn during work, including:

.1 Limitations of equipment.

.2 Inspection and maintenance of equipment.

.3 Proper fitting of equipment.

.4 Disinfecting and cleaning of equipment.

.3 Personal hygiene to be observed when performing the work.

.4 The measures and procedures prescribed by this section.

.2 Instruction and training must be provided by a competent, qualified person.

1.5 Personal Protection

.1 Workers handling PCB-containing materials are advised to avoid skin and eye contact.

.2 During removal of PCBs, personnel are to wear personal protective equipment appropriate to the task.

.3 During removal of PCB caulking, personnel are to wear, at minimum:

.1 Provide workers, at a minimum, with non-powered half-face respirators with P100 high efficiency and Organic Vapour cartridge filters.

.2 Provide workers, with protective eye wear.

.3 Provide protective clothing, to all personnel entering the Abatement Work Area.

.4 Provide disposable gloves (nitrile), to all personnel entering the Abatement Work Area.

1.6 Inspections

.1 Refer to Section 02 81 00 – General Provisions.

.2 The following Milestone Inspections are to be scheduled:

.1 Milestone Inspection - Clean Site Preparation

.2 Milestone Inspection – Bulk Removal Inspection

.3 Milestone Inspection - Visual Clearance

PART 2 PRODUCTS

2.1 Materials

.1 Containment Drums: new, not used double bung 45 gallon No. 16 gauge cold rolled steel drums with removable steel lid, PCB resistant gasket (nitrile rubber, cork or Teflon), and 12 gauge compression type ring closure with 5/8" bolt and forged lug. Drums shall be newly painted inside and out with bright white rust-resistant enamel. Metal pail of 16 gauge steel with removal steel lid, are also acceptable for smaller quantities of waste.

.2 Decontamination Area: An established area for the purpose of decontaminating personnel and equipment.

.1 Of sufficient size to accommodate cleaning of equipment and removing personal protective equipment.

.2 Install PCB warning signs / tape at the entrance to the decontamination area.

.3 The floor shall be covered with polyethylene sheeting.

.4 Include a hand washing station complete with soap and towels and 6 mil polyethylene bags for disposal of PCB-contaminated items such as gloves, Tyvek suite rags etc.

.5 All personnel must enter and exit the Abatement Work Area through the decontamination area.

.6 All equipment and surfaces of waste containers must be cleaned prior to removing them from the decontamination room or area.

.7 Work clothing must be cleaned with a HEPA vacuum before it is removed.

.3 Drum liners: clear polyethylene bag, 36" x 60", 6 mil thick. Open one 36" end.

.4 Label: appropriate PCB Labels and Placards of sufficient size to be clearly legible, for display on waste containers (bags, boxes, rolloffs or drums) which will be used to contain or transport PCB contaminated material, in accordance with TDG regulations.

.5 Polyethylene Sheeting: 6 mil (0.15 mm) minimum thickness unless otherwise specified, in sheet size to minimize joints. New materials only.

PART 3 EXECUTION

3.1 General

.1 Do not contaminate building surfaces with PCBs.

.2 Should visible PCB debris be observed outside the Work Area, immediately stop Work notify the Consultant and Owner; institute emergency procedures as directed. All costs incurred in decontaminating such non-Work Areas and the contents thereof shall be borne by the Contractor, at no additional cost to the Owner.

.3 Notify Owner's Representative of any spills immediately.

.1 Any spills of PCBs are to be cleaned to the satisfaction of the Owner's Representative at the contractors cost. This includes removal and replacement of building materials as required.

.4 Conduct PCB removal operations in a matter that fully protects Contractor's and Subcontractor's employees, the general public, other building occupants and the environment from exposure to PCB.

.5 Non-PCB items remaining such as windows, doors, masonry, and all other building construction and components from which PCB materials are removed shall be decontaminated by physical or chemical means such that no visible residue remains. The removal of the PCB materials may require the use of scrapers, solvents, mastic removal chemicals, or other methods/procedures to ensure complete removal.

.6 Use hand tools that generate the least amount of dust and will still complete the PCB caulk removal.

.1 Grinding electromechanical tools (e.g. angle grinders, masonry groove cutters, circular saws, and slot mills, etc.) are not allowed to be used for exterior open-air PCB caulk removals.

.7 Remove accessible caulk that could be disturbed before cutting building components, such as window frames.

3.2 Work Area Preparation - Exterior Removal:

.1 Take appropriate precautions (e.g. install windscreens) to prevent dust and debris from migrating due to windy conditions.

.2 All work platforms and ground surfaces exterior to the work area shall have a layer of 6 mil fire retardant plastic sheeting, attached to the building face and laid down on the surface below the exterior abatement work area, at least 10 feet wide or to the furthest point of gravity fall for dislodged debris by methods used, whichever is further.

.3 For work at the second storey and above, extend 6 mil fire retardant plastic sheeting as necessary.

.4 For work above third storey, by sidewalk, street, or property boundary, scaffolding sides shall be covered in 6-mil fire retardant plastic sheeting.

.5 All operable windows within the work area and 25 ft from all sides of the work area shall be closed.

.6 In the work area, isolate all HVAC equipment intakes by temporarily shutting down units during removals and installing plastic sheeting OR HEPA filters over the opening.

3.3 Work Area Preparation - Interior Removal:

.1 Isolate all HVAC equipment, including installing polyethylene sheeting on all air returns and exhausts. Turn off all HVAC systems serving work area when feasible.

.2 All floor areas adjacent to the work area shall have a layer of polyethylene sheeting, attached to the interior wall and laid down on the surfaces below the abatement work area, at least 5 feet wide or to the furthest point of gravity fall for dislodged debris by methods used, whichever is further.

.3 All movable objects shall be removed from the immediate work area. All non-movable objects shall be covered with one layer of polyethylene sheeting and sealed at the edges.

.4 All operable windows within the work area shall be closed.

.5 Temporary dust barriers consisting of a minimum of polyethylene sheeting shall be at installed at hallways, corridors, doorways, and other openings to the work area not used for passage during removals to establish work area containment enclosure.

.6 Polyethylene sheeting overlapping curtained doorway shall be installed at the entrance to the work area.

3.4 Removal of Ballasts

.1 Contractor is responsible for determining the actual quantity of ballasts to be disposed as PCB waste.

.2 Prior to removing any fixtures, ensure electrical service is isolated at panel, and disconnect existing power supply to electrical equipment.

.1 Lock-out/tag-out power at electrical panels.

.3 Remove the following:

.1 Lenses at light fixtures.

.2 Mercury vapour lamps (refer to Section 02 87 00).

.3 Light fixtures.

.4 Ballasts.

.4 Install polyethylene drop sheets in packaging area to protect surfaces and finishes.

.5 Avoid rough handling of PCB ballasts. Do not drop or throw.

.6 Identify ballasts as either non-PCB or PCB containing.

.1 All ballasts not clearly labelled as "NO PCB" are to be treated as PCB containing.

.2 Non-PCB ballasts to be recycled or disposed as solid non-hazardous waste.

.7 Place PCB waste on polyethylene drop sheets immediately after removal.

.8 Package PCB-containing ballasts in Containment Drums, or on wood skids.

.1 Place ballasts on end in Containment Drum. When full:

.1 Seal liner bag with duct tape.

.2 Seal drum with lid, gasket and compression ring.

.3 Affix specified and completed label.

.4 Do not leave liner bags or drums open overnight.

.2 Shrink wrap ballasts and wood skid to prevent movement during transport.

.9 Transport packaged PCB waste to a Ministry of the Environment approved incineration facility and destroy.

3.5 Equipment and Area Decontamination

.1 When removal of PCB materials is completed, the decontamination process shall consist of HEPA vacuuming, wet wiping/mopping and a repeated HEPA vacuuming of the entire work area. All surfaces in and around the work area must be free of dust generated during the work.

.2 Decontaminate all tools and equipment before removal from the work area.

.3 If dust or debris has migrated to areas of the building other than the immediate work area, those areas shall be incorporated into the work area and thoroughly decontaminated to ensure all visible dust generated by the activity is eliminated.

.4 Uncontaminated dust barriers and other protective sheeting shall be placed in disposable construction bags and disposed of as normal trash.

.5 Visually inspect the area for any remaining dust or debris. HEPA vacuum and wet wipe until space is clean. Dispose of vacuum contents as PCB waste.

.6 Upon completion of decontamination and removing temporary dust barriers, a final inspection shall be performed by the Contractor.

.7 Failure of any visual inspection by the Consultant, the Contractor will clean the affected areas at no additional expense to the Owner.

3.6 Transportation and Reporting

.1 All waste containers shall be fully enclosed and lockable (i.e. enclosed dumpster, trailer, etc.).

.1 While on-site, the container shall be labelled with PCB Warning Labels and as required by Federal and Provincial regulations.

.2 All waste generated as part of the PCB project shall be removed from the site within ten (10) calendar days after successful completion of all PCB abatement work.

.3 The Hauler, with the Abatement Contractor and the Abatement Consultant, shall inspect the transport container prior to the Hauler taking possession and signing the Hazardous Waste Manifests.

.4 A Hazardous Waste Manifest shall be utilized solely as the waste Manifest for transportation. A hauler billing form or bill of lading may be used if the hauler needs an independent record, but shall not be used as a shipping document.

.1 The Manifest shall be completed by the Contractor and verified by the Consultant that all the information and amounts are accurate and the proper signatures are in place.

.2 The Manifest shall have the appropriate signatures of the Owner's Representative (the Generator) and the Hauler representative prior to any waste being removed from the site.

.3 Upon arrival at the Disposal Site, the Manifest shall be signed by the Disposal Facility operator to certify receipt of PCB materials covered by the manifest.

.4 The Disposal Facility operator shall return the original Manifest to the Owner's Representative (the Generator) as required by the Ministry of Environment, Conservation and Parks.

.5 Provide a copy of the completed waste manifest proving receipt of the PCB waste by the Disposal Facility.

.5 Transport materials following Transportation of Dangerous Goods Act.

.1 Transport PCBs to approved incineration site for destruction and ensure materials are destroyed.

.6 The facility used to process the PCBs shall be approved by the Ministry of the Environment and shall have valid Certificates of Approval to carry out the work outlined herein.

.1 The facility must issue a Certificate of Destruction identifying types and quantities of PCBs generated from the project.

3.7 Fire and Explosion Response

.1 PCBs ballasts do not present an inhalation hazard when handled appropriately and contained within ballasts.

.2 PCBs are relatively non-flammable. However, if exposed to flame or hot surfaces, a higher vapour concentration will result. At high temperatures PCBs may decompose and chemically rearrange to produce highly toxic gases, vapours, and soot.

.3 Contractor is to include procedures for response to Fire and Explosion regarding PCBs in Site Specific Safety.

END OF SECTION

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PART 1 GENERAL

1.1 General and Related Work

.1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of Division 1 and the General Conditions of the Contract.

.2 Requirements specified elsewhere:

.1 Section 02 81 00 Hazardous Materials – General Provisions

1.2 Outline of Work

.1 Unless otherwise shown or specified it is the intent that work performed as per this section will result in the identification, removal, preparation for disposal, transportation, and disposal of mercury-containing fluorescent and mercury vapour lamps, HVAC control systems, manometers, switches and thermostats.

1.3 Quality Assurance

.1 Use qualified contractors to isolate mechanical/electrical services prior to the removal of lamps or other mercury-containing equipment.

.2 Ensure the removal and handling of mercury-containing equipment is performed by persons experienced in the methods, procedures and industry practices.

.3 Complete work so that at no time does mercury contaminate the building or environment.

1.4 Instruction and Training

.1 Instruction and training must be provided to all workers and supervisors. Instruction and training includes the following:

.1 Hazards of mercury.

.2 Use, care and disposal of protective equipment (including but not limited to respirators and filters) and clothing that may be used during work, including training on:

.1 Limitations of equipment.

.2 Inspection and maintenance of equipment.

.3 Proper fitting of equipment.

.4 Disinfecting and cleaning of equipment.

.3 Personal hygiene to be observed when performing the work.

.4 The measures and procedures prescribed by this section.

.2 Instruction and training must be provided by a competent, qualified person.

1.5 Personal Protection

.1 During removal of equipment containing mercury, personnel are to wear personal protective equipment appropriate to the work being performed.

.2 The following personal protection is to be available on site in the event of a spill or leak:

.1 Non-powered half-face respirators with combined P100 and mercury cartridge.

.2 Protective clothing.

.3 Rubber, nitrile or latex gloves.

PART 2 PRODUCTS

2.1 Materials

.1 Containment Drums: new metal pails or steel drums with removable steel lid. Drums shall be newly painted inside and out with bright white rust-resistant enamel.

.2 Drum liners: clear polyethylene bag, 0.15mm thick.

.3 Label: Mercury warning labels.

.4 Lamp Storage Container: Cardboard box that lamps were originally packaged within, or plastic or cardboard totes for recycling lamps. Intent is to package lamps so that they are not broken during shipping. Container to be designed for lamps of that size.

.5 Mercury Sponge: A plated metal-wool pad for the pick-up of mercury spills.

.6 Mercury Vacuum: Nilfisk VT Mercury Vacuum or equal. Vacuum used to collect liquid mercury and granular mercury compounds with an internal HEPA filter and an activated carbon adsorbent filter to purify exhaust air of mercury vapours.

.7 Neutralizing Agent: Mercon X or similar. Mercury neutralizing solution such as 20% calcium polysulfide or sodium thiosulphate.

.8 TSP: Tri Sodium Phosphate, or other strong cleaner

PART 3 EXECUTION

3.1 Equipment Removal

.1 Prior to removing any fixtures or equipment, ensure associated services is isolated and de-energized.

.2 Locate and remove the following materials designated to be disposed of:

.1 Fluorescent and mercury vapour lamps

.2 HVAC control systems, manometers, switches

.3 Thermostats

.4 Mercury filled traps

.3 Place all mercury-containing equipment into containers to prevent breakage.

.4 Provide an accurate inventory of the contents of each container including number of light tubes and lamps and an estimate of the total weight of the container in kilograms.

3.2 Packaging

.1 Do not contaminate building surfaces mercury.

.2 Notify Owner's Representative of any spills immediately.

.1 Any spills of mercury are to be cleaned to the satisfaction of the Owner's Representative at the contractor's cost. This includes removal and replacement of building materials as required.

.3 Install polyethylene drop sheets in packaging area to protect surfaces and finishes.

.4 Package lamps in lamp storage containers. Do not break lamps.

.5 Package mercury-containing equipment as follows:

.1 Place polyethylene liner in metal drum or pail.

.2 Carefully place mercury-containing equipment in pails, to prevent breakage.

.3 When full, or all items placed in container, seal liner bag with duct tape, seal lid, and place appropriate label on outside of container.

.6 Package mercury and contaminated plumbing drains as follows:

.1 Clear the immediate area of all moveable objects.

.2 Cover the floor or cabinet bottom with polyethylene sheeting.

.3 Place polyethylene liner in metal drum or pail.

.4 Cut plumbing, or disconnected threaded connection, and cover open end with polyethylene sheeting, and seal with duct tape. Complete second cut or disconnection, and seal.

.5 Place drain sludge and drain into containment drum. If pipes are too long to fit in containers, double wrap in polyethylene sheeting.

.6 Clean tools and equipment contaminated with sludge with soap and water.

.7 Remove polyethylene drop sheet and place in containment drum.

.8 When full, or all items placed in container, seal liner bag with duct tape, seal lid, and place appropriate label on outside of container.

3.3 Emergency Response for Spills

.1 For small spills:

.1 Evacuate area. Only personnel using the specified personal protective equipment are to be in spill area.

.2 Open windows or provide ventilation to area.

.3 Clean mercury and broken glass with mercury vacuum.

.4 Clean horizontal surfaces impacted by spill with TSP or approved alternative cleaner.

.2 For large mercury spills:

.1 Evacuate area. Only personnel using the specified personal protective equipment are to be in spill area.

.2 Contact Owner's Representative immediately.

.3 Open windows or provide ventilation to area.

.4 Deactivate heat systems if they are adjacent and may aid in vaporization of mercury.

.5 If spill cannot be cleaned up immediately, apply neutralizing agent over mercury spill area.

.6 Collect mercury droplets together will a dust pan, squeegee or mercury vacuum.

.7 Clean-up bulk mercury using aspirator bulb or mercury vacuum. Clean remainder with a mercury sponge. Place mercury in closed container (plastic or glass).

.8 Porous surfaces are to be cleaned with Neutralizing Agent after clean-up of bulk mercury. Neutralizing Agent to be cleaned with mercury vacuum, or manufacturer's instructions.

.9 If mercury spills into soil, carpet, through cracks, into drains etc. further removal of surface materials at contractor cost will be required. Do not proceed without approval from Owner's Representative.

.10 Place all cleaning materials including drop sheets or polyethylene sheeting in containment drums.

3.4 Transportation and Reporting

.1 Transport materials following Transportation of Dangerous Goods Act.

.1 Transport Mercury Materials and Waste to approved site for recycling, including mercury vapour in lamps, and ensure materials are recycled.

.2 The facility used to process and recycle the mercury shall be approved by the Ministry of the Environment, Conservation and Parks, or local jurisdictional authority, and shall have valid Certificates of Approval to carry out the work outlined herein.

.1 The facility must issue a Certificate of Recycling identifying types and quantities of materials generated from the project. The facility must also provide a Certificate of Recycling for the mercury generated from the project.

.3 Provide the Abatement Consultant a copy of each waste manifest and or a letter from the recycling agency acknowledging receipt of the materials.

END OF SECTION

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PART 1: GENERAL

1.1 GENERAL INSTRUCTIONS

1. The General Conditions of the *Contract* CCDC 2.
2. Document 00800, Supplementary Conditions

1.2 SUMMARY

1. Work included: Provide selective demolition and salvage including but not limited to the following:
2. Selective demolition to accommodate alterations
3. Salvage and recycle of demolition materials as noted on Drawings and as designated on site
4. Demolition and removal of mechanical equipment services: See Mechanical Drawings.
5. Disconnection and sealing off electrical services to building to be demolished: See Electrical Drawings
6. Demolition and removal of electrical equipment services: See Electrical Drawings.

1.3 REFERENCES

.1 CSA S350-M80 – Code of Practice for Safety in Demolition of Structures
.2 OBC – Ontario Building Code

1.4 SUBMITTALS

Plan of Action:

.1 Submit in Accordance with Section 02 82 10
.2 Submit “Plan of Action” immediately after award of Contract for review by Consultant

1.5 QUALITY ASSURANCE

Regulatory Requirements:

.1 Conform to the Occupational Health and Safety Act and Regulation for Construction Projects
.2 Conform to OBC, especially Article 2.3.2.3 as applicable
.3 Conform to Fire Code, Regulation under Fire Marshal Act especially Part 8
.4 Post danger signs conspicuously around property. If requested, provide a watchman for patrolling site when work is not in progress to prevent public entering danger zone and to maintain barricades
.5 Provide fire extinguishers acceptable to fire prevention authorities in locations and type suitable to enable personnel to with fire occurring during progress of work

Qualifications:

.1 Employ for this Work a demolition company having 5 years Canadian experience in this type of Work satisfactory to Consultant. If requested, submit proof of experience.

Pre-demolition Meeting:

.1 Prior to start of Work, arrange for site meeting of all parties associated with Work of this Section. Presided over by Consultant meeting shall include Contractor, demolition Subcontractor, testing company's and Owner's representative(s).

.2 Review specification for work included under this Section and determine complete understanding of requirements and responsibilities relative to Work included, storage and handling materials, inspection of construction to be demolished, methods to be used, sequence and quality control, Project staffing, restrictions due to environmental protection requirements and other matters affecting demolition, to permit compliance with intent of this Section. Review structural load limitations of existing structures. Review and finalize building demolition schedule and verify availability of demolition personnel equipment, and facilities needed to make progress and avoid delays. Review and finalize protection requirements.

1.6 PROJECT CONDITIONS

.1 Demolition performed on this Project in areas which may be partially occupied. Take care and provisions for protection of workers on site and occupants during progress of Work.

.2 Maintain access Road to buildings: Repair damage which is result of Work of this Contract.

.3 Do not close or obstruct roads, streets, sidewalks, passageways without permits. Do not place or store materials in the street or passageways. Conduct operations with minimum interface with roads, streets, driveways, passageways, and parking lot.

1.7 SCHEDULING

.1 Where practicable, remove or neutralize hazardous or toxic materials identified in Environmental Report before demolition begins.

.2 Demolition and removal of electrical equipment services designated for removal on Drawings and as required by Work. Disconnecting and capping prior to authorizing removal.

.3 Schedule the work to ensure that disruption to utilities for the remaining building are not interrupted. Any interruption must occur after 5pm weekdays or on the weekend.

.4 Provide the owner and its tenants with 72-hours written notice of any interruption of utilities.

PART 2: PRODUCTS

1.1 MATERIALS

.1 Provide materials necessary for temporary bracing and shoring. On completion, remove temporary materials from site.

PART 3: EXECUTION

1.1 GENERAL

Preliminary Survey:

1. Before commencing demolition operations, examine site and when requested. Provide engineering survey to determine type of construction, condition of structure and site conditions. Assess strength and stability of damaged or deteriorated structures. Investigate the follow conditions:
    1. Load bearing walls and floors
    2. Structure suspended from another
    3. Cantilevered construction
    4. Presence of pre-stressed or post-tensioned elements
    5. Presence of hazardous materials

Protection

1. Do not interfere with use and activities of occupants where applicable and adjacent buildings. Maintain free and safe passage to and from buildings. Maintain integrity of existing fire exits.
2. Protect existing adjacent Work against damages which might occur from falling debris or other causes due to Work of this Section.
3. Provide, erect and maintain required hoarding, sidewalk sheds if applicable, catch platforms, lights and other protection around site before commencing Work Maintain such areas free of snow, ice, mud, water and debris. Lighting levels shall be equal to that prior to erection.
4. Provide flagmen where necessary or appropriate to Provide effective and safe access to site to vehicular traffic and protection to pedestrian traffic.
5. Ensure scaffolds, ladders, equipment and other such equipment are not accessible to public. Protect with adequate fencing or remove and dismantle at end of each Day or when no longer required.
6. Do not interfere with use and activities of adjacent buildings. Maintain free and safe passage to and from buildings.
7. Erect and maintain partitions as required to prevent spread of dust, fumes and smoke to other parts of building. Maintain fire exits from site. On completion, remove partitions and *Make Good, Made Good* surfaces to match adjacent surfaces of building.
8. Before starting demolition, ensure required dust-tight partitions have been installed where necessary.

Restrictions

1. Restrict demolition activities between hours of 7:30am and 5:00pm Monday through Friday, unless written approval from Owner.

Existing Services

1. Provide and maintain temporary services required during demolition to satisfaction of authorities having jurisdiction, fire departments and utility companies
2. Verify prior to commencement Work of this Section that disconnection and capping of mechanical services have been carried out in accordance with requirements of local authority having jurisdiction.
3. Remove electrical equipment schedule for removal on Drawings and as required by Work.

1.2 PERFORMANCE

1. Demolition action plans may indicate only general scope of Work to be demolished and removed. It is Contractor's sole responsibility to determine exact extent of demolition required. Contractor may not rely solely on Drawings to limit scope of selective demolition

Work required. Review site conditions and assess exact scope of demolition and removal.
2. Examine and review existing conditions prior to starting demolition. Initially perform demolition only in selected and designated test areas prior to proceeding full scale demolition Work. Obtain approval on technique of demolition in test areas from Consultant. Only after approval, proceed in other areas.
3. Materials and debris shall not be stacked in building to extent that overloading of any part of structure will occur.
4. At end of each day's work, leave work in safe condition ensuring no parts of structure are in danger of collapsing.

Demolition

1. Ensure demolition work is supervised.
2. Adhere to manufacturer's recommendations in use of hand held tools while conforming to the Occupational Health and Safety Act requirements. Lower demolition materials and debris through chutes. Do not create falling material hazards.
3. Remove all mechanical and electrical items indicated to be removed.
4. Demolish and remove interior partition walls, ceilings, flooring down to concrete substrate, except those specified and/or indicated to remain.
5. Minimize noise. Limit the use of noisy machinery to the hours of 8:00 am to 5:00 pm Monday to Friday.
6. Provide enclosed chutes for disposal of debris from heights more than 1 story in accordance with CSA S350-M.
7. Provide protection around floor openings

Relocation of Salvaged Items:

1. Components of historical value i.e. cornerstones and their contents, commemorative plagues, tablets and similar objects remain property of the Owner. Store in areas designated by the Owner.
2. Carefully remove, store, protect and re-install where applicable existing materials and equipment noted on Drawings to be retained and relocated. Relocate items to be retained and store them in areas directed by the Owner. In addition to items indicated in Drawings, Owner still reserves the right to retain any items or materials.
3. Coordinate for removal, relocation and reinstallation of mechanical and electrical items.

Disposal of Waste Materials

1. Clear away dirt, rubbish and loose litter resulting from Work of this Section, minimum daily. Keep dust to a minimum. Maintain roadways, lanes, street sidewalks, stairways and elevators in the vicinity of the premises safe and clear.
2. Selling or burning of materials on site is not permitted.
3. Conform to requirements of municipality's Works department regarding disposal of waste materials.
4. Materials prohibited from municipality waste management facilities shall be removed from site and disposed of at recycling companies specializing in recyclable materials.
5. Any additional materials prohibited from waste management facilities shall be removed from site and disposed of to requirements of authorities having jurisdiction without any additional cost to Owner.

END OF SECTION

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

a. Conform to requirements specified under Division 1.

b. Refer to Doors and Frames Section 08150 for door and screen frame locations, types and required fire ratings, as shown on drawings.

c. Colour Schedule will be provided by the Consultant during the construction period.

1.2 SCOPE OF THE WORK

a. Supply and install all hollow metal doors, frames and screens.

b. Install all access doors as required – See Drawings.

c. Install all hardware supplied under Section 08710. Obtain templates from the hardware supplier for accurate shop fabrication.

1.3 SHOP DRAWINGS

a. Submit shop drawings in accordance with the requirements of Division 1.

b. Clearly indicate each type of door, material, thicknesses, mortises, reinforcements and location of exposed fasteners.

1.4 RELATION TO OTHER TRADES

a. Cooperate with other trades whose work is affected by this trade.

b. Coordinate schedule of installation with all related trades.

1.5 MEASUREMENTS

a. All items fitting to structural parts of the building must be fabricated from measurements taken on the Site and verified from the work as it is built.

1.6 STANDARDS

a. Unless specified otherwise, steel door and frame construction shall conform to the Canadian Manufacturing Standards recommended by the Canadian Steel Door & Frame Manufacturer's Association.

1.7 GUARANTEE

a. Steel doors are to be guaranteed against defects for a period of three (3) years from the date of Substantial Completion of the contract.

b. Any door found to be defective or unfit for use under normal conditions must be replaced free of charge by the manufacturer.

PART 2 PRODUCTS

2.1 MATERIALS

a. Hollow Metal Doors, Frames and Screens:

Shall be as manufactured by Artek, Baron, Daybar, Fleming, or Trillium Steel Doors or as approved in conformance with the following specifications:

.1 All materials shall be new and in perfect condition, free from defects impairing strength, durability, or appearance. All anchors, straps and shapes for steel frames shall be of hot rolled structural steel. All exposed metal fastenings and accessories shall be of the same material, texture, colour and finish as the base metal to which it is applied.

b. Hollow Metal Frames and Screens:

.1 Sheet steel shall be of minimum 1.5mm (.06") core thickness and conform to hot rolled commercial grade to ASTM A569-72 with a zinc coating designation of ZF075. All floor anchors, channel spreaders and wall anchors shall be of a minimum 1.5mm (.06") core thickness.

.2 Frames shall be of welded construction as per details on drawings. All mitres shall be neatly welded and dimensions shall accommodate the various finishes on partitions.

.3 Frames which are to be installed in masonry walls shall be equipped with not less than six wall plate anchors to suit the various wall conditions shown on details.

.4 Frames which are to be installed in steel stud partitions shall have base plates designed with two anchor holes to prevent rotation, anchorage to floor shall be by two power driven anchors or equivalent per plate. Four jamb anchors shall be provided on each jamb, welded to trim returns.

.5 Provide jamb anchors to suit the partition system manufacturer's detail for stud and frame anchorage.

.6 Provide to all frames for doors and hollow metal frames 914mm (36") or wider occurring in steel stud partitions, two 1.5 (16 gauge) full height studs at each jamb, and one 1.5 mm (16 gauge) stud at head to support

.7 Latch side of all frame rebates shall be fitted with two rubber bumpers. Remove all bumpers from frames if required, previous to doors and frames being finished and reinstalled when finishes have completely dried.

.8 Screws are to be self-tapping type with flat countersunk heads.

.9 Labelled frame assemblies shall be provided for all openings requiring fire protection ratings including all door frames, door frames with transoms or sidelights, view windows, etc., or any combination thereof. Such frame assemblies shall be constructed as tested and approved by the Underwriter's Laboratories of Canada.

.10 Frames manufactured from C.R.S. shall be chemically treated for good paint

adhesion and shop coated with a corrosion resistant steel primer. Frames manufactured from zinc coated steel shall have a factory applied touch up at welded areas where coating has been removed due to disc sanding.

.11 Weld in place all frame back boxes, provided by 08710, for electric hardware. Boxes shall be centered around the electric hardware preparation.

.12 Provide W conduit to all electric hardware locations in mullions and mid-rails. Coordinate exact locations with Section 08710.

.12 Provided full height, lOg reinforcing, welded 6" on centre for any frames in which continuous hinges will be used. The reinforcement shall be covered with a 1/2" thick mortar guard for frames located in concrete or masonry walls.

c. Hollow Metal Doors:

.1 Hollow metal doors shall be of dimensions and fire ratings noted on the Door Schedule.

.2 Doors shall be hollow steel construction having each face of the door formed from sheet steel of minimum 1.5mm (16 gauge) core thickness commercial grade cold rolled to ASTM A-366 Class I with ZF075 zinc coating. Longitudinal joints shall be welded, dressed and filled. Top and bottom of the doors may be either welded flush or be closed with recessed spot welded channel and closures. Doors shall be vertically stiffened with stiffeners spot welded to face sheets at a maximum of 152mm o.c. Fill all voids with semi-rigid fibreglass insulation with minimum density of 24 kg/m conforming to CSA A101-1975, Type 1A.

.3 Labelled doors shall be provided for those doors requiring fire protection ratings as shown on the Door Schedule. Such doors shall be constructed as tested and approved by the Underwriter's Laboratories of Canada.

.4 Channel type wrap-around glazing detail will be acceptable. Formed channels glazing bead shall be minimum 16mm high.

.5 All doors shall be reinforced, mortised, drilled and tapped to receive templated hardware and reinforced for surface mounted hardware.

.6 All components are to be assembled by means of adequate spot welding or arc welding tin accordance with current C.S.A. Standard W59 to provide a finished door, square and true and free from defects and distortions.

.7 Exterior doors shall have extended P.V.C. flush cap closing off head rail conforming to CGSB 41-GP-19Ma.

d. Hardware Reinforcing:

Hinges	10 ga. hi-frequency
Continuous Hinges	10 ga. full height edge to suit "adjusta-screw" fasteners
Lock	14 ga. lock box (86 edge) with centering clips
Exit Device	14 ga. reinforcing boxes
Closer	14 ga. 4W integral reinforcing box

HII doors to be reinforced and prepped for electric door hardware. Provide internal door raceways and pull strings thru W diameter conduit to necessary hardware locations.

e. Primer:
Shall conform to the current CGSB Standard 1-GP-181M.

f. Glazing Stops:
.1 Shall be minimum 0.912mm (20 GA) steel with a minimum zinc coating of 76.3 Gm/m2 conforming to ASTM A526.

PART 3 EXECUTION

3.1 STEEL FRAME FABRICATION

a. Form frames in accordance with details, approved shop drawings, and ULC requirements.

b. Mortise, reinforce, drill and tap frames and reinforcements to receive hardware using templates provided.

c. Protect strike and hinge reinforcement completely by guard boxes welded to frame.

d. Weld in two temporary channel spreaders per frame to ensure proper frame alignment.

e. Where frames terminate at finish floor, provide floor plates for anchorage to structural slab.

f. Cut mitres accurately and weld continuously on inside of frame profile.

g. Grind welded corners to a flat plane, fill with metallic paste filler and sand to a uniform smooth finish.

h. Fill surface depressions and butted joints with metallic paste filler and sand to a uniform smooth finish.

i. Reinforce heads of frames wider than 1219 mm (4'0") with 3.4mm (10 GA) reinforcing.

j. Provide ULC labels on frames for fire-rated doors.

k. Removable glazing stops shall be screw-fixed with countersunk heads.

l. Touch up frames by priming areas where galvanizing is damaged prior to delivery.

3.2 STEEL DOOR FABRICATION

a. Construct doors in accordance with reviewed shop drawings and ULC requirements.

b. Make provisions for grilles and glass and provide necessary glazing stops. Removable glazing stops shall be screw-fixed with countersunk heads.

c. Undercut doors where shown on Door Schedule.

d. Touch up doors with primer where galvanized finish is damaged during fabrication.

e. Provide astragals for pairs of doors in accordance with ULC requirements.

f. Provide ULC labels for all fire-rated doors.

3.3 FRAME INSTALLATION

a. Set frames plumb, square, level, free from warp, twist and superimposed loads and at correct elevation.

b. Secure anchorages and connections to adjacent construction, in a manner not restricting thermal movement. Final anchor settings after alignment.

c. Brace frames solidly in position while being built-in. Install a temporary horizontal wood spreader at mid-height of door opening to maintain frame width until adjacent work is completed. For frames over 1219mm (4'-0") in width, provide temporary vertical support at center of head. Remove temporary spreaders and supports only after completion of adjacent work.

d. Fill first core of concrete masonry units adjacent to door jambs solid with concrete mortar. Fill jambs and head of all hollow metal frames, which occur in concrete masonry unit partitions, with concrete mortar.

e. Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.

f. Door frames and screen frames 914mm (3'4') wide or greater installed in metal stud framed partitions are to be braced in accordance with the "Door Frame and Screen Bracing Detail" located in Appendix 'A' of this Section.

g. Install hardware in accordance with templates and hardware manufacturer's instructions.

h. Adjust operable parts for correct function.

3.4 DOOR INSTALLATION

a. Install doors and hardware in accordance with hardware templates and manufacturer's instructions.

b. Adjust operable parts for correct function.

c. Install grilles where indicated.

3.5 WORKMANSHIP

a. All workmanship shall be first-class in every way, the various parts of the work being accurately fitted and fabricated with surfaces free from warp, wave, buckle or other defects.

3.6 CLEAN-UP

a. At completion of work of this Section, remove all tools, equipment, surplus materials and debris from Job Site.

END OF SECTION

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

a. Division 1, General Requirements, is a part of this Section and applies to this Section.

b. All firms bidding this work must be members of the Door and Hardware Institute and have in their employ at least one architectural hardware consultant (AHC) as certified by the Door and Hardware Institute.

1.2 SCOPE OF THE WORK

a. The hardware supplier shall furnish and deliver to the project all items of architectural finishing hardware specified herein. The hardware supplier shall supply and install the access control system and electrical hardware items including, but not limited to, card readers, controllers, automatic door operators, electric exit devices, electric locksets, current transfer devices, integration modules, key switches, monitor strikes, maglocks, low voltage wire and power supplies. All low voltage termination and commissioning shall be completed by the hardware supplier to provide a single source, single responsibility of the complete swing door opening.

The hardware supplier will be required to provide to the general contractor five complete sets of riser and schematic wiring diagrams for all electrical hardware components. Schematic diagrams must be reviewed and signed by an electrified hardware consultant (EHC) as certified by the Door & Hardware Institute and must be approved by the consultant prior to the commencement of any work.
The hardware supplier shall meet with the contractor, sub-contractors and the owner's representative to instruct and co-ordinate the supply and installation of all electrical hardware components.

b. Work performed by other sections and which is related to this section is specified in:

Section 08150: Doors and Frames

1.3 QUALITY ASSURANCE

a. Regulatory Agencies:

.1 Supply only hardware as required by jurisdictional codes.
.2 Install only U.L.C. or U.L.I. listed hardware for fire rated construction.
.3 Install only U.L.C. and/or C.S.A. listed electrical components.

1.4 SUBMITTALS (Digital copies and hard copies)

a. Samples:
Submit samples of each hardware item.

b. Templates:
Submit templates to Contractor for use by fabricators and installers.

c. Maintenance and Operating Hardware:

Submit maintenance, and operating and installation instructions for installation requirements and for incorporation into Project Data Books.

d. Schedules:

.1 The hardware supplier shall submit three (3) copies of the hardware schedule to the Consultant through the general contractor for review. After the Consultant's review, supply the required number of hardware schedules to the necessary trades/suppliers including coordination with mechanical and electrical components of the work. If requested by the Consultant, samples on material to be supplied shall be forwarded to the Consultant for his use until the job's completion.

2. Submit the specified number of copies of the final hardware schedule for incorporation into the Project Data Books as described in the Contract Closeout subsection of Section 01700, Contract Closeout.

e. Electrical Riser and Schematic Diagrams:

Submit three (3) copies of electrical riser, elevation and wiring schematic drawings for approval prior to installation. Provide as-built diagrams for inclusion in the Project Data Books.

1.5 DELIVERY, STORAGE AND HANDLING

a. Package hardware in protective coverings and label each piece with a description of contents and location of installation. Refer to approved finishing hardware schedule and to door number where applicable.

b. Deliver all hardware to building site and to the location as designated by Contractor with the exception of hardware to be installed in finish carpentry, custom woodwork and millwork which shall be delivered to the premises of the fabricator for shop installation.

PART 2 PRODUCTS

2.1 MATERIALS

a. This Section will include the supply of finishing hardware and the supply and installation of the access control system and all electric door hardware.

b. Finishing hardware fabricated of the same material shall be consistent in colour and finish throughout.

d. Supply all necessary screws, bolts, expansion shields, inserts and other items and of same finish and colour as required for a complete installation and for proper functioning.

e. The final Finishing Hardware Schedule shall be forwarded for coordination with mechanical and electrical components of the work.

PART 3 EXECUTION

3.1 EXAMINATION

a. Before supplying any materials, check all Contract Documents, shop drawings, field dimensions and site conditions and other details for this Project to ensure that listed hardware is suitable for intended use and application. Inform the Consultant of any inaccuracies or discrepancies.

3.2 INSTALLATION

a. Provide instruction and templates to fabricators and to installers.

b. Provide assistance and supervision of installations.

c. Doors are to be installed and shimmed to provide 1/8" tolerance between the door and frame ant the head and jambs. Frames installation must be corrected to be square and plumb prior to door and hardware installation. Tolerances must be within guidelines set forth by the Canadian Steel Door & Frame Manufacturer's Association

3.3 ADJUSTMENT

a. Verification:

.1 Verify that the installed hardware functions properly.

.2 Instruct installers of requirements and procedures for adjustments.

.2 Provide a written inspection report for all hardware installation deficiencies.

END OF SECTION

PART 1 – GENERAL

1.1 GENERAL INSTRUCTIONS

.1 Read and be governed by conditions of the *Contract* and sections of Division 1.

1.2 SECTION INCLUDES

.1 Metal support systems for gypsum board partitions as indicated.

1.3 QUALITY ASSURANCE

.1 Retain a Professional Engineer registered in the *Place of the Work* to design the work of this section; to prepare, seal and sign shop drawings; and to perform field review. Shop drawings shall show both design and installation requirements.

.2 Qualifications: *Provide* work of this section, executed by a *Subcontractor* with minimum 5 years experience in application of *Products*, systems and assemblies specified and with approval and training of *Product* manufacturers.

.3 Fire resistance rating: Where gypsum board systems with fire resistance ratings are indicated or required, provide materials and installations that are identical with those of applicable assemblies tested by fire testing laboratories acceptable to authorities having jurisdiction.

.4 Reference Standards:

.1 Applicable requirements of ASTM C754-09a for installation of steel framing.

.5 Conduct quality control in accordance with Division 1. Inspection and testing company may perform random load tests for ceiling anchor installation.

1.4 SUBMITTALS

.1 Submit required submittals in accordance with Division 1.

.2 *Product* data sheets:

.1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this section, including additional data as may be required to demonstrate compliance with the *Contract Documents*.

.3 Test results:

.1 Submit certified test results for each required fire resistance rated assembly for work of this section.

.4 Shop drawings; for engineered interior metal support systems:

.1 Shop drawings shall be engineered.

.2 Submit design for metal support systems at interior locations where noted as engineered.

1.5 DESIGN REQUIREMENTS FOR ENGINEERED INTERIOR METAL SUPPORT SYSTEMS

.1 Design system members to withstand own dead load, super-imposed dead loads, to maximum allowable deflection of L/240, without permanent deformation.

.2 Loads on walls acting as guards: Where the floor elevation on one side of a wall, including a shaftwall, is more than 600 mm (24") higher than the elevation of the floor or ground on the other side, the wall shall be designed to resist the lateral design loads prescribed in the building code or 0.5 kPa (0.07 PSI), whichever produces the greatest effect.

.3 Metal support systems shall be engineered where indicated in *Contract Documents* as "engineered" or "structural". Horizontal framing of ceilings shall be engineered. Indicated framing depths are maximum permitted unless approved otherwise by *Consultant*.

1.6 FIRE RESISTANCE RATED ASSEMBLIES

.1 Materials for fire resistance rated construction shall conform to requirements of indicated fire resistance rated assembly.

PART 2 – PRODUCTS

2.1 GENERAL

.1 For sheet metal *Products*: Sheet metal thickness indicated herein pertains to the “minimum base steel thickness exclusive of coating”.

2.2 PARTITION SUPPORT MATERIALS

.1 Interior non-loadbearing channel stud framing: to ASTM C645-09a; roll formed from 0.455 mm (0.0179”) minimum thickness unless otherwise indicated, electro-galvanized steel sheet. Provide service holes starting at 450 mm (18") from bottom, then 914 mm (36") on centre to top of studs.
  .1 Steel studs; at backer plate locations: 0.752 mm (0.0296”) minimum thickness.

.2 Interior engineered metal stud framing: to ASTM C645-09a; as indicated; roll formed from 0.836 mm (0.0329”) minimum thickness unless otherwise required electro-galvanized steel sheet. Provide service holes starting at 450 mm (18") from bottom, then 914 mm (36") on centre to top of studs.

.3 Interior floor and ceiling tracks (runners): to ASTM C645-09a; in widths to suit stud sizes.
  .1 Metal thickness: to match studs.
  .2 For openings wider than 914 mm (36"), provide 0.752 mm (0.0296”) minimum thickness for header.

.4 Runner fasteners:
  .1 To concrete and masonry: Use stub nails or power-driven fasteners.
  .2 To metal concrete inserts: Use 10 mm (3/8") Type S-12 Pan Head screws.
  .3 To suspended ceilings: Use prefinished clips to match ceiling grid, as manufactured by CGC.

.5 Bracing channels: Minimum 19 mm x 10 mm x 1.087 mm (3/4" x 3/8" x 0.0428") cold rolled galvanized steel.

2.3 FURRING

.1 Furring channels: 0.455 mm (0.0179”) minimum typical thickness, cold rolled steel, wiped coated, nominal size of 22 mm (7/8") depth x 35 mm (1-3/8") face, hat type with knurled face.

.2 Resilient furring channels: ‘RC-1 Resilient Channel’ as manufactured by Canadian Gypsum Company or ‘Resilient Channel’ as manufactured by Nicholson Rollforming or Bailey Metal.

.3 Z-furring members: Manufacturer's standard screw type galvanized steel, z-shaped furring members; ASTM A653/A653M-06a, G60, 0.752 mm (0.0296”) minimum thickness of base metal, of depth indicated, designed for mechanical attachment of insulation boards or blankets.

.4 Fasteners for furring members: Type and size recommended by furring manufacturer for substrate and application indicated.

2.4 ACCESSORIES

.1 Backer plates:
  .1 Metal backer plates: Steel, galvanized; minimum 150 mm (6") wide x 1.367 mm (0.0538”) minimum x lengths to suit size of items to be attached; fastened to studs for attachment of surface mounted fittings and accessories.
  .2 Plywood backer plates: Softwood plywood; 19 mm (3/4") minimum x lengths to suit size of items to be attached; fastened to studs for attachment of surface mounted fittings and accessories.
  .3 Elimination of backer plates or direct attachment of accessories or equipment to studs will not be permitted.

PART 3 – EXECUTION

3.1 INSTALLATION GENERAL

.1 Comply with ASTM C754-09a and manufacturer's instructions, except as modified herein. Do not bridge building expansion joints with support system. Frame both sides of joints with furring and other supports as indicated.

.2 Provide and install studs, framing, shimming, and furring to provide proper support for gypsum board to achieve the following installation tolerances:
  .1 Do not exceed 3 mm (1/8") in 3 m (10') variation from plumb, level, and plane.
  .2 Do not exceed 10 mm (3/8") from drawings locations.
  .3 Do not exceed 1.5 mm (1/16") variation between planes of abutting edges or ends.
  .4 Install each framing member so fastening surfaces vary not more than 3.2 mm (1/8") from the plane formed by faces of adjacent framing
.3 Give complete cooperation and direction to trades erecting framing and furring over which this work is applied. Coordinate finished joint location with framing.
.4 Coordinate installation and cooperate with mechanical and electrical work to accommodate mechanical electrical items and any other work required to be incorporated into or coordinated with the partitions, ceiling and soffit systems.
  .1 Where the presence of suspended ductwork or other mechanical or electrical services or devices above ceiling framing conflicts with ceiling framing suspension points from structure above, provide bridging framing below conflicting work as required to support ceiling framing on specified intervals.
  .2 Do not suspend ceiling framing from mechanical or electrical suspension systems unless agreement is obtained in writing from engineer for *Subcontractor* installing such framing that additional imposed loads are acceptable; obtain *Consultant's* acceptance before proceeding.
.5 Provide clearances between work of this section and structural elements to prevent transference of structural loads.
.6 Do not bridge building expansion joints with steel framing or furring members. Independently frame both sides of joints with framing of furring members or as indicated.
.7 Size framing systems according to manufacturer's engineered load tables, to meet allowable deflection without permanent deformation.
  .1 Maximum allowable deflection: L/240.
  .2 Maximum allowable deflection for tiled partitions: L/360.

3.2 BLOCKING

.1 Attach to framing adequate backer plates to support the load of, and to withstand the withdrawal and shear forces imposed by items installed upon the work of this section.

3.3 FURRING - GENERAL

.1 Furring indicated in *Contract Documents* is schematic. Do not regard as exact or complete. *Provide* all necessary framing and furring to support gypsum board in accordance with manufacturers' specifications.
.2 Shim furring as required to achieve required installation tolerances.
.3 Leave finished work rigid, secure, square, level, plumb, curved to detailed radius and erected to maintain finish gypsum board line dimensions and contours. Make allowance for thermal movement.
.4 Thermally separate metal studs from exterior concrete or masonry.

3.4 WALL FURRING

.1 Install steel furring for braced walls, free standing walls, walls that are furred out as indicated.
.2 Frame openings and around built-in equipment, cabinets, access panels, on 4 sides, with channels. Extend furring into reveals. Check clearances with equipment suppliers.
.3 *Provide* bulkheads and boxed-in duct shafts, for beams, columns, pipes and around exposed services where indicated. Install 19 mm (3/4") channels at corners and at 305 mm (12") on centre.

3.5 RESILIENT FURRING

.1 Erect gypsum board resilient furring maximum 610 mm (24") on centre and not more than 150 mm (6") from ceiling/wall juncture. Secure to each support with 25 mm (1") gypsum wallboard screw.
.2 Install 150 mm (6") continuous strip of 12.7 mm (1/2") gypsum board along base of partitions where resilient furring installed.
.3 *Provide* resilient furring channel transverse to framing members, or as indicated.

3.6 METAL STUD PARTITION FRAMING

.1 Provide partition tracks (runners) at floor and underside of structural assembly and as follows:
  .1 Align accurately and lay out according to partition layout.
  .2 Secure runners to concrete access flooring and to concrete slabs, as applicable, with screwed or shot fasteners located 50 mm (2") from each end and spaced at maximum 610 mm (24") on centre.
  .3 At partition corners, extend one runner to end of corner and butt other runner to it, allowing necessary clearance for gypsum board thickness. Runners should not be mitred.

.2 Unless otherwise indicated, place interior studs vertically at centres as follows:
  .1 *Provide* studs at 400 mm (16") on centre, and as specially spaced in accordance with details indicated.
  .2 *Provide* studs not more than 50 mm (2") from abutting walls, openings and each side of corners.
  .3 *Provide* freedom for 19 mm (3/4") deflection under beams, structural slabs and the like to avoid transmission of structural loads to studs or install 50 mm (2") leg ceiling tracks.

.3 Install studs in tracks at floor and ceiling.

.4 Where horizontal runs of service lines are scheduled to be installed, arrange with applicable trades and install studs simultaneously with services.

.5 At openings in stud walls, erect track at head and sills to accommodate intermediate studs. At each end of track, cut out flanges, turn up web, and fasten to studs. Install intermediate studs above and below openings in same manner and spacing as wall studs. Install double studs at each jamb, and double tracks at head of door openings.

.6 At partitions requiring fire rating, erect in accordance with requirements of listing.

.7 Size studs, connections, and runners to carry loads according to stud manufacturer's load tables, at 24 kg/m2 (5 lb/ft2) live load to meet maximum allowable deflection limits. Where depth of stud is indicated, size metal thickness to meet allowable deflection limits.

.8 *Provide* three studs at corner and intermediate intersections of partitions.

.9 Coordinate work with others installing horizontal runs of service lines so that work is done simultaneously. Where standard holes are too small for installed services, notch studs, and splice notched flanges with splice pieces 305 mm (12") longer than notches, each fastened with 2 screws.

.10 *Provide* metal studding to maximum tolerance of 3 mm in 3 m (1/8" in 10 ft).

.11 Coordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.

.12 Coordinate erection of studs with installation of door/window frames and special supports or anchorage for work specified in other sections.

.13 Unless otherwise indicated, partitions, together with gypsum board facings, shall extend above ceilings to underside of structure above.

.14 Maintain clearance to avoid transference of structural loads to studs.

.15 Chase walls:
  .1 *Provide* chase walls where indicated, consisting of two parallel steel stud partitions.
  .2 *Provide* cross bracing consisting of metal furring, located at quarter points on each pair of studs. Attach cross bracing to studs with metal screws. Coordinate construction of partitions to suit installation of services.

.16 Lateral support bracing channels:
  .1 Stiffen partitions over 3 m (10') in vertical span, at mid-height to maximum vertical spacing of 2440 mm (8') on centre, with at least one 19 mm (3/4") horizontal bracing channel, extending full length of partition, overlapping at least two stud spaces at ends of bracing channels.
  .2 Stiffen partitions at not more than 150 mm (6") from the top and bottom of openings and across two full stud spaces at each side of openings with horizontal bracing channel.

END OF SECTION

PART 1- GENERAL

1.1 GENERAL INSTRUCTIONS

.1 Read and be governed by conditions of the *Contract* and sections of Division 1.

1.2 SECTION INCLUDES

.1 Gypsum board; plain.
.2 Gypsum board; fire-rated.
.3 Water resistant backing board; paper faced gypsum.
.4 Gypsum board accessories and miscellaneous related materials.

1.3 QUALITY ASSURANCE

.1 *Subcity*
executing the work of this section shall have a minimum of 10 years continuous experience in successful installation of work of type and quality indicated and specified.
.2 Single source responsibility: Obtain gypsum board products from a single manufacturer, or from manufacturer's recommended by the prime manufacturer of gypsum boards.
.3 Fire resistance rating: Where gypsum board systems with fire resistance ratings are indicated or required, provide materials and installations that are identical with those of applicable assemblies tested by fire testing laboratories acceptable to authorities having jurisdiction.

1.4 SUBMITTALS

.1 Submit required submittals in accordance with Division 1.
.2 *Product* data sheets:
  .1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this section.
.3 Fire-rated assembly listings:
  .1 Submit fire-rated assembly listings for each required fire resistance rated assembly for work of this section.

1.5 ENVIRONMENTAL REQUIREMENTS

.1 Environmental requirements, general: Comply with requirements of referenced gypsum board application standards and recommendations of gypsum board manufacturer, for environmental conditions before, during and after application of gypsum boards.
.2 Cold Weather Protection: When ambient outdoor temperatures are below 12°C maintain continuous, uniform comfortable building working temperatures of not less than 12°C for a minimum period of 48 hours before, during and following application of gypsum board and joint treatment materials or bonding of adhesives.
.3 Ventilation: Ventilate building spaces as required to remove water in excess of that required for drying of joint treatment material immediately after its application. Avoid drafts during dry, hot weather to prevent too rapid drying.
Protection: *Provide* adequate protection of materials and work of this section from damage by weather and other causes. Protect work of other trades from damage resulting from work of this section. Make good such damage at no additional cost to the *Owner*.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Store materials in protected dry areas. Store gypsum board flat in piles with edges protected.
.2 Ensure that finish metal members are not bent, dented, or otherwise deformed.
.3 Deliver *Products* supplied under the work of this section only to those who are responsible for installation, to the place they direct, and to meet installation schedules.
.4 Package fire rated materials with labels attached.

PART 2 – PRODUCTS

2.1 GYPSUM BOARD PANELS

.1 Plain gypsum board: Paper faced gypsum core panel solid set core enclosed in paper, 12.7 mm (1/2") or 16 mm (5/8") thick unless otherwise indicated, 1220 mm (48") wide x maximum practical length, ends square cut, tapered edges, to ASTM C1396/C1396M-06a.

.1 Acceptable *Products*:

.1 CertainTeed 'ProRoc Regular Gypsum Board'.
.2 CGC 'SHEETROCK Gypsum Panel, Regular'.
.3 Georgia-Pacific 'ToughRock Gypsum Board'.
.4 Lafarge 'Gypboard'.
.5 National Gypsum 'Gold Bond Gypsum Board'.

.2 Fire-rated gypsum board: Paper faced gypsum core panel with a specially formulated core for use in fire-resistive Type X or Type C designs, to ASTM C1396/C1396M-06a.

.1 Acceptable *Products*:

.1 CertainTeed 'ProRoc X and C'.
.2 CGC 'SHEETROCK Firecode and Firecode C'.
.3 Georgia-Pacific 'ToughRock Fireguard and Fireguard Gypsum Board'.
.4 Lafarge 'Firecheck C and X'.
.5 National Gypsum 'Gold Bond Fire-Shield and Fire Shield C Gypsum Board'.

.3 Water resistant gypsum backing board (greenboard), wall applications: Paper faced gypsum core panel with enhanced water and water resistant paper facers to ASTM C1396/C1396M-06a, fire rated where indicated.

.1 Acceptable *Products*:

.1 CertainTeed 'ProRoc Moisture Resistant'.
.2 CGC 'SHEETROCK Water Resistant'.
.3 Georgia-Pacific 'ToughRock Moisture-Guard'.
.4 Lafarge 'Watercheck and Fire Watercheck'.

2.2 FASTENERS

.1 Screws; for gypsum board: bugle head, fine thread, self-tapping, Type W or S or S-12 point to suit framing type and metal gauge, with corrosion resistant finish to ASTM C1002-04/ASTM C954-10. Screw sizing:

.1 #6 x 25 mm (1") for single thickness board fastening.
.2 #6 x 32 mm (1-1/4") for single thickness 15.9 mm (5/8") board fastening.
.3 #7 x 41 mm (1 5/8") for double thickness board fastening.

.2 Tie wire: 1.6 mm (0.063") diameter galvanized soft annealed steel wire.

2.3 ACCESSORIES

.1 Accessories: to ASTM C1047-10a unless otherwise indicated, maximum length pieces per location. Flanges shall be free from dirt, grease, or other material that adversely affects the bond of joint treatment or decoration.

.2 Casing trim; "L" or "LC" beads: Bailey D200 and 4411, Nicholson Rollforming Metal Trim 200-A and 200-B fillable edge trim, 0.55 mm (0.022") base thickness commercial grade sheet steel with zinc wiped coating to ASTM A653/A653M-06a; perforated flanges.

.3 Corner bead: Bailey D100, Nicholson Rollforming No. 114, fillable edge trim, 0.55 mm (0.022") base thickness commercial grade sheet steel with zinc wiped coating to ASTM A653/A653M-06a; perforated flanges.

.4 Control joints:

.1 No. 093 Zinc Control Joint by CGC Inc. or approved alternate, certified by manufacturer for use at fire resistance rated assemblies.

2.4 RELATED SUPPORT ASSEMBLIES AND BACKER PLATES

.1 Wind bearing metal studs at wind bearing exterior assemblies:

.2 Metal support systems and backer plates at interior assemblies: in accordance with Section 09100.

2.5 JOINT AND ADHESIVE MATERIALS

.1 Joint compound:
- .1 Gypsum board work: asbestos-free. Latex resin base, possessing good adhesion, mixed with fresh, unadulterated water having no detrimental effect on compounds, to ASTM C475/C475M-02(2007); type recommended by manufacturer for application indicated.
- .2 Gypsum board to receive tile finish: setting-type powder based joint finishing compound. 'Durabond' by CGC or approved alternate.

.2 Joint reinforcing tape:
- .1 Gypsum board: 50 mm x 0.3 mm (2" x 0.01") thick, perforated paper, with chamfered edges.

PART 3 EXECUTION

3.1 INSTALLATION

.1 General: Comply with ASTM C840-08, GA-216, GA-600, and manufacturer's instructions, except as otherwise indicated. Do not bridge building expansion joints with support system. Frame both sides of joints with furring and other supports as indicated.

.2 Install exposed gypsum board with face side out. Do not install imperfect, damaged or damp boards. Butt boards together for a light contact at edges and ends with not more than 1.6 mm (1/16") open space between boards. Do not force into place.

.3 Cover both faces of stud partition framing with gypsum board in concealed spaces (above ceiling, and the like) unless otherwise indicated, except in chase walls which are properly braced internally.

.4 Attach gypsum board to supplementary framing and blocking provided for additional support at openings and cut-outs.

.5 Securely attach trim, casings, framing, and accessories.

.6 Apply components of fire-rated assemblies in conformance with indicated designs.

.7 Erect materials to dimensions indicated, plumb, level, straight, and square to adjoining elements.

.8 Do not apply gypsum board in close proximity to hot pipes or heating ducts.

.9 Install materials with the minimum number of joints. Tightly butt joints, without force, and neatly align them.

.10 Frame openings on every side. Provide clearances with services.

.11 Work shall include bulkheads over doors, frames, screens, and changes in ceiling levels, pipe space and as indicated.

.12 Provide clearances between work of this section and structural elements to prevent transference of structural loads in accordance with Section 09100.

.13 Tolerances:
- .1 Do not exceed 3 mm (1/8") in 3 m (10') variation from plumb, level, and plane in exposed surfaces, except at end joint between gypsum board panels.
- .2 Do not exceed 10 mm (3/8") from indicated location.
- .3 Do not exceed 1.5 mm (1/16") variation between planes of abutting edges or ends.
- .4 Surface flatness shall not exceed 1.5 mm (1/16") within 305 mm (12") straight edge. For non-tapered-edge end joints between boards, measure flatness tolerance with end of straight end at centreline of joint.

3.2 ACCESSORIES

.1 At external corners install corner trim secured to framing at 230 mm (9-1/16") on centre on both flanges with screw fasteners or clinch tool.

.2 Secure casing trim at board edges where exposed to view, where board butts against other materials with no trim to conceal junction, at perimeter of ceiling surfaces at tops of partitions where they stop against continuous ceiling surfaces, and where indicated.

.3 Erect accessories straight, plumb or level, rigid and at proper plane.
.4 Use full length pieces.
.5 Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners, free from rough edges. Secure in accordance with manufacturer's specifications unless otherwise required.
.6 Installation tolerances:
  .1 Alignment with board panels shall not exceed tolerances specified above.
  .2 End joints shall be flush aligned to maximum offset of 0.5 mm (0.020”).

3.3 BOARD APPLICATION - GENERAL

.1 Before application of gypsum board commences, ensure that internal services have been installed, tested, and approved; that conduits, pipes, cables, and outlets are plugged, capped, or covered; and that fastenings and supports installed by others are in place.
.2 Extend board into door, window, and other openings, reveals, behind fitments, and other applied items and on metal stud partitions to structure above unless indicated otherwise.
.3 Apply board with long dimension perpendicular to supports, unless otherwise indicated.
.4 Locate joints on opposite sides of partitions on different studs, and at least 305 mm (12") from opening jambs.
.5 Install board to minimize joints and align end joints to be the least objectionable (where they are unavoidable), according to the indicated lighting design. Locate joints in ceilings where least prominently discerned, and never line them up with opening edges.
.6 Form smooth joints at ends and at field cut edges of board panels.
.7 Fasten board to metal support members by metal gypsum board screws, 9.5 mm (0.374") minimum to, and 12.7 mm (1/2") maximum from, center of joints. Space screws:
  .1 At fire rated board as per fire-rated assembly.
  .2 At typical board walls at 400 mm (16") on centre at edges and field unless otherwise required.
  .3 At typical board ceilings at 305 mm (12") on centre at edges and field unless otherwise required.
.8 Offset gypsum board joints 150 mm (6") minimum from corners of openings.
.9 Gypsum panel product joints shall be located so that no joint will align with the edge of an opening unless control joints are to be installed at these locations.

3.4 WATER RESISTANT GYPSUM BOARD APPLICATION

.1 Apply water resistant sealant to edges, ends, cut-outs which expose gypsum core and to fastener heads. Do not apply joint treatment on areas to receive tile finish.

3.5 FINISHING

.1 Interior gypsum board:
  .1 Prefill:
    .1 Use setting-type joint compound. Mix joint compound according to manufacturer's directions.
    .2 Fill joints between boards flush to top of eased or beveled edge.
    .3 Fill joints of gypsum board above suspended ceilings in fire rated partitions.
    .4 Wipe off excess compound and allow compound to harden.
    .5 Joint gaps not greater than 3.2 mm (1/8") shall be prefilled with either ready-mix or setting type joint compound; joint gaps greater than 3.2 mm (1/8") shall be prefilled with setting-type joint compound.
  .2 Taping (Level 1):
    .1 Butter taping compound into inside corners and joints.
    .2 Center tape over joints and press down into fresh compound.
    .3 Remove excess compound.
    .4 Tape joints of gypsum board above suspended ceilings.
  .3 First coat (Level 2):
    .1 Use taping or all-purpose drying-type compound.

.2 Immediately after bedding tape, apply skim coat of compound and allow to dry completely in accordance with manufacturer's instructions.
.3 Apply first coat of compound over flanges of trim and accessories, and over exposed fastener heads and finish level with board surface.
.4 Fastener heads and accessories shall be covered with 1 coat of joint compound.

.4 Second coat (Level 3): After first coat treatment is dried, apply second coat of compound over tape and trim, feathering compound 50 mm (2") beyond edge of first coat.
.1 Fastener heads and accessories shall be covered with total of 2 separate coats of joint compound.

.5 Third coat (Level 4):
.1 After second coat has dried, sand surface lightly and apply thin finish coat to joints, fasteners and trim, feathering compound 50 mm (2") beyond edge of second coat.
.2 Allow third coat to dry. Apply additional compound, and touch-up and sand, to provide surface free of visual defects, tool marks, and ridges, and ready for application of finish.
.3 Finished joints will be accepted with a camber not greater than 1 mm (1/32") and shall be seamless, plumb, true and flush and with square, neat corners.
.4 Fastener heads and accessories shall be covered with total of 3 separate coats of joint compound.
.5 Where new partitions align with existing gypsum board, apply required amount of skim coats to make transition inconspicuous from a distance of 914 mm (36”).
.6 Completed installation at interface between new and existing construction shall provide an inconspicuous joint.

.6 Skim coat (Level 5):
.1 After the fourth coat has dried, apply skim coat of topping or all-purpose drying-type compound over exposed surfaces of gypsum board.
.2 After skim coat has dried, touch-up and sand to provide surface free of visualdefects, tool marks, and ridges, and ready for application of finish.

.2 Water-resistant gypsum board: Treat fastener heads and joints with setting-type joint compound.
.1 For joints to be covered with tile, apply tape and joint compound bedding coat and skim coat only; do not apply finish coats.
.2 Do not crown joints or leave excess compound on panels.
.3 Remove tool marks and ridges.
.4 For fastener heads to be covered with tile, apply one coat of joint compound.

.3 Joint compound:
.1 Apply finish coat of compound feathering 75 to 100 mm (3” to 4”) beyond tape edges.
.2 Feather coats onto adjoining surfaces so that camber is maximum 0.79 mm (1/32”).

.4 Trim:
.1 Use same fasteners to anchor trim accessory flanges as required to fasten gypsum board to supports, unless otherwise recommended by trim manufacturer.
.2 Install metal corner beads at external corners.
.3 Install metal casing bead trim whenever edge of gypsum base would otherwise be exposed or semi exposed, and where gypsum base terminates against dissimilar material.
.4 Erect beads plumb or level, with minimum joints.

.5 Control joints:
.1 Provide control joints set in board facing. Support control joints with studs or furring channels on both sides of joint.
.2 Provide control joints in required locations.
.1 Review control joint locations with *Consultant* prior to installation.
.3 Full height door frames shall be considered equivalent to a control joint.
.4 Install control joints where a partition, wall, or ceiling traverses a construction joint (expansion, seismic or building control element) in the building structure.

.5 Install control joints where a wall or partition runs in an uninterrupted straight plane exceeding 9100 mm (30 linear feet).
.6 Install control joints in interior ceilings:
.1 With perimeter relief:
.1 Linear dimensions between control joints shall not exceed 15000 mm (50 ft) and total area between control joints shall not exceed 230 m² (2500 ft²).
.2 Without perimeter relief:
.1 Linear dimensions between control joints shall not exceed 9100 mm (30 ft) and total area between control joints shall not exceed 84 m² (900 ft²).
.7 Install control joints where ceiling framing members change direction.
.8 Where a control joint occurs in an acoustical or fire-rated system, blocking shall be provided behind the control joint by using a backing material such as 16 mm (5/8") type X gypsum panel products, mineral fibre, or other tested equivalent. Construct through-wall control joints at fire-rated assemblies in accordance with assembly listing requirements.
.9 Line up control joints with joints in other construction or with centre lines of mullions, columns, piers, or similar building elements, where accepted by *Consultant*.
.10 Install control joints straight and true.
.11 Ceiling height door frames may be used as control joints. Less than ceiling height frames shall have control joints extending to the ceiling from both corners. If control joints are not used, additional reinforcement is required at corners to distribute concentrated stresses.
.12 Board joints shall be located so that no joint will align with the edge of an opening unless control joints are to be installed at these locations.

.6 Construct light troughs and ceiling coves as indicated to profiles as shown and prepare to receive lighting fixtures supplied and installed where required.
.7 Gypsum wallboard column enclosure must be finished smooth, seamless, plumb, true and flush; having square, neat corners where rectilinear. Finished face of each side must be 90° to adjacent side unless indicated otherwise.

3.6 FIRE SEPARATIONS

.1 Install fire-rated assemblies in accordance with assembly listing requirements in order to obtain fire ratings indicated and as required by authorities having jurisdiction.
.2 Vertical bulkheads in ceiling spaces over fire rated partitions, doors and the like shall have same fire rating as the partition over which they occur. Such bulkheads shall be of gypsum board construction unless otherwise indicated.
.3 Use fire rated gypsum wallboard as specified.
.4 Where lighting fixtures, diffusers, and the like are recessed into fire rated ceilings or bulkheads, provide enclosure to maintain required fire rating. Form removable panel to give access to fixture outlet box.
.5 Where fire hose cabinets or other fixtures or equipment are recessed in fire rated walls or partitions, provide gypsum board enclosure or backing to maintain required fire rating, unless otherwise detailed.

3.7 ACCESS DOORS

.1 Install access doors to mechanical and electrical fixtures.
.2 Access doors shall be as per Mechanical and Electrical Drawings. Locations to be reviewed and confirmed by *Consultant*.
.3 Install access panels in locations to be determined by coordination with trades installing mechanical, electrical and other building services and consultation with *Consultant*.
.4 Rigidly secure frames to furring or framing systems.

3.8 SPECIAL CLEANING

.1 Remove debris and rubbish from wall and ceiling cavities before enclosing with board.

.2 Clean up and remove surplus materials and rubbish resulting from the work of this section upon completion.

.3 Clean off beads, casings, joint compound droppings and the like, leave the work of this section ready for painting trades.

END OF SECTION

PART 1 – GENERAL

1.1 SCOPE

.1 Comply with Division 1: General Requirements.

.2 Provide materials, labour and equipment for the installation of vinyl tile, thresholds, wall bases and trim as shown on the drawings described herein, or as necessary to complete the work.

1.2 RELATED WORK UNDER OTHER SECTIONS

None

1.3 STANDARDS

.1 Install carpet using glue-down method to brick style.

.2 Install thresholds, bases and trim in accordance with the recommendations of the material manufacturer.

1.4 SAMPLES

.1 Submit full tile sample of selected color for approval.

1.5 SHOP DRAWINGS

.1 Submit duplicate copies of drawings showing locations prior to commencing work.

1.6 MAINTENANCE DATA

.1 Provide data for care and maintenance.

1.7 MAINTENANCE MATERIALS

.1 Deliver a 2 percent extra supply ,used on the project and a 2 percent extra supply of threshold, base and trim from the same production runs as the materials used in the installation. Store where directed for future maintenance use.

1.8 EXAMINATION

.1 Visit site, determine existing conditions, limitations and requirements for protection of adjacent areas. Verify dimensions and base the bid on measurements taken on site.

1.9 DELIVERY AND STORAGE

.1 Deliver in boxes. Handle materials carefully to prevent damage to new and existing work. Store materials inside the building under suitable protective coverings and on skids off moist or wet floors. Keep absolutely dry and free of foreign matter.

1.10 ENVIRONMENTAL CONDITIONS

.1 Maintain air temperatures at 20 degrees C or more for 48 hours before, during and for 48 hours after installation.

1.11 WARRANTY

.1 limited 10 year commercial.

PART 2 – PRODUCTS

2.1 CARPET TILE

1. Collection : Hot & Heavy Collection
2. Style / Name/Name / Number : Grown Up (C0075)
3. Brand : Mohawk Group – Hard Surface
4. Product Type : Loose Lay Luxury Vinyl Tile
5. Size : 9" x 59"
6. Overall Gauge : 0.20"
7. Waer Layer 20mil
8. Finish : M-Force Enhanced Urethane
9. Texture : Registered Emboss
10. Color Available :10
11. Installation :Perimeter Glue
12. Recommendation Adhesive : Premier Glue only with MS160 Spray
13. Construction : Commercial Grade Floating Luxury Vinyl Tile
14. Onstruction : Commercial Grade Loose Lay Enhanced Resilient Tile
15. Wear Layer: 20 mil (0.5 mm)
16. Static Load : ASTM F970 - Passes – Exceeds 1000 psi
17. Finish: M-Force Ultra
18. Surface Profile :Registered Emboss
19. Square Feet By Carton 22.4 sf/ctn (2.12 m2/ctn)
20. Pieces Per Carton : 6 pieces/ctn
21. Pound Per Carton : 40.78 lbs/ctn (18.49 kg/ctn)
22. RECOMMENDED ADHESIVE
23. Classification :ASTM F-1700 - Class III, Type A - Smooth, Type B - Embossed
24. Squareness: ASTM F2055 -10 Passes - maximum 0.010 in. (0.25mm)
25. Size & Tolerance : ASTM F2055 - Passes - at ±0.016 in./lin. Ft. (0.4 mm/305 mm)
26. Thickness: ASTM F386 - Passes - as specified ±0.005 in. (0.13 mm)
27. Flexibility : ASTM F137 - Passes - 1 in. (25.4-mm mandrel, no crack or break)
28. Dimensional Stability ASTM F2199 - Passes - no greater than 0.020 in./lin. Ft. (0.51 mm/305 mm)
29. Residual Indentation : ASTM F1914 - Passes - average less than 8%
30. Resistance to Chemicals : ASTM F925 - Passes - no change
31. Resistance to Light : ASTM F1515 - Passes - less than 8 ave., max
32. Resistance to Heat : ASTM F1514 - Passes - less than 8 ave., max
33. Critical Radiant flux :ASTM E648 - Passes - > 0.45 watts/cm², Class 1
34. Overall Thickness :5 mm (.2")

Acceptable Products:

Mohawk Group — 'Hot & Heavy Collection Grown Up |132 Vera

2.2 THRESHOLDS: ($^1/_{12}$") thick in maximum lengths, of sections listed below; colour as selected.

Acceptable Products:

Finercraft	'Type 501B' [Carpet to Resilient Tile]
Flextile	'CTA-XX-A' [Carpet to Resilient Tile]
Finercraft	'Type 509T' [Carpet to Ceramic Tile]
Flextile	'CDB-XX-B/CE-XX-A' [Carpet to Ceramic Tile]

2.3 VINYL BASE:

Acceptable Products:

Johnsonite	' 8" (200mm) Moon Rock WG

2.4 PRIMERS: As recommended by Vinyl and adhesive manufacturer.

2.5 ADHESIVE FOR VINYL: Brand recommended by vinyl manufacturer, fire retardant material, for polypropylene backed Vinyl.

2.6 ADHESIVE FOR VINYL SEAMS: Brand recommended by Vinyl and adhesive manufacturer, fire retardant material, for polypropylene backed Vinyl.

2.7 ADHESIVES:

.1 **For Thresholds, Reducing Strips:** Waterproof, contact type, selected to suit all substrates and locations to flooring manufacturers printed directions.

.2 **For Bases:** Brand recommended by Vinyl and adhesive manufacturer, fire retardant material, for polypropylene backed vinyl.

2.8 FILLER/LEVELLER: Purpose-made pre-mixed latex-cement underlayment.

Acceptable Products:

Flextile	'87 Latex Underlayment'
Bakelite	existing tile to be remain

PART 3 – EXECUTION

3.1 PRELIMINARY WORK

.1 Give at least [5] days' notice to before starting work.

3.2 PREPARATION OF EXISTING SURFACES

.1 Immediately prior to installing new vynil, vacuum surface.

.2 Apply filler/leveller to ensure existing sub-floor is dead level and to prevent high or low spots from telegraphing through to vinyl surface causing uneven surface wear.

3.3 CARPET INSTALLATION

.1 Estimate vinyl layout to ensure vinyl width is divided to suit room width without seams.

.2 Install vinyl in accordance with brick style installation

.3 Dry-lay vinyl; ensure material is free from manufacturing defects before applying adhesive.

.4 Install vinyl tightly and fit neatly around architectural, mechanical and electrical installations, furniture fitments, from one wall then lay out the vinyl to the rest of the floor to the end of the room then cut our the extra edges

.5 Lay out vinyl in full length of room with additional length and width for finishing. If design is involved, ensure it is centered in the room and with the design properly matched at seams and cross joints.

.6 Where seams are necessary, apply a bead of seaming adhesive to both cut edges before positioning.

3.4 BASE INSTALLATION - VINYL

.1 Apply adhesive to wall.

.2 Vinyl base to match colour of floor carpet.

.3 Install taped sewn edges in straight and level alignment at base height.

.4 Attach Vinyl to wall. Neatly fit vinyl against floor

3.5 ACCESS COVER APPLICATION

.1 . Ensure accessibility to underfloor services [e.g. sewer clean-outs, telephone pull boxes, control valve access, etc.].

3.6 PROTECTION OF FINISHED WORK

.1 Vacuum vinyl clean. Protect traffic areas of vinyl floors with polyethylene drop sheets; tape edges and joints to prevent shifting.

3.7 CLEAN-UP

.1 Remove protection; make good any damage sustained resulting from this work. Dispose of surplus material daily and at completion of work and remove debris, tools, plant and equipment from the premises. Leave buildings and site 'cleaned and vacuumed'.

-End-

PART 1 – GENERAL

1.1 SCOPE

.1 Comply with Division 1: General Requirements and Owner's General Conditions.

.2 Provide materials, labor and equipment for painting and finishing new and existing materials as shown on the drawings, described herein, or as necessary to complete the work.

1.2 RELATED WORK UNDER OTHER SECTIONS

1.3 STANDARDS

.1 **Paint Materials:** To MPI Architectural Painting Specification Manual and MPI Maintenance Repainting Manual Interior Systems. Provide signed certificate stating materials comply with the standards and that paint materials for each coating are products of one manufacturer only. Use only odorless solvent products in all interior locations. Do not mix or thin. Use materials and colors directly from the manufacturer's containers.

.2 **Workmanship Standards:** To MPI Architectural Painting Specification Manual and MPI Maintenance Repainting Manual, Exterior and Interior Systems as applicable with sufficient coats to provide full coverage, color match and uniform sheen, but using minimum number of coats specified. Conform to regulations of authorities having jurisdiction.

1.4 SAMPLES

.1 Submit the successful manufacturers color system with the approved colors marked and related to those used on the approved color schedule. Submit the colors to the Consultant for approval and retention in the project file. Ensure finished work matches manufacturers color sample.

1.5 ENVIRONMENTAL REQUIREMENTS

.1 Do not apply paint finish in areas where dust is being generated.

.2 Do not clean equipment, brushes, rollers, etc. on the premises.

.3 During paint operations, provide sufficient fresh air circulation.

.4 In cold weather, use temporary exhaust fans or ozone air purifier.

2 DELIVERY AND STORAGE

.1 Deliver materials in original containers with labels intact and seals unbroken.

.2 Store materials under covers and protect from fire at all times. The Consultant will not provide material storage space.

2.1 PROTECTION

.1 Before commencement of work, remove cover plates of service devices, surface hardware, frames of lighting fixtures and all other obstructions. Replace them in satisfactory condition when work of this section is completed, to the approval of Consultant.

.2 Before commencement of work, protect all surface hardware that is impractical to remove. Protect all weather stripping, acoustic and smoke seal gaskets in an approved manner.

.3 Remove soiled and used rags, waste and empty containers from the building daily. Take all precautions to preclude a fire.

.4 Post legible signs at all points of entry to the areas in which work of this section is being applied.

.5 Erect suitable barriers to prevent traffic and other trades from working in such areas during application of this work.

2.2 INSPECTION

.1 Have material suppliers' representatives visit site in company with Contractor and painter prior to commencement of operations to discuss finishing procedures to be used and to analyze conditions of surfaces to be coated, in order that alternative recommendations may be accorded consideration, should adverse conditions exist.

.2 Ensure that material suppliers' representatives visit site at intervals during surface preparation and application operations, to ensure that specified surface preparation has been completed, specified products are being used, proper number of coats are being applied, and specified finishing procedures are being implemented.

.3 Submit to Contractor and Consultant a written report of material suppliers' representatives verify conformance to Specifications.

2.3 MAINTENANCE MATERIALS

.1 Provide extra (1) 4L unopened can of each color of paint and stain. Store where directed for future maintenance use.

PART 2 – PRODUCTS

2.1 COLOURS: To match existing or as selected by the Owner (Maximum 5 colours.)

2.2 VOC'S: All interior paints to be zero VOC's type.

2.3 GLOSS VALUES

.1 Gloss values at 60% and Sheen Values at 85% determined in accordance with MPI Gloss:

.1	0 to 5 for flat.	max. 10 sheen
.2	5 to 10 for high sheen flat.	10-35 sheen
.3	10 to 25 for eggshell.	10-35 sheen
.4	25 to 35 for satin.	min. 35 sheen
.5	35 to 70 for semi-gloss	
.6	70 to 85 for gloss	
.7	85 to 100 for high gloss	

2.4 INTERIOR FINISH MATERIALS:

.1 For Existing Concrete Block
One coat Multi Surface Primer Sealer for oil or latex based original paint
Two coats Semi-Gloss Enamel

.2 For Epoxy Existing Concrete Block
One coat Epoxy Multi Surface Primer for oil or latex based original paint
Two coat Epoxy Color Coat

.3 For New Gypsum Board and Plaster Walls
One coat Primer Sealer
Two coats Flat Paint on Ceiling and Two coats Eggshell on Walls

.4 For Existing Gypsum Board and Plaster Walls
One coat Multi Surface Primer Sealer for oil or latex based original paint
two coats Flat Paint on Ceiling and Two coats Semi-Gloss on Walls

.5 For Painted New Wood Doors (on exposed edges)
One coat Primer Sealer
Two coats Semi-Gloss Enamel

.6 For Painted Existing Wood Doors (on exposed edges)
One coat Multi Surface Primer for oil or latex based original paint
Two coats Semi-Gloss Enamel

.7 For New Primed Ferrous
Metal Surfaces
One coat Spot Priming
One coat Multi Surface Primer for oil or latex based original paint
Two coats Gloss Enamel

.8 For Existing Primed Ferrous
Metal Surfaces
One coat Spot Priming Rust Inhibitor Type
One coat Multi Surface Primer for oil or latex based original paint
Two coats Gloss Enamel

.9 For New Galvanized and Zinc Coated Metal
One coat Cementitious Galvanized Metal if bare metal or
One coat Primer
Two coats Semi-Gloss Enamel

.10 For Existing Galvanized and Zinc Coated Metal
One coat Cementitious Galvanized Metal if bare metal or
One coat Spot Priming Rust Inhibitor Type
One coat Multi Surface Primer for oil or latex based original paint
Two coats Semi-Gloss Enamel

.11 For Pipe Insulation Covering
One coat Tinted Primer
Sealer
One coat Semi-Gloss Enamel

.12 Existing Interior Wood Stained
Two coats Semi-Gloss Varnish

PART 3 – EXECUTION

3.1 PRELIMINARY REPAIRS

.1 Cut away the cracked or fissured finish to expose the primary substrate for a minimum of 300 mm (12") on both sides of the crack[s] or fissure[s].

.2 Examine substrate surface and where cracks or fissures are due to normal settlement or acceptable building movement, fill with compatible materials to material manufacturer's directions and the Consultant's approval.

.3 Fill and neatly join repairs to existing work for both substrate and finish; trowel to an even, level and matching texture; cure and sand as required.

.4 Re-prime entire repair to ensure colour and texture matches the surrounding finished surfaces prior to normal repainting operations.

3.2 PREPARATION OF SURFACES

.1 Prepare wood surfaces to MPI standards:

.1 Use CAN/CGSB 10-GP-126M vinyl sealer over knots and resinous areas.

.2 Applywood paste filler to nail holes and cracks.

.3 Tint filler to match stains used to finish woodwork.

.2 Touch up shop primer on steel with MPI approved primer applied to MPI procedures.

.3 Prepare galvanized steel and zinc coated surfaces to CAN/CGSB 85-GP-16.

.4 Prepare masonry, surfaces to MPI procedures.

.5 Prepare new and existing metal surfaces, surfaces to MPI procedures.

.6 Prepare new wallboard surfaces to MPI procedures. Fill cracks with plaster patching compound.

.7 Prepare copper piping and accessories to MPI procedures.

.8 Thoroughly clean all existing surfaces, sand and scrape loose paint from existing surfaces, remove all abandoned wall plugs, nails, screws, remove all oil, grease, tar, etc., fill all holes and low areas flush with existing surfaces, sand and prime paint.

3.3 APPLICATION

.1 Sand and dust between each coat to remove defects visible from a distance up to 1.5 m (5 ft).

.2 Finish bottoms, edges, tops and cut-outs of doors after fitting as specified for door surfaces.

.3 Finish tops of cabinets and projecting ledges, above and below sight lines as specified for surrounding surfaces.

.4 Finish closets and alcoves as specified for adjoining rooms.

.5 Repainted surfaces within already painted areas must colour match existing.

.6 After painting, drawers, window sashes and doors must operate freely.

3.4 MECHANICAL AND ELECTRICAL EQUIPMENT

.1 Paint exposed conduits, pipes, hangers and other mechanical and electrical equipment occurring in finished areas including inside cupboards and cabinet work. Colour and texture to match adjacent surfaces, except where noted otherwise.

.2 Paint interior of ductwork where visible with primer and one coat matte black paint.

.3 Paint both sides and edges of plywood backboards for mounting equipment before installation. Leave equipment in original finish except for touch-up as required; paint conduits, mounting accessories and other unfinished items.

3.5 COMPLETION

.1 Remove protection; make good damage to this and adjacent work.

2 Remove materials, debris, tools, plant and equipment from the premises.

3.6 CLEAN-UP

.1 Remove rubbish, rags and oily waste from the site daily and at final completion and keep areas clean.

.2 Upon completion, clean blemished surfaces to the Consultant's satisfaction. Repair any damage. Replace hardware plates, drapes, pulls, etc.

.3 Leave building and painted site equipment in a 'cleaned and polished' condition.

END OF SECTION

APPENDIX #1

Hazardous Building Materials Assessment
(Pre-Construction)

Revised 2 Hazardous Building Materials Assessment (Pre-construction)

Fourth Floor Renovations
Head Office
605 James Street North,
Hamilton, Ontario

Prepared for:

Hamilton-Oshawa Port Authority
605 James Street North, 6th Floor
Hamilton, Ontario, L8L 1K1

January 15, 2025

Pinchin File: 336569.005

Issued to:	**Hamilton-Oshawa Port Authority**
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Senior Project Manager

EXECUTIVE SUMMARY

Hamilton-Oshawa Port Authority (Client) retained Pinchin Ltd. (Pinchin) to conduct a hazardous building materials assessment at Head Office located at 605 James Street North, Hamilton, Ontario. Pinchin performed the assessment on October 30, 2024 and January 14, 2025.

The objective of the assessment was to identify specified hazardous building materials in preparation for building renovation. The proposed work as identified by the Client includes renovations to the fourth floor.

The results of this assessment are intended for use with a properly developed scope of work or performance specifications and safe work procedures.

SUMMARY OF FINDINGS

The following is a summary of significant findings; refer to the body of the report for detailed findings:

Asbestos:

- Pipe insulation
- Mastic associated with vinyl floor tiles
- Gold sink mastic

Lead:

- Lead is present in paints and coatings.
- Batteries of emergency lights may contain solid lead.
- Caulking on cast iron pipe joints (bell and spigot) contains lead.

Silica: Crystalline silica is present in concrete and other materials such as masonry, and ceramic tiles.

Mercury: Mercury vapour may be present in lamp 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.

SUMMARY OF RECOMMENDATIONS

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

1. Remedial work is recommended regardless of the planned construction work due to the condition of the material. Refer to Section 5.2 for details.
2. Conduct further investigation of the following items, which was not completed during this assessment:
    a. Any items listed as exclusions in this report, prior to disturbance.
3. Prepare a scope of work or specifications and safe work procedures for the hazardous materials removal required for the planned work.
4. 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.
5. Remove and properly dispose of asbestos-containing materials prior to demolition or renovation activities.
6. Remove and properly dispose of PCB ballasts when fixtures are decommissioned. All PCB lamp ballasts must be removed from service and properly disposed of by December 31, 2025.
7. Recycle mercury-containing lamp tubes when removed from service.
8. Follow appropriate safe work procedures when handling or disturbing asbestos, lead, silica, and mould.

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

APPENDICES

1.0 INTRODUCTION AND SCOPE

Hamilton-Oshawa Port Authority (Client) retained Pinchin Ltd. (Pinchin) to conduct a hazardous building materials assessment at the Head Office located at 605 James Street North, Hamilton, Ontario.

Pinchin performed the assessment on October 30, 2024 and January 14, 2025. The surveyor was unaccompanied during the assessment. The assessed area was occupied 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 or performance specification.

1.1 Scope of Assessment

The **assessed area** is limited to the portion(s) of the building to be renovated, as described by the Client, and identified in the drawings in Appendix I.

The assessment was performed to establish the type of specified hazardous building materials, locations and approximate quantities incorporated in the structure(s) and its finishes.

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 METHODOLOGY

Pinchin conducted a room-by-room assessment to identify the hazardous building materials as defined in the scope.

Limited destructive testing of flooring was conducted where possible (under ceramic tiles, carpets, or multiple layers of flooring). Demolition of exterior building finishes, masonry walls (chases, shafts etc.), and structural surrounds was not conducted.

Demolition of masonry block walls (core holes) was not conducted to investigate for loose fill vermiculite insulation. Sampling of roofing materials was not conducted.

For further details on the methodology including test methods, refer to Appendix III.

3.0 BACKGROUND INFORMATION

3.1 Building Description

Description Item	Details
Use	Office
Number of Floors	The building is 6 storeys, plus 1 level below grade.
Total Area	The total area of the building is approximately 20,000 square feet. The assessed area is approximately 2,250 square feet.
Year of Construction	The building was constructed in 1950.
Structure	Structural steel and concrete
Exterior Cladding	Stone
HVAC	Forced air and radiant heating
Roof	N/A
Flooring	Vinyl floor tiles, laminate, ceramic tiles, terrazzo, and carpet
Interior Walls	Plaster and drywall
Ceilings	Acoustic ceiling tiles, metal ceiling tiles, and plaster

3.2 Existing Reports

Pinchin previously prepared the following reports, which have been reviewed as part of this assessment:

- *"Asbestos Reassessment, Dated November 23, 2023. Prepared by Pinchin, File No. 320567.006"*

3.3 Inaccessible Locations

The following rooms or areas were not accessible and are therefore not included in the report.

Area or Room	Loc No.	Reason
Office Space	19-27	Limited access above ceiling tiles due to metal ceiling tiles. Metal ceiling tiles were removed where possible to see above.
Third Floor	31	No access above metal ceiling tiles.

4.0 FINDINGS

The following section summarizes the findings of the assessment and provides a general description of the hazardous building materials identified. For details on approximate quantities, condition, friability, accessibility, and locations of hazardous building materials; refer to the Hazardous Material Summary / Sample Log and All Data Report in Appendices V and VI.

Any quantities listed in this report or data tables are estimated based on visual approximations only and are subject to variation.

4.1 Asbestos

4.1.1 Pipe Insulation

A white corrugated paper insulation (trade name Aircell), containing asbestos, is present on straight sections of cold water system pipes in the women's washroom (samples S0022A-C, photo 1).

Based on previous sampling sweatwrap insulation (brown layered paper), contains asbestos in the tar paper layer and beige paper layer and should be treated as asbestos-containing (samples 0015A-C, photo 2). Delineation sampling may be considered, as other sets of sweatwrap insulation samples were found to be non-asbestos (samples S002A-C and S0023A-C, photo 2).

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

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

Photo 1

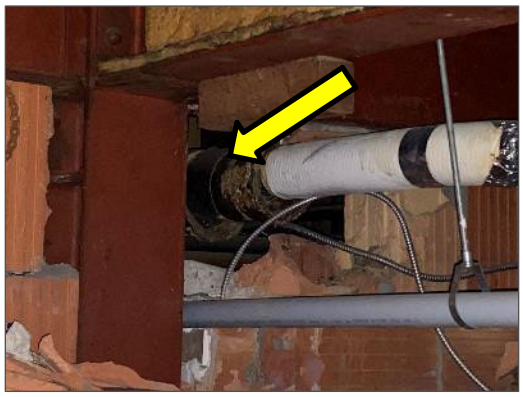


Photo 2

4.1.2 Duct Insulation

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

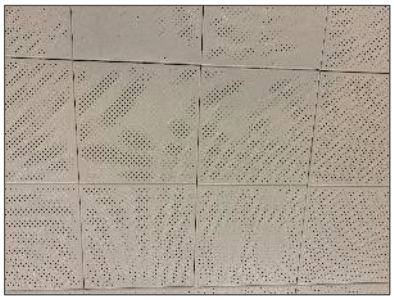
4.1.3 Mechanical Equipment Insulation

Mechanical equipment (e.g., furnace, hot water tanks, boilers) is either uninsulated or insulated with non-asbestos fibreglass.

4.1.4 Acoustic Ceiling Tiles

The following is a summary of acoustic ceiling tiles sampled.

Description	Sample Location	Sample Number, Date Code or Material Composition	Asbestos	Photo
24”x48”, lay-in, pinhole with fleck	Not sampled	2000’s	No	
24”x48”, lay-in, pinhole with width wise fissures	Not sampled	2000’s	No	

Description	Sample Location	Sample Number, Date Code or Material Composition	Asbestos	Photo
24”x24”, lay-in, textured	Not sampled	1996	No	
12”x24”, lay-in, pinhole	Not sampled	Metal	No	

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

Ceiling tiles are presumed to be non-asbestos based on the composition of the tiles (metal).

4.1.5 Plaster

Textured plaster present on walls and ceilings throughout the corridor and vault does not contain asbestos (Previously sampled, samples S0011A-C, photo 1).

Smooth plaster present on walls and ceilings throughout the assessed area does not contain asbestos (Previously sampled, samples S0002A-D, S0008A-E, S0012A-E, photo 2)

Photo 1

Photo 2

4.1.6 Drywall Joint Compound

Drywall joint compound present on wall and ceiling finishes throughout the assessed area does not contain asbestos (samples S0002A-G, S0013A-C, S0015A-E, photos 1 and 2).

Photo 1

Photo 2

4.1.7 Vinyl Floor Tiles

The following is a summary of vinyl floor tiles sampled.

Description	Sample Location (Location #)	Sample Number	Asbestos (Tile / Adhesive)	Photo
Residual mastic under laminate and under carpet	Reception (Location 19) Office (Location 23) Open Space (Location 25)	S0018A-C	No / Chrysotile	
9”x9” Beige	Vault (Location 29)	S0019A-C	None detected / None detected	

4.1.8 Levelling Compound

The levelling compound associated with the 9”x9” beige flooring in the vault does not contain asbestos (samples S0019A-C, phase C, photo 1).

Photo 1

4.1.9 Caulking

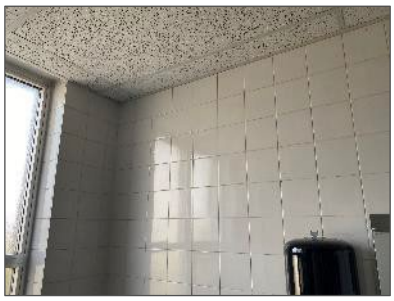
The following is a summary of caulking sampled.

Material, Description and Application	Sample Location (Location #)	Sample Number	Asbestos	Photo
Caulking, black butyl	Reception (Location 19)	S0017A-C	None detected	
Caulking, grey around windows	Office (Location 21) Open Space (Location 25) Meeting Room (Location 26)	S0025A-C	None detected	

4.1.10 Other Building Materials

The following is a summary of other materials sampled.

Description	Sample Location (Location #)	Sample Number	Asbestos	Photo
Thin-set below ceramic tiles	Reception (Location 19)	S0016A-C	None detected	

Description	Sample Location (Location #)	Sample Number	Asbestos	Photo
Terrazzo	Women's Washroom (Location 28)	S0020A-C	None detected	
Thin-set below ceramic tiles	Women's Washroom (Location 28)	S0021A-C	None detected	
Gold sink mastic	Janitors Closet (Location 30)	S0024A-C	Chrysotile	

4.1.11 Excluded Materials

The following is a list of materials which may contain asbestos and was excluded from the assessment. These materials are presumed to contain asbestos until otherwise proven by sampling and analysis:

- Elevator and lift brakes
- Electrical components
- Mechanical packing, ropes, and gaskets
- Fire resistant doors
- Metal clad finishes (Galbestos)
- Ropes and gaskets in cast-iron bell and spigot joints
- Sealants on pipe threads

4.2 Lead

4.2.1 Paints and Surface Coatings

The following table summarizes the analytical results of paints sampled.

Sample Number	Colour, Substrate Description	Sample Location	Lead (%)	Photo
L0005	Red, on structural steel	Previously sampled	0.17	
L0009	Green, on plaster walls	Corridor (Location 18)	0.0027	
L0010	White, on plaster walls	Reception (Location 19)	0.31	
L0011	White, on drywall walls	Reception (Location 19)	<0.00044	

Results above 0.1% (1,000 mg/kg) are considered lead-containing, and over 0.5% (5,000 mg/kg) are considered lead-based.

Results less than or equal to 0.1% (1,000 mg/kg), but equal to or greater than 0.009% (90 mg/kg), are considered low-level lead paints or surface coatings in accordance with the EACC guideline.

4.2.2 *Lead Products and Applications*

Lead-containing batteries may be present in emergency lighting (photo 1).

Lead caulking is present in bell and spigot fittings on cast iron pipes.

Photo 1

4.2.3 *Excluded Lead Materials*

Lead is known to be present in several materials which were not assessed or sampled. The following materials, where found, should be presumed to contain lead.

- Electrical components, including wiring connectors, grounding conductors, and solder
- Solder on pipe connections
- Glazing on ceramic tiles
- Lead shielding

4.3 Silica

Crystalline silica is assumed to be a component of the following materials where present in the building.

- Concrete
- Masonry and mortar
- Ceramic tiles and grout
- Plaster
- Stone
- Refractory or ceramic materials
- Asphalt

4.4 Mercury

4.4.1 Lamps

Mercury vapour is present in fluorescent lamp tubes.

4.4.2 Mercury-Containing Devices

Mercury-containing devices were not found during the assessment.

4.5 Polychlorinated Biphenyls

4.5.1 Caulking and Sealants

The following table presents a summary of caulking sampled:

Material, Colour, Application	Sample Location (Location #)	Sample Number	PCB (mg/kg)	Photo
Caulking, grey around windows	Open Space (Location 20)	P0001	<0.2	

The material is a non-PCB solid based on the threshold (50 mg/kg).

4.5.2 Lighting Ballasts

Based on date of construction fixtures may contain PCB ballasts.

4.5.3 Transformers

Transformers were not found during the assessment.

4.5.4 Excluded PCB Materials

PCBs are known to be present in several materials and equipment which were not assessed or sampled. The following materials, where found, should be presumed to contain PCBs until sampling proves otherwise.

- Capacitors within or associated with electrical equipment

4.6 Mould and Water Damage

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

5.0 RECOMMENDATIONS

5.1 General

1. Prepare scope of work or performance specifications for hazardous material removal required for the planned work. The specifications should include 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, areas, or locations, which were not completed during this assessment:
    a. Any items 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, observe and document the successful removal of hazardous materials.
6. Update the asbestos inventory upon completion of the abatement and removal of asbestos-containing materials and any other relevant findings.

5.2 Remedial Work

The following remedial work is recommended regardless of the planned construction work due to the condition and location of the material.

Material, Quantity & Condition	Location	Recommended Procedure	Photo
Aircell pipe insulation 1 LF and 2SF of debris, poor	Woman's Washroom (Location 28)	Type 2 glove bag removal and Type 2 clean-up of debris. Restrict access into ceiling space until debris is cleaned up.	

Material, Quantity & Condition	Location	Recommended Procedure	Photo
Parging cement fittings and debris, 1 fitting and 8SF of debris, poor	Open Space (Location 20)	Type 2 glove bag removal and Type 2 clean-up of debris. Restrict access into ceiling space until debris is cleaned up.	

5.3 Building Renovation Work

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

5.3.1 Asbestos

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

5.3.2 Lead

For lead-containing or lead-based paints (i.e., greater than the EACC guideline of 0.1% (1,000 mg/kg) for lead-containing paints, and 0.5% (5,000 mg/kg) for lead-based), 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 Ministry of Labour, Training and Skills Development regulations and guidelines.

For paints identified as having low levels of lead (i.e., equal to or above 0.009% (90 mg/kg) but less than or equal to the EACC guideline of 0.1% (1,000 mg/kg) for lead-containing paints) special precautions are not recommended unless aggressive disturbance (grinding, blasting, torching) is planned. Exposure from construction disturbance of paints containing lead less than 0.009% (90 mg/kg) is assumed to be insignificant.

Items painted with paints containing elevated levels of lead may be a hazardous waste. Test lead-painted materials for leachable lead and other metals prior to disposal. Metallic components coated with lead

paint do not require leachate testing and can be disposed of as non-hazardous construction and demolition (C&D) waste.

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

5.3.3 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 applicable regulations and guidelines.

5.3.4 Mercury

Do not break lamps. 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 applicable regulations.

5.3.5 PCBs

As light fixtures are removed from service, 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. As per the PCB Regulation (SOR/2008-273), all PCB light ballasts must be removed from service and properly disposed of by December 31, 2025.

6.0 TERMS AND LIMITATIONS

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

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

7.0 REFERENCES

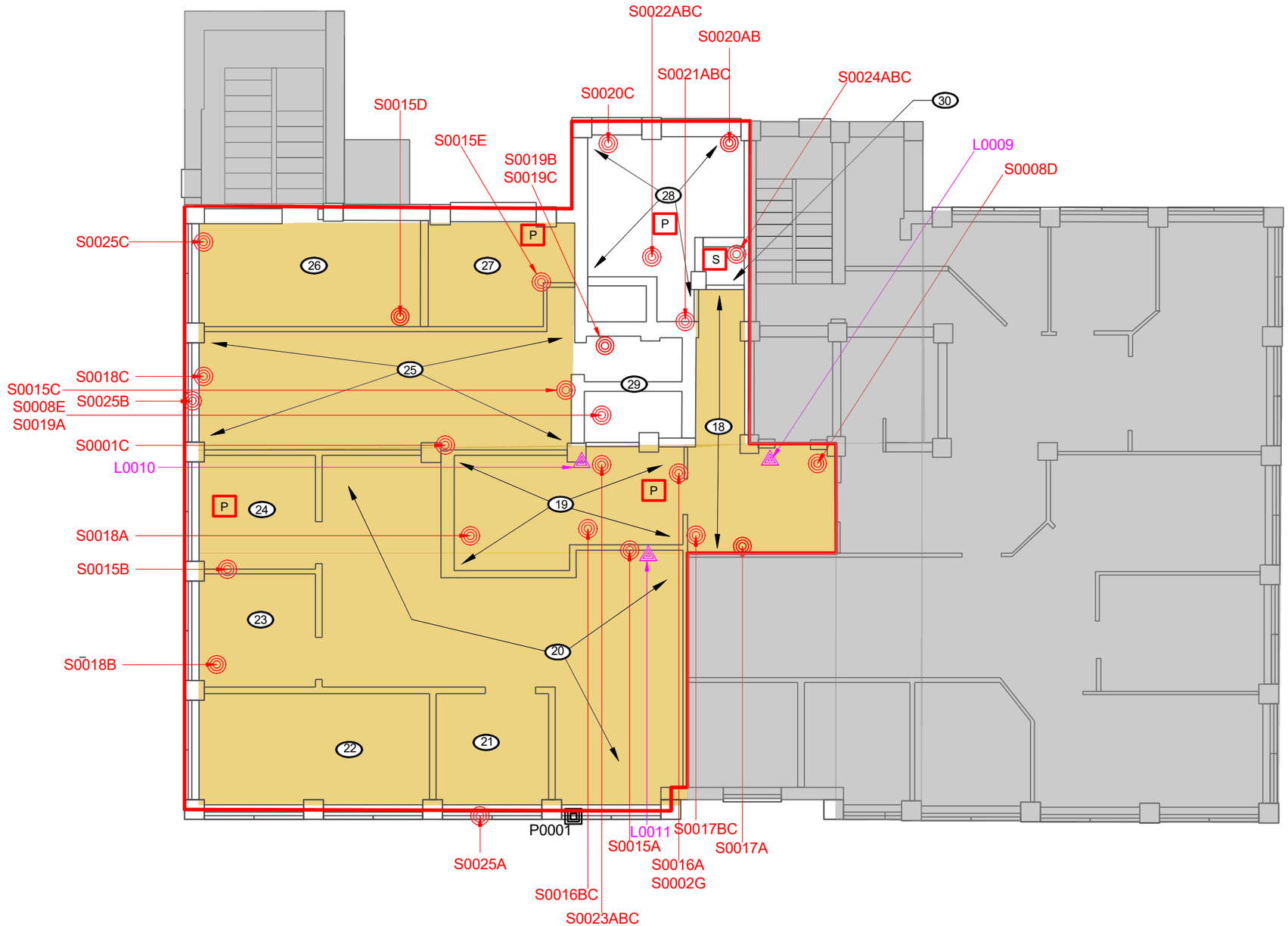
The following legislation and documents were referenced in completing the assessment and this report:

1. Asbestos on Construction Projects and in Buildings and Repair Operations, Ontario Regulation 278/05.

2. Designated Substances, Ontario Regulation 490/09.
3. Lead on Construction Projects, Ministry of Labour Guidance Document.
4. The Environmental Abatement Council of Canada (EACC) Lead Guideline for Construction, Renovation, Maintenance or Repair.
5. Ministry of the Environment Regulation, R.R.O. 1990 Reg. 347 as amended.
6. Ministry of the Environment Regulation, R.R.O. 1990 Reg. 362 as amended.
7. Silica on Construction Projects, Ministry of Labour Guidance Document.
8. Alert – Mould in Workplace Buildings, Ontario Ministry of Labour.
9. PCB Regulations, SOR/2008-273, Canadian Environmental Protection Act.
10. Surface Coating Materials Regulations, SOR/2016-193, Canada Consumer Product Safety Act.
11. Consolidated Transportation of Dangerous Goods Regulations, including Amendment SOR/2019-101, Transportation of Dangerous Goods Act.
12. Mould Guidelines for the Canadian Construction Industry, Standard Construction Document CCA 82 – 2004 (Revised 2018), Canadian Construction Association.

APPENDIX I

Drawings



LEGEND

- (X) PINCHIN LOCATION NUMBER
- SURVEY BOUNDARY/ASSESSED AREA
- OUTSIDE ASSESSMENT SCOPE
- ASBESTOS BULK SAMPLE
- LEAD BULK SAMPLE
- PCB BULK SAMPLE

ASBESTOS-CONTAINING MATERIALS:

- P PIPE INSULATION
- S SINK MASTIC
- FLOOR MASTIC

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.

BASE PLAN PROVIDED BY CLIENT.

PINCHIN

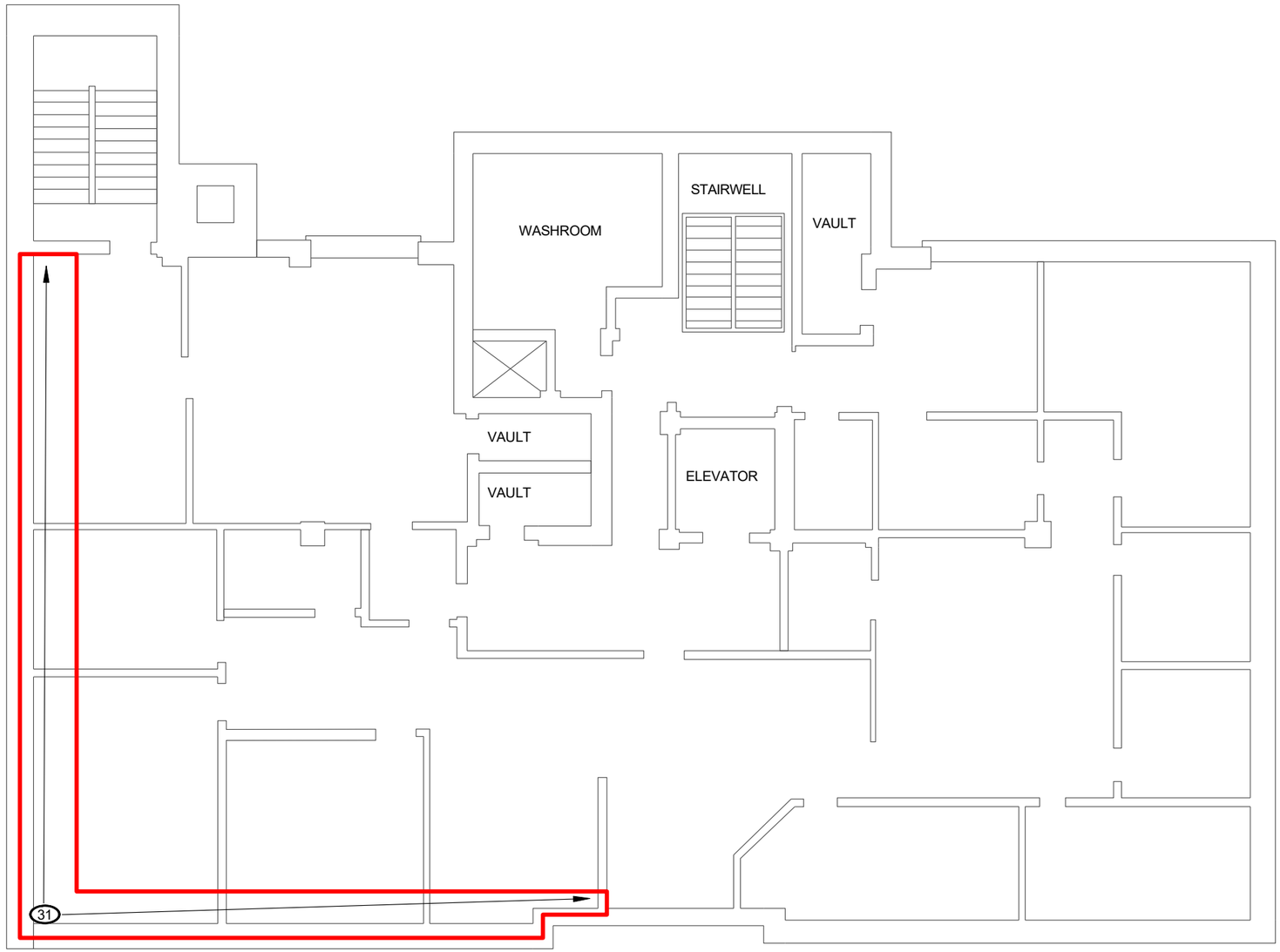
PROJECT NAME:
HAZARDOUS BUILDING MATERIALS ASSESSMENT

CLIENT NAME:
HAMILTON - OSHAWA PORT AUTHORITY

PROJECT LOCATION:
605 JAMES ST NORTH
HAMILTON ON, CANADA

FIGURE NAME:
FOURTH FLOOR PLAN

PROJECT NUMBER:	SCALE:
0336569.005	NOT TO SCALE
DRAWN BY:	REVIEWED BY:
WB	JA
DATE:	FIGURE NUMBER:
NOVEMBER 2024	1 OF 2



LEGEND

- (X) PINCHIN LOCATION NUMBER
- SURVEY BOUNDARY/ASSESSED AREA
- OUTSIDE ASSESSMENT SCOPE
- ASBESTOS BULK SAMPLE
- LEAD BULK SAMPLE
- PCB BULK SAMPLE

ASBESTOS-CONTAINING MATERIALS:

- P PIPE INSULATION
- S SINK MASTIC
- FLOOR MASTIC

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.

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BASE PLAN PROVIDED BY CLIENT.

PINCHIN

PROJECT NAME:
HAZARDOUS BUILDING MATERIALS ASSESSMENT

CLIENT NAME:
HAMILTON - OSHAWA PORT AUTHORITY

PROJECT LOCATION:
605 JAMES ST NORTH
HAMILTON ON, CANADA

FIGURE NAME:
THIRD FLOOR PLAN

PROJECT NUMBER:	SCALE:
0336569.005	NOT TO SCALE
DRAWN BY:	REVIEWED BY:
WB	JA
DATE:	FIGURE NUMBER:
NOVEMBER 2024	2 OF 2

APPENDIX II-A

Asbestos Analytical Certificates

Your Project #: 336569.005
Your C.O.C. #: N/A

Attention: Justin Appleby

Pinchin Ltd
151 York Boulevard
Suite 200
Hamilton, ON
CANADA L8R 3M2

Report Date: 2024/11/18
Report #: R8409157
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C4Y6439
Received: 2024/11/04, 10:21

Sample Matrix: Bulk
Samples Received: 38

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Asbestos by PLM - 0.5 RDL (1)	14	N/A	2024/11/07	COR3SOP-00002	EPA 600R-93/116
Asbestos by PLM - 0.5 RDL (1)	24	N/A	2024/11/08	COR3SOP-00002	EPA 600R-93/116

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Bureau Veritas' Asbestos Laboratory is accredited by NVLAP for bulk asbestos analysis by polarized light microscopy, NVLAP Code 600136-0.

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Bureau Veritas' scope of accreditation includes EPA -- 40 CFR Appendix E to Subpart E of Part 763, "Interim Method for the Determination of Asbestos in Bulk Insulation Samples" and EPA-600/R-93/116: "Method for the Determination of Asbestos in Bulk Building Materials".
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Your Project #: 336569.005
Your C.O.C. #: N/A

Attention: Justin Appleby

Pinchin Ltd
151 York Boulevard
Suite 200
Hamilton, ON
CANADA L8R 3M2

Report Date: 2024/11/18
Report #: R8409157
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C4Y6439
Received: 2024/11/04, 10:21
(1) P.O.B. - Percent of Bulk

When Asbestos data is reported with other data, this report contains data that are not covered by the NVLAP accreditation.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Nilushi Mahathantila, Project Manager
Email: Nilushi.Mahathantila@bureauveritas.com
Phone# (905) 817-5700

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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas Job #: C4Y6439
Report Date: 2024/11/18

Pinchin Ltd
Client Project #: 336569.005
Sampler Initials: SH

Asbestos Analytical Results

EPA/600R-93/116 by Polarized Light Microscopy

S0002G WALL,DRYWALL COMPOUND,LOC:18,CORRIDOR

Bureau Veritas ID: AHVB77 — Date Analyzed: 2024/11/07

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1	100	Homogeneous white drywall joint compound	Not Detected		Non-Fibrous

S0008D WALL,PLASTER,ROUGH,LOC:18,CORRIDOR

Bureau Veritas ID: AHVB78 — Date Analyzed: 2024/11/07

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1	100	Non-homogeneous beige/orange rough plaster	Not Detected		Non-Fibrous

S0008E CEILING,PLASTER,ROUGH,LOC:29,VAULT

Bureau Veritas ID: AHVB79 — Date Analyzed: 2024/11/07

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1	100	Non-homogeneous beige/orange rough plaster	Not Detected		Non-Fibrous

The limit of quantitation is 0.50%, although asbestos may be qualitatively detected at concentrations less than 0.50%. Samples for which asbestos is detected at <0.50% are reported as trace, "<0.50%". "Not Detected" indicates that no asbestos fibres were observed.

Calibrated Visual Estimate (%)
Date Format : yyyy/mm/dd

Bureau Veritas Job #: C4Y6439
Report Date: 2024/11/18

Pinchin Ltd
Client Project #: 336569.005
Sampler Initials: SH

Asbestos Analytical Results

EPA/600R-93/116 by Polarized Light Microscopy

S0015A WALL,DRYWALL COMPOUND,LOC:19,RECEPTION

Bureau Veritas ID: AHVB80 — Date Analyzed: 2024/11/07

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1	100	Homogeneous white drywall joint compound	Not Detected		Non-Fibrous

S0015B WALL,DRYWALL COMPOUND,LOC:23,OFFICE

Bureau Veritas ID: AHVB81 — Date Analyzed: 2024/11/07

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1	100	Homogeneous white drywall joint compound	Not Detected		Non-Fibrous

S0015C WALL,DRYWALL COMPOUND,LOC:25,OPEN SPACE

Bureau Veritas ID: AHVB82 — Date Analyzed: 2024/11/07

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1	100	Homogeneous white drywall joint compound	Not Detected		Non-Fibrous

The limit of quantitation is 0.50%, although asbestos may be qualitatively detected at concentrations less than 0.50%. Samples for which asbestos is detected at <0.50% are reported as trace, “<0.50%”. “Not Detected” indicates that no asbestos fibres were observed.

Calibrated Visual Estimate (%)
Date Format : yyyy/mm/dd

Bureau Veritas Job #: C4Y6439
Report Date: 2024/11/18

Pinchin Ltd
Client Project #: 336569.005
Sampler Initials: SH

Asbestos Analytical Results

EPA/600R-93/116 by Polarized Light Microscopy

S0015D WALL,DRYWALL COMPOUND,LOC:26,MEETING ROOM

Bureau Veritas ID: AHVB83 — Date Analyzed: 2024/11/07

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1	100	Homogeneous white drywall joint compound	Not Detected		Non-Fibrous

S0015E WALL,DRYWALL COMPOUND,LOC:27,OFFICE

Bureau Veritas ID: AHVB84 — Date Analyzed: 2024/11/07

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1	100	Homogeneous white drywall joint compound	Not Detected		Non-Fibrous

S0016A FLOOR,THIN-SET,BLUE/GREY SQUARE PATTERN,LOC:19,RECEPTION

Bureau Veritas ID: AHVB85 — Date Analyzed: 2024/11/07

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1	100	Homogeneous grey thinset	Not Detected		Non-Fibrous

The limit of quantitation is 0.50%, although asbestos may be qualitatively detected at concentrations less than 0.50%. Samples for which asbestos is detected at <0.50% are reported as trace, "<0.50%". "Not Detected" indicates that no asbestos fibres were observed.

Calibrated Visual Estimate (%)
Date Format : yyyy/mm/dd

Bureau Veritas Job #: C4Y6439
Report Date: 2024/11/18

Pinchin Ltd
Client Project #: 336569.005
Sampler Initials: SH

Asbestos Analytical Results

EPA/600R-93/116 by Polarized Light Microscopy

S0016B FLOOR,THIN-SET,BLUE/GREY SQUARE PATTERN,LOC:19,RECEPTION

Bureau Veritas ID: AHVB86 — Date Analyzed: 2024/11/07

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1	100	Homogeneous grey thinset	Not Detected		Non-Fibrous

S0016C FLOOR,THIN-SET,BLUE/GREY SQUARE PATTERN,LOC:19,RECEPTION

Bureau Veritas ID: AHVB87 — Date Analyzed: 2024/11/07

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1	100	Homogeneous grey thinset	Not Detected		Non-Fibrous

S0017A DOOR,CAULKING,BLACK BUTYL,LOC:19,RECEPTION

Bureau Veritas ID: AHVB88 — Date Analyzed: 2024/11/07

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1	100	Homogeneous dark grey foam	Not Detected		Non-Fibrous

The limit of quantitation is 0.50%, although asbestos may be qualitatively detected at concentrations less than 0.50%. Samples for which asbestos is detected at <0.50% are reported as trace, “<0.50%”. “Not Detected” indicates that no asbestos fibres were observed.

Calibrated Visual Estimate (%)
Date Format : yyyy/mm/dd

Bureau Veritas Job #: C4Y6439
Report Date: 2024/11/18

Pinchin Ltd
Client Project #: 336569.005
Sampler Initials: SH

Asbestos Analytical Results

EPA/600R-93/116 by Polarized Light Microscopy

S0017B DOOR,CAULKING,BLACK BUTYL,LOC:19,RECEPTION

Bureau Veritas ID: AHVB89 — Date Analyzed: 2024/11/07

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1	100	Homogeneous dark grey foam	Not Detected		Non-Fibrous

S0017C DOOR,CAULKING,BLACK BUTYL,LOC:19,RECEPTION

Bureau Veritas ID: AHVB90 — Date Analyzed: 2024/11/07

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1	100	Homogeneous dark grey foam	Not Detected		Non-Fibrous

S0018A FLOOR,MASTIC, BLACK,LOC:19,RECEPTION

Bureau Veritas ID: AHVB91 — Date Analyzed: 2024/11/08

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1	100	Non-homogeneous black/yellow mastic	**Chrysotile** 2%		Non-Fibrous

S0018B FLOOR,MASTIC, BLACK,LOC:23,OFFICE

Bureau Veritas ID: AHVB92 — Date Analyzed: 2024/11/08

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1			N/A		
	Comment:	Not Analyzed - Positive Stop			

The limit of quantitation is 0.50%, although asbestos may be qualitatively detected at concentrations less than 0.50%. Samples for which asbestos is detected at <0.50% are reported as trace, "<0.50%". "Not Detected" indicates that no asbestos fibres were observed.

Calibrated Visual Estimate (%)
Date Format : yyyy/mm/dd

Bureau Veritas Job #: C4Y6439
Report Date: 2024/11/18

Pinchin Ltd
Client Project #: 336569.005
Sampler Initials: SH

Asbestos Analytical Results

EPA/600R-93/116 by Polarized Light Microscopy

S0018C FLOOR,MASTIC, BLACK,LOC:25,OPEN SPACE

Bureau Veritas ID: AHVB93 Date Analyzed: 2024/11/08

	P.O.B	Sample Morphology	Asbestos	Other Fibres		Particulate
Layer 1			N/A			
	Comment:	Not Analyzed - Positive Stop				

S0019A FLOOR,VINYL FLOOR TILE AND MASTIC,9X9 BEIGE,LOC:29,VAULT

Bureau Veritas ID: AHVB94 Date Analyzed: 2024/11/08

	P.O.B	Sample Morphology	Asbestos	Other Fibres		Particulate
Layer 1	47	Homogeneous grey vinyl flooring	Not Detected	Cellulose	5%	Non-Fibrous
Layer 2	50	Homogeneous black backing on vinyl flooring	Not Detected	Cellulose	45%	Non-Fibrous
Layer 3	3	Homogeneous beige cementitious material	Not Detected			Non-Fibrous

The limit of quantitation is 0.50%, although asbestos may be qualitatively detected at concentrations less than 0.50%. Samples for which asbestos is detected at <0.50% are reported as trace, "<0.50%". "Not Detected" indicates that no asbestos fibres were observed.

Calibrated Visual Estimate (%)
Date Format : yyyy/mm/dd

Bureau Veritas Job #: C4Y6439
Report Date: 2024/11/18

Pinchin Ltd
Client Project #: 336569.005
Sampler Initials: SH

Asbestos Analytical Results

EPA/600R-93/116 by Polarized Light Microscopy

S0019B FLOOR,VINYL FLOOR TILE AND MASTIC,9X9 BEIGE,LOC:29,VAULT

Bureau Veritas ID: AHVB95 Date Analyzed: 2024/11/08

	P.O.B	Sample Morphology	Asbestos	Other Fibres		Particulate
Layer 1	47	Homogeneous grey vinyl flooring	Not Detected	Cellulose	5%	Non-Fibrous
Layer 2	50	Homogeneous black backing on vinyl flooring	Not Detected	Cellulose	45%	Non-Fibrous
Layer 3	3	Homogeneous beige cementitious material	Not Detected			Non-Fibrous

S0019C FLOOR,VINYL FLOOR TILE AND MASTIC,9X9 BEIGE,LOC:29,VAULT

Bureau Veritas ID: AHVB96 Date Analyzed: 2024/11/08

	P.O.B	Sample Morphology	Asbestos	Other Fibres		Particulate
Layer 1	47	Homogeneous grey vinyl flooring	Not Detected	Cellulose	5%	Non-Fibrous
Layer 2	50	Homogeneous black backing on vinyl flooring	Not Detected	Cellulose	45%	Non-Fibrous
Layer 3	3	Homogeneous beige cementitious material	Not Detected			Non-Fibrous

The limit of quantitation is 0.50%, although asbestos may be qualitatively detected at concentrations less than 0.50%. Samples for which asbestos is detected at <0.50% are reported as trace, "<0.50%". "Not Detected" indicates that no asbestos fibres were observed.

Calibrated Visual Estimate (%)
Date Format : yyyy/mm/dd

Bureau Veritas Job #: C4Y6439
Report Date: 2024/11/18

Pinchin Ltd
Client Project #: 336569.005
Sampler Initials: SH

Asbestos Analytical Results

EPA/600R-93/116 by Polarized Light Microscopy

S0020A FLOOR,TERRAZZO,LOC:28,WOMEN'S WASHROOM

Bureau Veritas ID: AHVB97 Date Analyzed: 2024/11/08

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1	100	Homogeneous off-white stucco	Not Detected		Non-Fibrous

S0020B FLOOR,TERRAZZO,LOC:28,WOMEN'S WASHROOM

Bureau Veritas ID: AHVB98 Date Analyzed: 2024/11/08

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1	100	Homogeneous off-white stucco	Not Detected		Non-Fibrous

S0020C FLOOR,TERRAZZO,LOC:28,WOMEN'S WASHROOM

Bureau Veritas ID: AHVB99 Date Analyzed: 2024/11/08

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1	100	Homogeneous off-white stucco	Not Detected		Non-Fibrous

The limit of quantitation is 0.50%, although asbestos may be qualitatively detected at concentrations less than 0.50%. Samples for which asbestos is detected at <0.50% are reported as trace, “<0.50%”. “Not Detected” indicates that no asbestos fibres were observed.

Calibrated Visual Estimate (%)
Date Format : yyyy/mm/dd

Bureau Veritas Job #: C4Y6439
Report Date: 2024/11/18

Pinchin Ltd
Client Project #: 336569.005
Sampler Initials: SH

Asbestos Analytical Results

EPA/600R-93/116 by Polarized Light Microscopy

S0021A WALL,THIN-SET,WHITE SQUARE PATTERN,LOC:28,WOMEN'S WASHROOM

Bureau Veritas ID: AHVC00 Date Analyzed: 2024/11/08

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1	100	Homogeneous white thinset	Not Detected		Non-Fibrous

S0021B WALL,THIN-SET,WHITE SQUARE PATTERN,LOC:28,WOMEN'S WASHROOM

Bureau Veritas ID: AHVC01 Date Analyzed: 2024/11/08

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1	100	Homogeneous white thinset	Not Detected		Non-Fibrous

S0021C WALL,THIN-SET,WHITE SQUARE PATTERN,LOC:28,WOMEN'S WASHROOM

Bureau Veritas ID: AHVC02 Date Analyzed: 2024/11/08

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1	100	Homogeneous white thinset	Not Detected		Non-Fibrous

The limit of quantitation is 0.50%, although asbestos may be qualitatively detected at concentrations less than 0.50%. Samples for which asbestos is detected at <0.50% are reported as trace, “<0.50%”. “Not Detected” indicates that no asbestos fibres were observed.

Calibrated Visual Estimate (%)
Date Format : yyyy/mm/dd

Bureau Veritas Job #: C4Y6439
Report Date: 2024/11/18

Pinchin Ltd
Client Project #: 336569.005
Sampler Initials: SH

Asbestos Analytical Results

EPA/600R-93/116 by Polarized Light Microscopy

S0022A PIPING,AIRCELL,LOC:28,WOMEN'S WASHROOM

Bureau Veritas ID: AHVC03 — Date Analyzed: 2024/11/08

	P.O.B	Sample Morphology	Asbestos		Other Fibres	Particulate
Layer 1	100	Homogeneous light grey aircell	**Chrysotile**	60%		Non-Fibrous

S0022B PIPING,AIRCELL,LOC:28,WOMEN'S WASHROOM

Bureau Veritas ID: AHVC04 — Date Analyzed: 2024/11/08

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1			N/A		
	Comment:	Not Analyzed - Positive Stop			

S0022C PIPING,AIRCELL,LOC:28,WOMEN'S WASHROOM

Bureau Veritas ID: AHVC05 — Date Analyzed: 2024/11/08

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1			N/A		
	Comment:	Not Analyzed - Positive Stop			

The limit of quantitation is 0.50%, although asbestos may be qualitatively detected at concentrations less than 0.50%. Samples for which asbestos is detected at <0.50% are reported as trace, "<0.50%". "Not Detected" indicates that no asbestos fibres were observed.

Calibrated Visual Estimate (%)
Date Format : yyyy/mm/dd

Bureau Veritas Job #: C4Y6439
Report Date: 2024/11/18

Pinchin Ltd
Client Project #: 336569.005
Sampler Initials: SH

Asbestos Analytical Results

EPA/600R-93/116 by Polarized Light Microscopy

S0023A PIPING,SWEATWRAP,LOC:19,RECEPTION

Bureau Veritas ID: AHVC06 — Date Analyzed: 2024/11/08

	P.O.B	Sample Morphology	Asbestos		Other Fibres		Particulate
Layer 1	80	Homogeneous beige fibrous material	**Chrysotile**	<0.50%	Cellulose	75%	Non-Fibrous
Layer 2	20	Homogeneous black fibrous material	Not Detected		Cellulose	70%	Non-Fibrous

S0023B PIPING,SWEATWRAP,LOC:19,RECEPTION

Bureau Veritas ID: AHVC07 — Date Analyzed: 2024/11/08

	P.O.B	Sample Morphology	Asbestos	Other Fibres		Particulate
Layer 1	80	Homogeneous beige fibrous material	Not Detected	Cellulose	75%	Non-Fibrous
Layer 2	20	Homogeneous black fibrous material	Not Detected	Cellulose	70%	Non-Fibrous

S0023C PIPING,SWEATWRAP,LOC:19,RECEPTION

Bureau Veritas ID: AHVC08 — Date Analyzed: 2024/11/08

	P.O.B	Sample Morphology	Asbestos	Other Fibres		Particulate
Layer 1	60	Homogeneous beige fibrous material	Not Detected	Cellulose	75%	Non-Fibrous
Layer 2	40	Homogeneous black fibrous material	Not Detected	Cellulose	70%	Non-Fibrous

The limit of quantitation is 0.50%, although asbestos may be qualitatively detected at concentrations less than 0.50%. Samples for which asbestos is detected at <0.50% are reported as trace, "<0.50%". "Not Detected" indicates that no asbestos fibres were observed.

Calibrated Visual Estimate (%)
Date Format : yyyy/mm/dd

Bureau Veritas Job #: C4Y6439
Report Date: 2024/11/18

Pinchin Ltd
Client Project #: 336569.005
Sampler Initials: SH

Asbestos Analytical Results

EPA/600R-93/116 by Polarized Light Microscopy

S0024A SINK,MASTIC, GOLD,LOC:30,JANITOR CLOSET

Bureau Veritas ID: AHVC09 — Date Analyzed: 2024/11/08

	P.O.B	Sample Morphology	Asbestos		Other Fibres	Particulate
Layer 1	100	Homogeneous dark gold mastic	**Chrysotile**	2%		Non-Fibrous

S0024B SINK,MASTIC, GOLD,LOC:30,JANITOR CLOSET

Bureau Veritas ID: AHVC10 — Date Analyzed: 2024/11/08

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1			N/A		
	Comment:	Not Analyzed - Positive Stop			

S0024C SINK,MASTIC, GOLD,LOC:30,JANITOR CLOSET

Bureau Veritas ID: AHVC11 — Date Analyzed: 2024/11/08

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1			N/A		
	Comment:	Not Analyzed - Positive Stop			

S0025A WINDOW,CAULKING,GREY,LOC:21,OFFICE

Bureau Veritas ID: AHVC12 — Date Analyzed: 2024/11/08

	P.O.B	Sample Morphology	Asbestos	Other Fibres	Particulate
Layer 1	100	Homogeneous grey caulking	Not Detected		Non-Fibrous

The limit of quantitation is 0.50%, although asbestos may be qualitatively detected at concentrations less than 0.50%. Samples for which asbestos is detected at <0.50% are reported as trace, “<0.50%”. “Not Detected” indicates that no asbestos fibres were observed.

Calibrated Visual Estimate (%)
Date Format : yyyy/mm/dd

Bureau Veritas Job #: C4Y6439
Report Date: 2024/11/18

Pinchin Ltd
Client Project #: 336569.005
Sampler Initials: SH

Asbestos Analytical Results

EPA/600R-93/116 by Polarized Light Microscopy

S0025B WINDOW,CAULKING,GREY,LOC:25,OPEN SPACE					
Bureau Veritas ID:	AHVC13			Date Analyzed:	2024/11/08
	P.O.B	**Sample Morphology**	**Asbestos**	**Other Fibres**	**Particulate**
Layer 1	100	Homogeneous grey caulking	Not Detected		Non-Fibrous

S0025C WINDOW,CAULKING,GREY,LOC:26,MEETING ROOM					
Bureau Veritas ID:	AHVC14			Date Analyzed:	2024/11/08
	P.O.B	**Sample Morphology**	**Asbestos**	**Other Fibres**	**Particulate**
Layer 1	100	Homogeneous grey caulking	Not Detected		Non-Fibrous

The limit of quantitation is 0.50%, although asbestos may be qualitatively detected at concentrations less than 0.50%. Samples for which asbestos is detected at <0.50% are reported as trace, “<0.50%”. “Not Detected” indicates that no asbestos fibres were observed.

Calibrated Visual Estimate (%)
Date Format : yyyy/mm/dd

GENERAL COMMENTS

Revised Report (2024/11/18): For samples S0023A-C, additional sample layer added as per client request.

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Dina Yousif, Analyst 2

Jon Delos Santos, Laboratory Supervisor

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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C4Y6439
2024/11/04 10:21

NONT-2024-11-358

Pinchin Ltd. - Asbestos Laboratory
Internal Asbestos Bulk Sample Chain of Custody

Special Instructions:

Client Name:	Hamilton Oshawa Port Authority	**Project Address:**	ON
Portfolio/Building No:	Head Office 605 James Street N, Hamilton	**Pinchin File:**	336569.005
Submitted by:	Justin Appleby	**Email:**	jappleby@pinchin.com
CC Results to:	Steve Holmquist	**CC Email:**	sholmquist@pinchin.com
Date Submitted:	October 30 2024	**Required by:**	November 6 2024
# of Samples:	39	**Priority:**	5 Day Turnaround
Year of Building Construction (*Mandatory, Years ONLY*):			
Do NOT Stop on Positive (Sample Numbers):			
Pinchin Group Company (*Mandatory Field*):			
HMIS2 Building Reference #:	141374/202492986728797		
To be Completed by Lab Personnel Only			
Lab Reference #:	NOV 0 1 2024	**Time:**	24 hour clock
Received by:		**Date:**	Month Day Year
Name(s) of Analyst(s):			

Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)
S	0002	G	Wa/1,D ywall Compound,Loc:18,Corridor
S	0008	D	Wall,P aster,Rough.Loe:18,Corridor
S	0008	E	Ceiling,Plaster,Rough,Loc:29,Vault
S	0015	A	Wall,D ywall Compound,Loc:19,Reception
S	0015	8	Wall,D ywall Compound,Loc:23,Office
S	0015	C	Wall,D ywall Compound,Loc:25,Open Space

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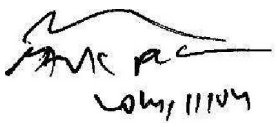
Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)
S	0015	D	Wall,Drywall Compound,Loc:26,Meeting Room
S	0015	E	Wall.Drywall Compound,Loc:27,Office
S	0016	A	Floor,Thin-set,Blue/grey Square Pattern,Loc:19,Reception
S	0016	8	Floor,Thin-set,Blue/grey Square Pattern,Loe:19,Reception
S	0016	C	Floor,Thin-set,Blue/grey Square Pattern,Loc:19,Reception
S	0017	A	Door,Cau!klng,B\ack Butyl,Loc:19,Reception
S	0017	8	Door,Caulking,Black Butyl,Loe:19,Reception
S	0017	C	Door,Caulking,Black Butyl,Loc:19,Reception
S	0018	A	Floor,Mastic, Black,Loc:19,Reception
8	0018	8	Floor,Mastic, Black,Loc:23,Office
S	0018	C	Floor,Mastic, Black,Loc·.25,Open Space
S	0019	A	Floor.Vinyl Floor Tile And Mastic,9x9 Beige,Loc:29,Vault
S	0019	B	Floor.Vinyl Floor Tile And Mastic,9x9 Beige,Loc:29,Vault
S	0019	C	Floor,Vinyl Floor Tile And Mastic,9x9 Beige,Loc:29,Vault
S	0020	A	Floor,Terrazzo,Loc:28,Women's Washroom



, *CJV1*

Sample Prefix	Sample No.	Sample Suffix	Sample Description/location (Mandatory)
S	0020	B	Floor,Terrazzo,Loc:28,Women's Washroom
S	0020	C	Floor,Terrazzo,Loc:28,Women's Washroom
S	0021	A	Wall,Thin-set,White Square Pattern,Loc:28,Women's Washrolm
S	0021	8	Wall,Thin-set,White Square Pattern,Loc:28,Women'sJvashroom
S	0021	C	Wall,Thin-set,White Square Pattern,loc:28,Women's >ashr+m
S	0022	A	Plping,Aircell,Loc:28,Women's Washroom
S	0022	8	Piping,Aircell,Loc:28,Women·s Washroom
S	0022	C	Piping,Aircell,Loc:28,Women's Washroom
S	0023	A	Piping,Sweatwrap,Loe:19)eception
S	0023	B	Piping,Sweatwrap,Loc:19, eception
S	0023	C	Piping,Sweatwrap,Loc:19,Reception
S	0024	A	Sink.Mastic, Gold,Loc:30,Janitor Closet
S	0024	B	Sink.Mastic,bold,Loc:30,Jtitor Closet
S	0024	C	Sink.Mastic, Gold,Loc:30,Janitor Closet
S	0025	A	Window,Caulking,Grey,Lod:21,Office

Sample Prefix	Sample No	Sample Suffix	Sample Description/Location (Mandatory)
S	0025	B	Window,Caulking,Grey,Loc:25,Open Space
S	0025	C	Window,Cautking,Grey,Loc:26,Meeting Room

Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 40 CFR, Part 763, Subpart E, App.E

NVLAP Lab Code: 200664-0

Customer: Pinchin Ltd.
6-875 Main St West
Suite 200
Hamilton, Ontario L8S 4P9

Attn: Matthew Gibbs
Michael Maiorana

Project: 234965.002, HPA 5th Floor, 605 James St N, Hamilton, ON

Lab Order ID: 71908276
Analysis ID: 71908276_PLM
Date Received: 3/26/2019
Date Reported: 4/7/2019

Sample ID / *Lab Sample ID*	Description / *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes / Treatment
0003A / *71908276PLM_1*	aircell / location 2	**60% Chrysotile**	**30% Cellulose**	**10% Other**	White, Fibrous, Homogeneous / Teased
0003B / *71908276PLM_2*	aircell / location 2	**Not Analyzed**			
0003C / *71908276PLM_3*	aircell / location 2	**Not Analyzed**			
0004A / *71908276PLM_4*	parging cement / location 11	**15% Chrysotile**		**85% Other**	Gray, Non Fibrous, Heterogeneous / Crushed
0004B / *71908276PLM_5*	parging cement / location 11	**Not Analyzed**			
0004C / *71908276PLM_6*	parging cement / location 12	**Not Analyzed**			
0005A / *71908276PLM_7*	paper on metal ceiling tiles / location 2	**None Detected**	**98% Cellulose**	**2% Other**	Brown, Fibrous, Heterogeneous / Teased
0005B / *71908276PLM_8*	paper on metal ceiling tiles / location 7	**None Detected**	**98% Cellulose**	**2% Other**	Brown, Fibrous, Heterogeneous / Teased

Bart Huber (48)

Analyst

Approved Signatory

Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 40 CFR, Part 763, Subpart E, App.E

NVLAP Lab Code: 200664-0

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Analysis ID: 71908276_PLM
Date Received: 3/26/2019
Date Reported: 4/7/2019

Sample ID *Lab Sample ID*	Description *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes Treatment
0005C *71908276PLM_9*	paper on metal ceiling tiles / location 5	**None Detected**	**98% Cellulose**	**2% Other**	Brown Fibrous Heterogeneous Teased
0006A *71908276PLM_10*	24x24 textured fissure ceiling tile / location 12	**None Detected**	**98% Fiber Glass**	**2% Other**	White Fibrous Heterogeneous Teased
0006B *71908276PLM_11*	24x24 textured fissure ceiling tile / location 12	**None Detected**	**98% Fiber Glass**	**2% Other**	White Fibrous Heterogeneous Teased
0006C *71908276PLM_12*	24x24 textured fissure ceiling tile / location 12	**None Detected**	**98% Fiber Glass**	**2% Other**	White Fibrous Heterogeneous Teased
0007A - A *71908276PLM_13*	9x9 white vinyl floor tile / location 20 *tile*	**2% Chrysotile**		**98% Other**	White Non Fibrous Homogeneous Dissolved
0007A - B *71908276PLM_41*	9x9 white vinyl floor tile / location 20 *mastic*	**8% Chrysotile**		**92% Other**	Black Non Fibrous Homogeneous Dissolved
0007B - A *71908276PLM_14*	9x9 white vinyl floor tile / location 2 *tile*	**Not Analyzed**			
0007B - B *71908276PLM_42*	9x9 white vinyl floor tile / location 2 *mastic*	**Not Analyzed**			

Bart Huber (48)

Analyst

Approved Signatory

Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 40 CFR, Part 763, Subpart E, App.E

NVLAP Lab Code: 200664-0

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Michael Maiorana

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Lab Order ID: 71908276
Analysis ID: 71908276_PLM
Date Received: 3/26/2019
Date Reported: 4/7/2019

Sample ID *Lab Sample ID*	Description *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes Treatment
0007C - A	9x9 white vinyl floor tile / location 5	**Not Analyzed**			
71908276PLM_15	*tile*				
0007C - B	9x9 white vinyl floor tile / location 5	**Not Analyzed**			
71908276PLM_43	*mastic*				
0008A	levelling compound / location 20	**None Detected**		**100% Other**	Gray Non Fibrous Heterogeneous
71908276PLM_16					Crushed
0008B	levelling compound / location 20	**None Detected**		**100% Other**	Gray Non Fibrous Heterogeneous
71908276PLM_17					Crushed
0008C	levelling compound / location 20	**None Detected**		**100% Other**	Gray Non Fibrous Heterogeneous
71908276PLM_18					Crushed
0009A	peel and stick tile / location 14	**None Detected**		**100% Other**	Brown Non Fibrous Homogeneous
71908276PLM_19					Dissolved
0009B	peel and stick tile / location 14	**None Detected**		**100% Other**	Brown Non Fibrous Homogeneous
71908276PLM_20					Dissolved
0009C	peel and stick tile / location 14	**None Detected**		**100% Other**	Brown Non Fibrous Homogeneous
71908276PLM_21	*ashed*				Ashed

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

Bart Huber (48)

Analyst

Approved Signatory

Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 40 CFR, Part 763, Subpart E, App.E

NVLAP Lab Code: 200664-0

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Lab Order ID: 71908276
Analysis ID: 71908276_PLM
Date Received: 3/26/2019
Date Reported: 4/7/2019

Sample ID *Lab Sample ID*	Description *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes Treatment
0010A	grey stipple textured plaster / location 25	**None Detected**		**100% Other**	Gray Non Fibrous Heterogeneous
71908276PLM_22	*single layer plaster*				Crushed
0010B	grey stipple textured plaster / location 15	**None Detected**		**100% Other**	Gray Non Fibrous Heterogeneous
71908276PLM_23	*single layer plaster*				Crushed
0010C	grey stipple textured plaster / location 1	**None Detected**		**100% Other**	Gray Non Fibrous Heterogeneous
71908276PLM_24	*single layer plaster*				Crushed
0011A	beige textured plaster / location 1	**None Detected**		**100% Other**	Tan Non Fibrous Heterogeneous
71908276PLM_25	*single layer plaster*				Crushed
0011B	beige textured plaster / location 1	**None Detected**		**100% Other**	Tan Non Fibrous Heterogeneous
71908276PLM_26	*single layer plaster*				Crushed
0011C	beige textured plaster / location 1	**None Detected**		**100% Other**	Tan Non Fibrous Heterogeneous
71908276PLM_27	*single layer plaster*				Crushed
0012A - A	smooth plaster / location 11	**None Detected**		**100% Other**	White Non Fibrous Homogeneous
71908276PLM_28	*finish*				Crushed
0012A - B	smooth plaster / location 11	**None Detected**		**100% Other**	Gray Non Fibrous Heterogeneous
71908276PLM_44	*base*				Crushed

Bart Huber (48)

Analyst

Approved Signatory

Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 40 CFR, Part 763, Subpart E, App.E

NVLAP Lab Code: 200664-0

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Lab Order ID: 71908276
Analysis ID: 71908276_PLM
Date Received: 3/26/2019
Date Reported: 4/7/2019

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	*Lab Notes*				Treatment
0012B - A	smooth plaster / location 7	**None Detected**		**100% Other**	White Non Fibrous Homogeneous
71908276PLM_29	*finish*				Crushed
0012B - B	smooth plaster / location 7	**None Detected**		**100% Other**	Gray Non Fibrous Heterogeneous
71908276PLM_45	*base*				Crushed
0012C - A	smooth plaster / location 20	**None Detected**		**100% Other**	White Non Fibrous Homogeneous
71908276PLM_30	*finish*				Crushed
0012C - B	smooth plaster / location 20	**None Detected**		**100% Quartz**	Gray Non Fibrous Heterogeneous
71908276PLM_46	*base*				Crushed
0012D - A	smooth plaster / location 18	**None Detected**		**100% Other**	White Non Fibrous Homogeneous
71908276PLM_31	*finish*				Crushed
0012D - B	smooth plaster / location 18	**None Detected**		**100% Other**	Gray Non Fibrous Heterogeneous
71908276PLM_47	*base*				Crushed
0012E - A	smooth plaster / location 3	**None Detected**		**100% Other**	White Non Fibrous Homogeneous
71908276PLM_32	*finish*				Crushed
0012E - B	smooth plaster / location 3	**None Detected**		**100% Other**	Gray Non Fibrous Heterogeneous
71908276PLM_48	*base*				Crushed

Bart Huber (48)

Analyst

Approved Signatory

Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 40 CFR, Part 763, Subpart E, App.E

NVLAP Lab Code: 200664-0

Customer: Pinchin Ltd.
6-875 Main St West
Suite 200
Hamilton, Ontario L8S 4P9

Attn: Matthew Gibbs
Michael Maiorana

Project: 234965.002, HPA 5th Floor, 605 James St N, Hamilton, ON

Lab Order ID: 71908276
Analysis ID: 71908276_PLM
Date Received: 3/26/2019
Date Reported: 4/7/2019

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	*Lab Notes*				Treatment
0013A	drywall joint compound / location 11 exterior wall	**None Detected**		**100% Other**	White Non Fibrous Homogeneous
71908276PLM_33					Crushed
0013B	drywall joint compound / location 18 exterior wall	**None Detected**		**100% Other**	White Non Fibrous Homogeneous
71908276PLM_34					Crushed
0013C	drywall joint compound / location 11 exterior wall	**None Detected**		**100% Other**	White Non Fibrous Homogeneous
71908276PLM_35					Crushed
0014A	drywall joint compound / location 3	**None Detected**		**100% Other**	White Non Fibrous Homogeneous
71908276PLM_36					Crushed
0014B	drywall joint compound / location 2	**None Detected**		**100% Other**	White Non Fibrous Homogeneous
71908276PLM_37					Crushed
0014C	drywall joint compound / location 2	**None Detected**		**100% Other**	White Non Fibrous Homogeneous
71908276PLM_38					Crushed
0014D	drywall joint compound / location 18	**None Detected**		**100% Other**	White Non Fibrous Homogeneous
71908276PLM_39					Crushed
0014E	drywall joint compound / location 14	**None Detected**		**100% Other**	White Non Fibrous Homogeneous
71908276PLM_40					Crushed

Bart Huber (48)

Analyst

Approved Signatory

Cffent:	Pinchin Ltd.	***"Instructions:***	*Version 1-15-2012*
Contact:	Matt Gibbs	*Use Column naH for your contact info*	1\90i>'Zrl.R
	875 Main Street W., Unit 11		
Address:	Hamilton, ON LBS 4R9		Invoice to:
Phone:	905-577-6206	*To See an Example Click the*	
Fax:	905-577-6207	*bottom Example Tab.*	mgibbs@oinchin.com
Email:	mgibbs@pinchin.com		
	mmaiorana@pinchln.com	***Enter samples between"<<..and">>"***	
	234965.002, HPA 5th Floor, 605		
Project:	James St N, Hamilton, ON	***Begin Samples with a "<< "above the first sample and end with a ">>" below the last sample.***	***Scientific Analytica, l Institute***
Client Notes:		*Only Enter your data on the first sheet "Sheet1"*	
P.O.#.	234965.002	*Note: Data 1 and Data 2 are optional*	***4604 Dundas Dr.***
Data Submitted:	March 25 2019	*fields that do not show up on the official*	***Greensboro, NC 27407***
		report, however they will be included	***Phone: 336.292.3888***
Analysts:	PLM - Stop Positive	*in the electronic data returned to you*	***Fax: 336.292.331.3***
TurnAroundTime:	5_ays	*to facilitate your reint gratic_n of the report data*	***Email: labOa/1-b.com***

ISample Num6er	D_ta 1 (Lab use only}	Sample Description	**Data 2** (Lab use only\)
<<			
0003A		aircell / location 2	
0003B		aircell / location 2	
0003C		aircell / location 2	
0004A		parging cement / location 11	
OC94B		parging cement/ location 11	
0004C		parging cement / location 12	
0005A		paper on metal ceiling tiles / location 2	
0005B		paper on metal ceiling tiles / location 7	
0005C		paper on metal ceiling tiles / location 5	
0006A		24x24 textured fissure ceiling tile / location 12	
0006B		24x24 textured fissure ceiling tile / location 12	
0006C		24x24 textured fissure ceiling tile / location 12	
0007A		9x9 white vinyl floor tile / location 20	
0007B		9x9 white vinyl floor tile / location 2	
0007C		G'hIte vinyl floor tile /.location 5 '	

t;

Accepted

Rejected ☐

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0008A	levelling compound / location 20
0008B	levelling compound / location 20
000ac	levelling compound/ location 20
0009A	peel and stick tile / location 14
0009B	peel and stick tile / location 14
0009C	peel and stick tile / location 14
0010A	grey stipple textured plaster / location 25
0010B	grey stipple textured plaster/ location 15
001'0C	grey stipple textured plaster/ location 1
0011A	beige textured plaster / location 1
0011B	beige textured plaster/ location 1
0011C	beige textured plaster/ location 1
0012A	smooth plaster/ location 11
0012B	smooth plaster / location 7
0012C	smooth plaster/ location 20
00120	smooth plaster/ location 18
0012E	smooth plaster / location 3
0013A	drywall joint compound / location 11 exterior wall
0013B	drywall joint compound / location 18 exterior wall
0013C	drywall joint compound/ location 11 exterior wall
0014A	drywall joint compound / location 3
0014B	drywall joint compound / location 2
0014C	drywall joint compound/ location 2
00140	drywall joint compound/ location 18
0014E	drywall joint compound / location 14

>>

Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

Project Name:	**Hamilton Port Authority, 605 James St N, Hamilton, ON**		
Project No.:	**0231050.000**		
Prepared For:	**M. Gibbs / M. Maiorana**		
Lab Reference No.:	**b201446**		
Analyst(s):	**J. Raisch-Berkoff**		
Date Received:	**November 30, 2018**	**# Samples submitted:**	**7**
Date Analyzed:	**December 7, 2018**	**# Phases analyzed:**	**15**

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 (see chart below) indicates the presence of confirmed asbestos in trace quantities, limited to only a few fibres or fibre bundles in an entire sample. This method complies with provincial regulatory requirements where applicable. Multiple phases within a sample are analyzed and reported separately.

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

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

Pinchin Ltd. is accredited by the National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program (NVLAP Lab Code 101270-0) for the 'EPA-600/M4-82-020: Interim Method for 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 17025:2005.

This report relates only to the items tested.

Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

Project Name: Hamilton Port Authority, 605 James St N, Hamilton, ON
Project No.: 0231050.000
Prepared For: M. Gibbs / M. Maiorana

Lab Reference No.: b201446
Date Analyzed: December 7, 2018

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
0001A 9x9 white with black streaks floor tile / basement doctor's storage room	2 Phases: a) Homogeneous, off-white, consolidated, vinyl floor tile. b) Homogeneous, black, soft, sticky material on the back of vinyl floor tile.	Chrysotile 0.5-5% None Detected	Non-Fibrous Material > 75% Tar and other non-fibrous > 75%
0001B 9x9 white with black streaks floor tile / basement doctor's storage room	2 Phases: a) Homogeneous, off-white, consolidated, vinyl floor tile. b) Homogeneous, black, soft, sticky material on the back of vinyl floor tile.	 None Detected	Not Analyzed Tar and other non-fibrous > 75%
Comments:	Analysis of phase a) was stopped due to a previous positive result.		
0001C 9x9 white with black streaks floor tile / basement doctor's storage room	2 Phases: a) Homogeneous, off-white, consolidated, vinyl floor tile. b) Homogeneous, black, soft, sticky material on the back of vinyl floor tile.	 None Detected	Not Analyzed Tar and other non-fibrous > 75%
Comments:	Analysis of phase a) was stopped due to a previous positive result. Phase b) is small in size. For more reliable results, a larger sample is required.		

Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

Project Name: Hamilton Port Authority, 605 James St N, Hamilton, ON
Project No.: 0231050.000
Prepared For: M. Gibbs / M. Maiorana

Lab Reference No.: b201446
Date Analyzed: December 7, 2018

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
0002A smooth plaster / stairwell, 4th floor	3 Phases: a) Homogeneous, grey, hard, cementitious, plaster base coat.	None Detected	Non-Fibrous Material > 75%
	b) Homogeneous, white, hard, cementitious, plaster top coat.	None Detected	Non-Fibrous Material > 75%
	c) Homogeneous, white, drywall joint compound.	None Detected	Non-Fibrous Material > 75%
Comments:	Phase c) is small in size. For more reliable results, a larger sample is required.		
0002B smooth plaster / stairwell, 3rd floor	3 Phases: a) Homogeneous, grey, hard, granular and cementitious, plaster base coat.	None Detected	Non-Fibrous Material > 75%
	b) Homogeneous, white, hard, cementitious, plaster top coat.	None Detected	Non-Fibrous Material > 75%
	c) Homogeneous, off-white, drywall joint compound.	None Detected	Non-Fibrous Material > 75%
Comments:	Phase a) is small in size. For more reliable results, a larger sample is required.		

Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

Project Name: Hamilton Port Authority, 605 James St N, Hamilton, ON
Project No.: 0231050.000
Prepared For: M. Gibbs / M. Maiorana

Lab Reference No.: b201446
Date Analyzed: December 7, 2018

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
0002C smooth plaster / stairwell, 2nd floor	3 Phases: a) Homogeneous, grey, hard, granular and cementitious, plaster base coat.	None Detected	Non-Fibrous Material > 75%
	b) Homogeneous, off-white, hard, cementitious, plaster top coat.	None Detected	Non-Fibrous Material > 75%
	c) Homogeneous, off-white, drywall joint compound.	None Detected	Non-Fibrous Material > 75%
Comments:	Phase a) is small in size. For more reliable results, a larger sample is required.		
0002D smooth plaster / stairwell, 1st floor	2 Phases: a) Homogeneous, grey, hard, granular and cementitious, plaster base coat.	None Detected	Non-Fibrous Material > 75%
	b) Homogeneous, white, hard, cementitious, plaster top coat.	None Detected	Non-Fibrous Material > 75%
Comments:	Another phase may be present but there was insufficient material submitted to analyze.		

Reviewed by: **Reporting Analyst:**

PINCHIN

PINCHIN GROUP
THE PIN CHIN GROUP

CG

alyzed by: JLB 5) Dec 7/18

viewed by:

port Sent by:

Special Instructions:

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Internal stlesto Bulk Sam le Chain of Custody

Client Name:	Hamilton Port Authority	**Project Address:**	605. James St N, Hamilton, On
Portfolio/Building No:		**Pinchin File:**	231050
Submitted by:	Matt Gibbs	**Email:**	mgibbs@uinchin;com
CC Results to:	Mike Maiorana	**CC Email:**	mmaiorana@uinchin.com
Invoice to:	Matt Gibbs	**Invoice Email:**	mgibbs@uinchin.com
Date Submitted:	November 29 2018	**Required by:**	December 6 2018.
# of Samples:	7	**Priority:**	5 Day Turnarot1nd
Year of Building Construction *(Mandatory Field)*:			
Do NOT Stop on Positive (Sample Numbers):			
Pinchin Group Company *(Mandatory Field)*:		Pinchin	

To be Completed by Lab Personnel Only:			
Lab Reference #:	220144	**Time:**	24 hour clock
Received by:	NOV 30 2018	**Date:**	Month Day Year
Name(s) of Analyst(s):			

Sample #	Sample No.	Sample Stratum	Sample Description/Location (Mandatocy)
	0001	A	9x9 white with black streaks floor tile / ba ement doctor's storage room
	0001	B	9x9 whi eith '5c reaks floor tile / basement doctor's storage room ND
	0001	C	9x9 white with black streaks floor tile / basement doctor's storage room
	0002	A	smooth pl;)ter / stairwell, 4th floor
	0002	B	smooth plaster / stairwell, 3rd floor ND
	0002	C	smooth pla ter / s i ll, 2nd flo?r

MEMBER OF THE PINCHIN GROUD

Sample Prefix	Sample No.	Sample Suffix	Sample IDescription/Eocation (Ma datory)
	0002	D	smooth plaster/ stairwell, 1st,flo,)or /J) h.JI) b !'-Ji_'>

Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

Project Name:	**Hamilton Port Authority, 605 James St. N., Hamilton, ON**		
Project No.:	**0234965.002**		
Prepared For:	**M. Gibbs**		
Lab Reference No.:	**b215250**		
Analyst(s):	**N. Barinque**		
Date Received:	**August 6, 2019**	**# Samples submitted:**	**3**
Date Analyzed:	**August 7, 2019**	**# Phases analyzed:**	**6**

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 (see chart below) indicates the presence of confirmed asbestos in trace quantities, limited to only a few fibres or fibre bundles in an entire sample. This method complies with provincial regulatory requirements where applicable. Multiple phases within a sample are analyzed and reported separately.

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

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-600/M4-82-020: Interim Method for 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 17025:2005.

This report relates only to the items tested.

Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

Project Name: Hamilton Port Authority, 605 James St. N., Hamilton, ON
Project No.: 0234965.002
Prepared For: M. Gibbs

Lab Reference No.: b215250
Date Analyzed: August 7, 2019

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
0015A sweatwrap pipe insulation / 4th floor north office adjacent to washroom	2 Phases: a) Homogeneous, beige, layered paper. b) Homogeneous, black, tar paper.	Chrysotile < 0.5% None Detected	Cellulose > 75% Non-Fibrous Material 0.5-5% Cellulose 50-75% Tar and other non-fibrous 25-50%
0015B sweatwrap pipe insulation / 4th floor north office adjacent to washroom	2 Phases: a) Homogeneous, beige, layered paper. b) Homogeneous, black, tar paper.	Chrysotile < 0.5% Chrysotile < 0.5%	Cellulose > 75% Non-Fibrous Material 0.5-5% Cellulose 50-75% Tar and other non-fibrous 25-50%
0015C sweatwrap pipe insulation / 4th floor west office	2 Phases: a) Homogeneous, brown, layered paper. b) Homogeneous, black, tar paper.	None Detected Chrysotile 50-75%	Cellulose > 75% Non-Fibrous Material 0.5-5% Tar and other non-fibrous 25-50%

Reviewed by: **Reporting Analyst:**

PINCHIN

MEMBER OF THE PINCHIN GROUP

Reviewed by:

Special Instructions:

Report Sent by:

Pinchin Ltd. - Asbestos Laboratory
Internal Asbestos Bulk Sample Chain of Custody

Client Name:	Hamilton Port Authority	Project Address:	605 James St N Hamilton On
Portfolio/Building No:		Pinchin File:	234965.002
Submitted by:	Matt Gibbs	Email:	mgibbs@pinchin.com
CC Results to:		**CC Email:**	
Invoice to:	Matt Gibbs	**Invoice Email:**	mgibbs@pinchin.com
Date Submitted:	August 2 2019	**Required by:**	August 7 2019
# of Samples:		**Priority:**	[redacted]
Year of Building Construction *(Mandatory Field)*:		Changed to Rush! aug. 7th.	
Do NOT Stop on Positive (Sample Numbers):			
Pinchin Group Company *(Mandatory Field)*:		Pinchin	

To be Completed by Lab Personnel Only:				
Lab Reference #:	D21 5250	**Time:**	24 hour clock	
Received by:	AUG 0 6 2019 JR	**Date:**	Month	Day Year
Name(s) of Analyst(s):				

Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)
	0015	A	a) CH <0.5%. b) ND djacent to washroom
	0015	B	a) CH <0.5%. b) CH <0.5% ce adja washroom
	0015	C	a) ND b) CH m 6--1 '

Bulk Asbestos Analysis

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

AIHA LAP, LLC ACCREDITED LABORATORY
LAB #173190
NVLAP Lab Code: 200664-0

Customer: Pinchin Environmental Ltd
11-875 Main St West
Hamilton Ontario L8S 4R9

Attn: Michael Maiorana
David Niemand

Lab Order ID: 1412615
Analysis ID: 1412615_PLM
Date Received: 7/3/2014
Date Reported: 7/8/2014

Project: 84225.004-HPA 605 James Street North, Hamilton

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	*Lab Notes*				Treatment
S001a	Parging cement on pipe fitting over fiberglass insulation, Basement, Mech. room	None Detected	10% Fiber Glass	90% Other	Gray Non Fibrous Homogeneous
1412615PLM_1					Crushed
S001b	Parging cement on pipe fitting over fiberglass insulation, Basement, Mech. room	None Detected	10% Fiber Glass	90% Other	Gray Non Fibrous Homogeneous
1412615PLM_2					Crushed
S001c	Parging cement on pipe fitting over fiberglass insulation, Basement, Mech. room	None Detected	10% Fiber Glass	90% Other	Gray Non Fibrous Homogeneous
1412615PLM_3					Crushed
S002a - A	Sweat wrap on domestic water line, Basement, Mech. room	None Detected	98% Cellulose	2% Other	Tan Fibrous Homogeneous
1412615PLM_4	*paper*				Teased
S002a - B	Sweat wrap on domestic water line, Basement, Mech. room	None Detected	90% Cellulose	10% Other	Black Fibrous Homogeneous
1412615PLM_40	*felt*				Teased, Dissolved
S002b - A	Sweat wrap on domestic water line, Basement, Mech. room	None Detected	98% Cellulose	2% Other	Tan Fibrous Homogeneous
1412615PLM_5	*paper*				Teased
S002b - B	Sweat wrap on domestic water line, Basement, Mech. room	None Detected	90% Cellulose	10% Other	Black Fibrous Homogeneous
1412615PLM_41	*felt*				Teased, Dissolved
S002c - A	Sweat wrap on domestic water line, Basement, Mech. room	None Detected	98% Cellulose	2% Other	Tan Fibrous Homogeneous
1412615PLM_6	*paper*				Teased

Bart Huber (45)

Analyst

Approved Signatory

Bulk Asbestos Analysis

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

AIHA LAP, LLC ACCREDITED LABORATORY
LAB #173190
NVLAP Lab Code: 200664-0

Customer: Pinchin Environmental Ltd
11-875 Main St West
Hamilton Ontario L8S 4R9

Attn: Michael Maiorana
David Niemand

Lab Order ID: 1412615
Analysis ID: 1412615_PLM
Date Received: 7/3/2014
Date Reported: 7/8/2014

Project: 84225.004-HPA 605 James Street North, Hamilton

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	*Lab Notes*				Treatment
S002c - B	Sweat wrap on domestic water line, Basement, Mech. room	**None Detected**	**90% Cellulose**	**10% Other**	Black Fibrous Homogeneous
1412615PLM_42	*felt*				Teased, Dissolved
S003a	Sample number not used	**Not Submitted**			
1412615PLM_7					
S003b	Sample number not used	**Not Submitted**			
1412615PLM_8					
S003c	Sample number not used	**Not Submitted**			
1412615PLM_9					
S004a	Rough plaster on terracotta and metal lath ceiling, Basement, Mech. Room	**0.6% Chrysotile**	**1% Hair**	**98.4% Other**	Gray Non Fibrous Heterogeneous
1412615PLM_10					Crushed
S004b	Rough plaster on terracotta and metal lath ceiling, Basement, Mech. Room	**Not Analyzed**			
1412615PLM_11					
S004c	Rough plaster on terracotta and metal lath ceiling, Basement, Mech. Room	**Not Analyzed**			
1412615PLM_12					
S005a	Black tar caulking around wood board at window, Basement, Mech. Room	**None Detected**	**5% Cellulose**	**95% Other**	Black Non Fibrous Heterogeneous
1412615PLM_13					Dissolved

Disclaimer: Due to the nature of the EPA 600 method, asbestos may not be detected in samples containing low levels of asbestos. We strongly recommended that analysis of floor tiles, vermiculite, and/or heterogeneous soil samples be conducted by TEM for confirmation of "None Detected" by PLM. This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAI. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. government. Estimated MDL is 0.5%.

Bart Huber (45)

Analyst

Approved Signatory

Bulk Asbestos Analysis

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

AIHA LAP, LLC ACCREDITED LABORATORY
LAB #173190
NVLAP Lab Code: 200664-0

Customer: Pinchin Environmental Ltd
11-875 Main St West
Hamilton Ontario L8S 4R9

Attn: Michael Maiorana
David Niemand

Lab Order ID: 1412615
Analysis ID: 1412615_PLM
Date Received: 7/3/2014
Date Reported: 7/8/2014

Project: 84225.004-HPA 605 James Street North, Hamilton

Sample ID / *Lab Sample ID*	Description / *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes / Treatment
S005b	Black tar caulking around wood board at window, Basement, Mech. Room	**None Detected**	**5% Cellulose**	**95% Other**	Black Non Fibrous Heterogeneous
1412615PLM_14					Dissolved
S005c	Black tar caulking around wood board at window, Basement, Mech. Room	**None Detected**	**5% Cellulose**	**95% Other**	Black Non Fibrous Heterogeneous
1412615PLM_15					Dissolved
S006a	Parging cement on boiler breaching, Basement, Mech. Room	**5% Chrysotile**	**5% Cellulose** **5% Fiber Glass**	**85% Other**	Gray Non Fibrous Heterogeneous
1412615PLM_16					Crushed
S006b	Parging cement on boiler breaching, Basement, Mech. Room	**Not Analyzed**			
1412615PLM_17					
S006c	Parging cement on boiler breaching, Basement, Mech. Room	**Not Analyzed**			
1412615PLM_18					
S007a	Tar paper over fiberglass on boiler breaching, Basement, Mech. Room	**None Detected**	**80% Cellulose**	**20% Other**	Black Non Fibrous Heterogeneous
1412615PLM_19					Dissolved
S007b	Tar paper over fiberglass on boiler breaching, Basement, Mech. Room	**None Detected**	**15% Fiber Glass**	**85% Other**	Black Non Fibrous Heterogeneous
1412615PLM_20					Dissolved
S007c	Tar paper over fiberglass on boiler breaching, Basement, Mech. Room	**None Detected**	**15% Fiber Glass**	**85% Other**	Black Non Fibrous Heterogeneous
1412615PLM_21					Dissolved

Bart Huber (45)

Analyst

Approved Signatory

Bulk Asbestos Analysis

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

AIHA LAP, LLC ACCREDITED LABORATORY
LAB #173190
NVLAP Lab Code: 200664-0

Customer: Pinchin Environmental Ltd
11-875 Main St West
Hamilton Ontario L8S 4R9

Attn: Michael Maiorana
David Niemand

Lab Order ID: 1412615
Analysis ID: 1412615_PLM
Date Received: 7/3/2014
Date Reported: 7/8/2014

Project: 84225.004-HPA 605 James Street North, Hamilton

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	*Lab Notes*				Treatment
S008a - A	Smooth plaster wall, Basement corridor adjacent washroom	None Detected		100% Other	White Non Fibrous Homogeneous
1412615PLM_22	*finish*				Crushed
S008a - B	Smooth plaster wall, Basement corridor adjacent washroom	None Detected	1% Cellulose	99% Other	Gray Non Fibrous Heterogeneous
1412615PLM_43	*base*				Crushed
S008b - A	Smooth plaster wall, Second floor corridor	None Detected		100% Other	White Non Fibrous Homogeneous
1412615PLM_23	*finish*				Crushed
S008b - B	Smooth plaster wall, Second floor corridor	None Detected	1% Cellulose	99% Other	Gray Non Fibrous Heterogeneous
1412615PLM_44	*base*				Crushed
S008c - A	Smooth plaster wall, Third floor corridor	None Detected		100% Other	White Non Fibrous Homogeneous
1412615PLM_24	*finish*				Crushed
S008c - B	Smooth plaster wall, Third floor corridor	None Detected	1% Cellulose	99% Other	Gray Non Fibrous Heterogeneous
1412615PLM_45	*base*				Crushed
S009a	White caulking around basement window, Exterior	3% Chrysotile		97% Other	White Non Fibrous Homogeneous
1412615PLM_25					Dissolved
S009b	White caulking around basement window, Exterior	Not Analyzed			
1412615PLM_26					

Disclaimer: Due to the nature of the EPA 600 method, asbestos may not be detected in samples containing low levels of asbestos. We strongly recommended that analysis of floor tiles, vermiculite, and/or heterogeneous soil samples be conducted by TEM for confirmation of "None Detected" by PLM. This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAI. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. government. Estimated MDL is 0.5%.

Bart Huber (45)

Analyst

Approved Signatory

Bulk Asbestos Analysis

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

AIHA LAP, LLC ACCREDITED LABORATORY
LAB #173190
NVLAP Lab Code: 200664-0

Customer: Pinchin Environmental Ltd
11-875 Main St West
Hamilton Ontario L8S 4R9

Attn: Michael Maiorana
David Niemand

Lab Order ID: 1412615
Analysis ID: 1412615_PLM
Date Received: 7/3/2014
Date Reported: 7/8/2014

Project: 84225.004-HPA 605 James Street North, Hamilton

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	*Lab Notes*				Treatment
S009c	White caulking around basement window, Exterior	**Not Analyzed**			
1412615PLM_27					
S010a	Rough plaster wall, First floor work area	**None Detected**		**100% Other**	Gray Non Fibrous Heterogeneous
1412615PLM_28					Crushed
S010b	Rough plaster wall, First floor work area	**None Detected**		**100% Other**	Gray Non Fibrous Heterogeneous
1412615PLM_29					Crushed
S010c	Rough plaster wall, First floor work area	**None Detected**		**100% Other**	Gray Non Fibrous Heterogeneous
1412615PLM_30					Crushed
S011a	Texture finish on plaster wall, Fourth floor, Corridor	**None Detected**		**100% Other**	Pink, Yellow Non Fibrous Heterogeneous
1412615PLM_31					Crushed
S011b	Texture finish on plaster wall, Fourth floor, Corridor	**None Detected**		**100% Other**	Pink, Yellow Non Fibrous Heterogeneous
1412615PLM_32					Crushed
S011c	Texture finish on plaster wall, Fourth floor, Corridor	**None Detected**		**100% Other**	Pink, Yellow Non Fibrous Heterogeneous
1412615PLM_33					Crushed
S012a	Brown fibrous insulation on exp. tank, Penthouse	**None Detected**	**98% Fiber Glass**	**2% Other**	Brown Fibrous Homogeneous
1412615PLM_34					Teased

Disclaimer: Due to the nature of the EPA 600 method, asbestos may not be detected in samples containing low levels of asbestos. We strongly recommended that analysis of floor tiles, vermiculite, and/or heterogeneous soil samples be conducted by TEM for confirmation of "None Detected" by PLM. This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAI. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. government. Estimated MDL is 0.5%.

Bart Huber (45)

Analyst

Approved Signatory

Bulk Asbestos Analysis

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

AIHA LAP, LLC ACCREDITED LABORATORY
LAB #173190
NVLAP Lab Code: 200664-0

Customer: Pinchin Environmental Ltd
11-875 Main St West
Hamilton Ontario L8S 4R9

Attn: Michael Maiorana
David Niemand

Lab Order ID: 1412615
Analysis ID: 1412615_PLM
Date Received: 7/3/2014
Date Reported: 7/8/2014

Project: 84225.004-HPA 605 James Street North, Hamilton

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	*Lab Notes*				Treatment
S012b	Brown fibrous insulation on exp. tank, Penthouse	**None Detected**	**98% Fiber Glass**	**2% Other**	Brown Fibrous Homogeneous
1412615PLM_35					Teased
S012c	Brown fibrous insulation on exp. tank, Penthouse	**None Detected**	**98% Fiber Glass**	**2% Other**	Brown Fibrous Homogeneous
1412615PLM_36					Teased
S013a	Tar at structural joist to roof for cooling tower, Penthouse	**10% Chrysotile**		**90% Other**	Black Non Fibrous Heterogeneous
1412615PLM_37					Dissolved
S013b	Tar at structural joist to roof for cooling tower, Penthouse	**Not Analyzed**			
1412615PLM_38					
S013c	Tar at structural joist to roof for cooling tower, Penthouse	**Not Analyzed**			
1412615PLM_39					

Bart Huber (45)

Analyst

Approved Signatory

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Client:	Pincfon Environmental Ltd.	***Instructions:**	*Version 1-15-2012*
Contact:	Michael Maiorana, David Niemand	*Use Column •a· for your contact info*	
Address:	11-875 Main St W, Hamilton, ON		
Phone·	905-577-6206	*To See an Example Click the*	
Fax:	905-577-6207	*bottom &ample T--Bb.*	
Email:	mmaiorana@pinchin.com		
	dniemand@pinchin.com	***Enter samples between "<<"and""">>"***	
Project:	84225.004 - HPA	***Begin Samples with a "above the first sample***	
	605 James Street North, Hamilton	***and end with a ">>H below the last sample.***	
Client Notes:	PLM EPA 600/R-93/116, Stop Positi	*Only Enter you,- data on the first sheet •sheet1"*	
	Analyze Asbestos Samples to 0.5% as per the Ontario Regulation 278/05.		
P.O.#.	84225.0041	*Note: Data 1 and Data 2 are optional*	
Date Submitted:	7/2/2014 0:00	*fields that cJo not show up on the official report, however they will be included*	
Analysis:	PLM EPA 600/R-93/116	*in the electronic data returned to you*	
TurnAroundTlrne:	3day	*to facilitate r_our reintegration of the report data.*	

Scientific Analytical Institute

4604 Dundas Drive
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)
<<			
S001a		Parging cement *on* pipe fitting over fiberglass insulation, Basement, Mech. room	
S001b		Parging cement on pipe fitting over fiberglass insulation, Basement, Mech. room	
S001c		Parging cement on pipe fitting over fiberglass insulation, Basement, Mech. room	
S002a		Sweat wrap on domestic water line, Basement, Mech. room	
S002b		Sweat wrap on domestic water line, Basement, Mech. room	
S002c		Sweat wrap on dornestic water line, Basement, Mech. room	
S003a		Sample number not used	
S003b		Sample number not used	
S003c		Sample number not used	
S004a		Rough plaster on terracotta and metal lath ceiling, Basement, Mech. Room	
S004b		Rough plaster on terracotta and metal lath ceiling, Basement, Mech.	
S004c		Rough plaster on terracotta and metal lath ceiling, Basement, Mech. oom	
S005a		Black tar caulking around wood board at window, Basement, Mech. Room • •i	
S005b		Black tar caulking around wood board at window, Basement, Mech. R<GieieC\;	
S005c		Black tar caulking around wood board at window, Basement, Mech. Rog	
S006a		Parging cement on boiler breaching, Basement, Mech. Room	
S006b		Parging cement on boiler breaching, Basement, Mech. Room	
S006c		Parging cement on boiler breaching, Basement, Mech. Room	

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S007a	Tar paper over fiberglass on boiler breaching, Basement, Mech. Room
S00?b	Tar paper over fiberglass on boiler breaching, Basement, Mech. Room
SO0?c	Tar paper over fiberglass on boiler breaching, Basement, Mech. Room
soosa	Smooth plaster wall, Basement corridor adjacent washroom
S008b	Smooth plaster wall, Second floor corridor
S008c	Smooth plaster wail, Third floor corridor
S009a	White caulking around basement window, Exterior
S009b	White caulking around basement window, Exterior
S009c	White caulking around basement window, Exterior
S010a	Rough plaster wall, First floor work area
S010b	Rough plaster wall, First floor work area
S010c	Rough plaster wall, First floor **work** area
S011a	Texture finish on plaster wall, Fourth floor, Corridor
S011b	Texture finish on plaster wall, Fourth floor, Corridor
S011c	Texture finish on plaster wall, Fourth floor, Corridor
S012a	Brown fibrous insulation on **exp.** tank, Penthouse
S012b	Brown fibrous insulation on exp. tank, Penthouse
S012c	Brown fibrous insulation on exp. tank, Penthouse
S013a	Tar at structural joist to roof for cooling tower, Penthouse
S013b	Tar at structural joist to roof for cooling tower, Penthouse
S013c	Tar at structural joist to roof for cooling tower, Penthouse

>>

APPENDIX II-B

Lead Analytical Certificates

Your Project #: 336569.005
Your C.O.C. #: N/A

Attention: Stephen Holmquist

Pinchin Ltd
151 York Boulevard
Suite 200
Hamilton, ON
CANADA L8R 3M2

Report Date: 2024/11/08
Report #: R8397356
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4Y5993
Received: 2024/11/04, 10:21

Sample Matrix: Solid
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Metals in Paint	3	2024/11/08	2024/11/08	CAM SOP-00408	EPA 6010D m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Your Project #: 336569.005
Your C.O.C. #: N/A

Attention: Stephen Holmquist

Pinchin Ltd
151 York Boulevard
Suite 200
Hamilton, ON
CANADA L8R 3M2

Report Date: 2024/11/08
Report #: R8397356
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4Y5993
Received: 2024/11/04, 10:21

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Nilushi Mahathantila, Project Manager
Email: Nilushi.Mahathantila@bureauveritas.com
Phone# (905) 817-5700
==========

This report has been generated and distributed using a secure automated process.
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas Job #: C4Y5993
Report Date: 2024/11/08

Pinchin Ltd
Client Project #: 336569.005
Sampler Initials: JA

ELEMENTS BY ATOMIC SPECTROSCOPY (SOLID)

Bureau Veritas ID		AHUA81		AHUA82		AHUA83		
Sampling Date		2024/10/30 10:00		2024/10/30 10:00		2024/10/30 10:00		
COC Number		N/A		N/A		N/A		
	UNITS	**L0009, GREEN,LOC:18,CORRIDOR**	**RDL**	**L0010, WHITE,LOC:19,RECEPTION**	**RDL**	**L0011, WHITE,LOC:19,RECEPTION**	**RDL**	**QC Batch**
Metals								
Lead (Pb)	%	0.0027	0.00026	0.31	0.0018	<0.00044	0.00044	9754116

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

GENERAL COMMENTS

Metals Analysis: Due to limited amount of sample available for analysis, a smaller than usual portion of the sample was used. Detection limits were adjusted accordingly.

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Bureau Veritas Job #: C4Y5993
Report Date: 2024/11/08

Pinchin Ltd
Client Project #: 336569.005
Sampler Initials: JA

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9754116	MEN	Matrix Spike	Lead (Pb)	2024/11/08		93	%	75 - 125
9754116	MEN	QC Standard	Lead (Pb)	2024/11/08		101	%	75 - 125
9754116	MEN	Method Blank	Lead (Pb)	2024/11/08	<0.00010		%	
9754116	MEN	RPD	Lead (Pb)	2024/11/08	9.0		%	35

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Bureau Veritas Job #: C4Y5993
Report Date: 2024/11/08

Pinchin Ltd
Client Project #: 336569.005
Sampler Initials: JA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Louise Harding, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

C4Y5993
2024/11/04 10:21

6740 Campobello Road, Mississauga, Ontario LSN 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266
CAM FCD-01191/6

CHAIN OF CUSTODY RECORD

Page __ of __

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: Pinch InUd.	Company Name:	Quotation #:	X Regular TAT (5-7 days) Most analyses
Contact Name: Justin Appleby/ Steve Holmquist	Contact Name:	P.O.#/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	Address:	Project#: 336569.005	Rush TAT (Surcharges will be applied)
		Site Location:	1Day 2Days 3-4 Days
Phone: Fax:	Phone: Fax:	Site#:	
Email:) pulebV@plncho..com/ sholmquist@pinchln.com	Email:	Site Location Province: ON	Date Required:
		Sampled by: Justin Appleby	Rush Confirmation #:

Regulation 153: Table 1 Res/Park Med/ Fine; Table 2 Ind/Comm coarse; Table 3 Agri/ either; Table ___; FOR RSC (PLEASE CIRCLE) Y / N

Other Regulations: CCME; MISA; PWQO; other (Specify); REG.558 (MIN. 3 DAY TAT REQUIRED); REG406 Table ___; Sanitary Sewer Bylaw; Storm Sewer Bylaw; Region

Include Criteria on Certificate of Analysis: Y / N

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

Analysis Requested

LABORATORY USE ONLY — CUSTODY SEAL Y/ N: Present N, Intact N; COOLER TEMPERATURES; COOLING MEDIA PRESENT:

SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	Analysis	HOLD - DO NOT ANALYZE	COMMENTS
L0009, Green,Loc:18,Corridor	(2024/10/3D)	10:00AM	BULi<		X		
L0010, Whlte,Loc:19,ReceptlM	(2024/10/30)	10:00AM	BULK		X		
L0011, Whlte,Loc:19,Receptlon	(2024/10/30)	10:00AM	BULK		X		

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	BVJ06#
Justin Appleby	(2024/10/30)	3:00pm				

NONT-2024-11-377

APPENDIX II-C

PCB Analytical Certificates

AEVITAS INC. (AYR)
ANALYTICAL CHEMISTRY DEPARTMENT
75 WANLESS COURT, AYR, ONTARIO, N0B 1E0, CANADA
WWW.AEVITAS.CA

Certificate of Analysis

Justin Appleby / Steve Holmquist

Pinchin Ltd. (Mississauga)
2360 Meadowpine Blvd., Unit 2, Mississauga, ON L5N 6S2

Date of Issue: Nov 13, 2024

Report Description: ***1 solid sample was submitted for the following chemical analysis***

Project Name:		**Date Sampled:**	
Project No.:	336569.005	**Date Tested:**	Nov 12, 2024
Site Location:		**Sampled by:**	Justin A

Report Number: 24-1424

No.	Analyte	Result	Units	MDL	Comments	Technique / Test Method
1	*Sample ID.:* ***P0001 Caulking, Interior Grey Window Caulking, Loc:20, Open Space***					
	PCBs in Solid	**<0.2**	mg/Kg	0.2		LAB-M06 (EPA 3550C/8082A modified)

Results apply to the sample(s) as received.

Approved By:

Son C.H. Le, *(Chem.)*
Lab Manager
Phone: (519) 740-1333 Ext.: 1030
Fax: (519) 740-2320
Email: SonLe@aevitas.ca

The Analytical Chemistry Laboratory of Aevitas Inc. (Ayr) is accredited for specific tests in accordance with the recognized International Standard ISO/IEC 17025:2017, by the Canadian Association for Laboratory Accreditation (CALA) Inc. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017). The laboratory quality management system of Aevitas Inc. (Ayr) also operates in accordance with the principles of ISO 9001.

All Analytical data is subject to uncertainty which, may vary with sample matrices, sample preparation techniques and instrumental parameters. As a general guideline, uncertainty may be expressed as approximately +/- 50% of the reported value at or near the Method Detection Limit (MDL) and +/-10% or less, of the reported result that is greater than 10 times the MDL. Method Detection Limits are defined as approximately 3 times the standard deviation value (at 99% confidence level), which is obtained from replicate analysis of a low-level standard as per the Ontario MOE - MISA Protocol for the Sampling and Analysis of Industrial / Municipal Wastewater (2016). MDL determination is based on undiluted samples with relatively low matrix interferences. Where dilutions are required, the reported MDL value will be scaled proportionally.

All testing procedures follow strict guidelines and quality assurance / quality control (QA/QC) protocols. QA/QC data is available for review at any time upon client's request.

APPENDIX III
Methodology

1.0 GENERAL

An investigation was conducted to identify the type of Hazardous Building Materials incorporated in the structure and its finishes.

Information regarding the location and condition of hazardous building materials encountered and visually estimated quantities were recorded. The locations of any samples collected were recorded on small-scale plans. As-built drawings and previous reports were referenced where provided.

Sample collection was conducted in accordance with our Standard Operating Procedures.

1.1 Asbestos

The investigation for asbestos included 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, or a material that has already become crushed, pulverized, or powdered.

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

Samples were collected at a rate that is in compliance with the requirements of local regulations and guidelines. The sampling strategy was also based on known ban dates and phase out dates of the use of asbestos; sampling of certain building materials is not conducted after specific construction dates. In addition, to be conservative, several years past these dates are added to account for some uncertainty in the exact start / finish date of construction and associated usage of ACM. In some cases, manufactured products such as asbestos cement pipe were visually identified without sample confirmation.

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

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

Analytical results were compared to the following criteria:

Jurisdiction*	Friable	Non-Friable
BC	0.5%[1]	0.5%
Alberta	Any Amount[2]	Any Amount[2]
Saskatchewan	>0.5%[1]	>1%
Manitoba	0.1%[1]	1%
Ontario	**0.5%**	**0.5%**
Nova Scotia	0.5%[1]	0.5%
New Brunswick, Prince Edward Island, Newfound and Labrador	1%	1%
Yukon, Nunavut, Northwest Territories	1%	1%
Federal	1%	1%

* If there is a conflict between federal and provincial criteria, the more stringent will apply.

Where building materials are described in the report as “non-asbestos” or “does not contain asbestos”, this means that either no asbestos was detected by the analytical method utilized in any of the multiple samples or, if detected, it is below the lower limit of an asbestos-containing material in the applicable regulation. Additionally, these terms are used for materials which historically are known to not include asbestos in their manufacturing.

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

- Friability (friable or non-friable)
- Condition (good, fair, poor, debris)
- Accessibility (ranking from accessible to all building users to inaccessible)
- Visibility (whether the material is obscured by other building components)
- Efficiency of the work (for example, if damaged ACM is being removed in an area, it may be most practical to remove all ACM in the area even if it is in good condition)

[1] Or any amount if vermiculite
[2] The Government of Alberta in their guideline document entitled the “Alberta Asbestos Abatement Manual” (August 2019), defines an Asbestos-Containing Material as a product or building material that contains asbestos in any quantity or percentage.

1.2 Lead

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

Analysis for lead in paints or surface coatings was performed in accordance with EPA Method No. 3050B/Method No. 7420; flame atomic absorption.

Analytical results were compared to the following criteria.

Jurisdiction*	Units (%)	Units (ppm) / (mg/kg)
British Columbia**	0.009	90
Alberta	0.009	90
Saskatchewan	0.009	90
Manitoba	0.009	90
Ontario	**0.1**	**1,000**
Nova Scotia	0.009	90
New Brunswick	0.009	90
Prince Edward Island	0.009	90
Newfoundland	0.009	90
Yukon	0.009	90
Nunavut, Northwest Territories	0.1	1,000
Federal	0.009	90

* If there is a conflict between federal and provincial criteria, the more stringent will apply.

** WorkSafe BC health and safety regulations do not numerically define what would be considered a lead-containing paint or coating. In general, paints containing lead >0.009% may require work procedures if disturbed.

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

1.3 Silica

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

1.4 Mercury

Building materials, products or equipment (e.g. thermostats, barometers, pressure gauges, lamp tubes), suspected to contain mercury were identified by visual inspection only. Dismantling of equipment suspected of containing mercury was not performed. Sampling of these materials for laboratory analysis of mercury content was not performed.

1.5 Polychlorinated Biphenyls

The potential for light ballast and oil filled transformers to contain PCBs was 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 was compared to known ban dates of PCBs and Environment Canada publications.

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

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

Caulking was sampled and submitted for PCB analysis following EPA 3550C/8082A.

Sample results are compared to the criteria of 50 mg/kg for solids as stated in the PCB Regulation, SOR/2008-273.

1.6 Visible Mould

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

Template: Methodology for Hazardous Building Materials Assessment, HAZ, January 16, 2024

APPENDIX IV

Location Summary Report

HMIS
HAZARDOUS MATERIALS INVENTORY SYSTEM

LOCATIONS LIST

PINCHIN
1.855.PINCHIN www.pinchin.com

Client:Hamilton-Oshawa Port Authority **Site: 605 James Street North, Hamilton, ON**
Building Name: Head Office
Survey Date: **Last Re-Assessment:**
Building Phases: A: 1950

Location No.	Name or Description	Area ft^2	Floor No.	Bldg. Phase	Notes
18	Corridor	160	4	A	
19	Reception	190	4	A	
20	Open Space	600	4	A	Limited access above metal ceiling tiles
21	Office	90	4	A	Limited access above metal ceiling tiles
22	Office	160	4	A	Limited access above metal ceiling tiles
23	Office	100	4	A	Limited access above metal ceiling tiles
24	Office	100	4	A	Limited access above metal ceiling tiles
25	Open Space	300	4	A	
26	Meeting Room	150	4	A	Limited access above metal ceiling tiles
27	Office	108	4	A	Limited access above metal ceiling tiles
28	Women's Washroom	170	4	A	
29	Vault	100	4	A	
30	Janitors Closet	30	4	A	
31	Third Floor	0		A	No access above metal ceiling panels

APPENDIX V

Hazardous Materials Summary Report / Sample Log

HMIS
HAZARDOUS MATERIALS INVENTORY SYSTEM

HAZARDOUS MATERIALS SUMMARY / SAMPLE LOG

PINCHIN
1.855.PINCHIN www.pinchin.com

Client:Hamilton-Oshawa Port Authority **Site: 605 James Street North, Hamilton, ON** **Building Name: Head Office** **Survey Date:**

HAZMAT	Sample No	System/Component/Material/Sample Description	Locations	Bldg. Phase	LF	SF	EA	%	Type	Positive	Friability
Asbestos	S0002 G	Wall | | Drywall Compound |	18,31	A	0	240	0	0	None Detected	No	
Asbestos	S0003 D	Wall, Ceiling | | Plaster | Smooth	18,29	A	0	180	0	0	None Detected	No	
Asbestos	V0004	Ceiling | Acoustic Tile | Ceiling Tiles (lay-in) | 24x24 Pinhole And Fleck	18,31	A	0	0	0	0	None Detected	No	
Asbestos	V0006	Piping | | Parging Cement |	20	A	0	0	8	0	None Detected	No	
Asbestos	V0010	Floor | | Mastic, Black |	18,19	A	0	170	0	0	Chrysotile	Yes	NF
Asbestos	S0015 ABCDE	Wall | | Drywall Compound |	19,20,21,22,23,24,25,26,27,28	A	0	3588	0	0	None Detected	No	
Asbestos	S0016 ABC	Floor | | Thin-set | Blue/grey Square Pattern	19	A	0	150	0	0	None Detected	No	
Asbestos	S0017 ABC	Other | Door | Caulking | Black Butyl	19	A	10	0	0	0	None Detected	No	
Asbestos	S0018 ABC	Floor | | Mastic, Black |	19,20,21,22,23,24,25,26,27	A	0	1788	0	0	Chrysotile	Yes	NF
Asbestos	S0019 ABC	Floor | | Vinyl Floor Tile And Mastic | 9x9 Beige	29	A	0	50	0	0	None Detected	No	
Asbestos	S0020 ABC	Floor | | Terrazzo |	28	A	0	170	0	0	None Detected	No	
Asbestos	S0021 ABC	Wall | | Thin-set | White Square Pattern	28	A	0	340	0	0	None Detected	No	
Asbestos	S0022 ABC	Piping | | Aircell |	20,21,22,23,24,25,26,27,28	A	261	9	0	0	Chrysotile	Yes	F
Asbestos	S0023 ABC	Piping | | Sweatwrap |	19	A	10	0	0	0	None Detected	No	
Asbestos	S0024 ABC	Other | Sink | Mastic, Gold |	30	A	0	0	1	0	Chrysotile	Yes	NF
Asbestos	S0025 ABC	Other | Window | Caulking | Grey	20,21,22,23,24,25,26,27,28	A	90	0	0	0	None Detected	No	
Asbestos	V9000	Piping | | Parging Cement |	21,22,23,24,25,26,27	A	0	0	44	0	Confirmed Asbestos	Yes	F
Asbestos	V9000	Piping | | Sweat Wrap Pipe Insulation |	20,21,22,23,24,25,26,27	A	240	0	0	0	Confirmed Asbestos	Yes	F
Asbestos	V0000	Ceiling | | Ceiling Tiles (lay-in) | 12x24 Metal	19,20,21,22,23,24,25,26,27	A	0	0	0	0	Non Asbestos	No	
Asbestos	V0000	Ceiling | Acoustic Tile | Ceiling Tiles (lay-in) | 24x24 Textured	18	A	0	0	0	0	Non Asbestos	No	
Asbestos	V0000	Ceiling | Acoustic Tile | Ceiling Tiles (lay-in) | 24x48 Pinhole With Fleck	28	A	0	0	0	0	Non Asbestos	No	
Asbestos	V0000	Ceiling | Acoustic Tile | Ceiling Tiles (lay-in) | 24x48 Pinhole With Width Wise Fissures	28	A	0	0	0	0	Non Asbestos	No	
Asbestos	V0000	Ceiling | | Plaster | Rough	30	A	0	30	0	0	Non Asbestos	No	
Asbestos	V0000	Ceiling | | Plaster | Smooth	28	A	0	100	0	0	Non Asbestos	No	
Asbestos	V0000	Wall | | Plaster | Rough	19,29,30	A	0	420	0	0	Non Asbestos	No	
Asbestos	V0000	Wall | | Plaster | Smooth	18,19,20,21,22,23,24,25,26,27,28,31	A	0	368	0	0	Non Asbestos	No	
Paint	V0005	Structure | Metal | Red Beam	18,19,20,21,22,23,24,25,26,27,28	A	0	0	0	100	Lead (High)	Yes	-
Paint	L0009	Wall | Plaster | Green	18,31	A	0	160	0	0		No	-
Paint	L0010	Wall | Plaster | White	19,20,21,22,23,24,25,26,27,28,29,30	A	0	928	0	0	Lead (High)	Yes	-
Paint	L0011	Wall | Drywall And Joint Compound | White	19,20,21,22,23,24,25,26,27,28	A	0	3588	0	0		No	-
Lead Product	V9500	Batteries In Emer. Lights	18,26	A	0	0	2	0	Presumed Lead Product	Yes	-
PCB	P0001	Caulking | Interior Grey Window Caulking	20,21,22,23,24,25,26,27,28	A	90	0	0	0	-	No	-

HAZARDOUS MATERIALS SUMMARY / SAMPLE LOG

HAZMAT	Sample No	System/Component/Material/Sample Description	Locations	Bldg. Phase	LF	SF	EA	%	Type	Positive	Friability
PCB	V9500	Light Ballasts	19,20,21,22,23,24,25,26,27,28	A	0	0	0	100	Presumed PCB	Yes	-
Hg	V9500	Light Fixture	19,20,21,22,23,24,26,27,28	A	0	0	0	100	Presumed Hg	Yes	-

Legend:

Sample number	
S####	Asbestos sample collected
L####	Paint sample collected
P####	PCB sample collected
M####	Mould sample collected
V####	Material visually similar to numbered sample collected
V0000	Known non Hazardous Material
V9000	Material is visually identified as Hazardous Material
V9500	Material is presumed to be Hazardous Material
[Loc. No.]	Abated Material

Units	
SF	Square feet
LF	Linear feet
EA	Each
%	Percentage

NF	Non Friable material.
F	Friable material
PF	Potentially Friable material

APPENDIX VI

HMIS All Data Report

HMIS
HAZARDOUS MATERIALS INVENTORY SYSTEM

ALL DATA REPORT

PINCHIN
1.855.PINCHIN www.pinchin.com

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #18 : Corridor **Floor: 4** **Room #:** **Area (sqft): 160**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling	Acoustic Tile	Ceiling Tiles (lay-in), 24x24 Pinhole and Fleck			C	Y						V0004	None Detected	N.D.	None	
Ceiling[1]	Acoustic Tile	Ceiling Tiles (lay-in), 24x24 Textured			C	Y						V0000	Non-Asbestos		None	
Duct		None Found														
Floor		Carpet			A	Y										
Floor		Mastic, Black			D	N		160(7)			SF	V0010	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Mechanical Equipment		None Found														
Piping		Not Insulated			C	N										
Structure		Metal			C	N										
Wall		Plaster, Smooth			C	Y		20			SF	V0000	Non-Asbestos		None	
Wall		Plaster, Rough			A	Y		80			SF	S0003D	None Detected	N.D.	None	
Wall		Drywall Compound			A	Y		120			SF	S0002G	None Detected	N.D.	None	

1 - Dated 1996

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #18 : Corridor **Floor: 4** **Room #:** **Area (sqft): 160**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Wall	Plaster	80		SF	L0009	Green	Pb: 0.0027 %	No
Structure	Metal	100		%	V0005	Red Beam	Pb: 0.17 %	Lead (High)

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #18 : Corridor **Floor: 4** **Room #:** **Area (sqft): 160**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #19 : Reception **Floor: 4** **Room #:** **Area (sqft): 190**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS

System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Ceiling Tiles (lay-in), 12x24 metal			C	Y						V0000	Non-Asbestos		None	
Duct		None Found														
Floor		Ceramic Tiles			A	Y										
Floor		Carpet			A	Y										
Floor		Mastic, Black		Laminate	D	N		180(7)			SF	S0018A	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Floor		Mastic, Black		Carpet	D	N		10(7)			SF	V0010	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Floor		Thin-set, Blue/grey square pattern			D	N		150			SF	S0016ABC	None Detected	N.D.	None	
Mechanical Equipment		None Found														
Other	Door	Caulking, Black butyl			A	Y		10			LF	S0017ABC	None Detected	N.D.	None	
Piping		Sweatwrap, Larger diameter drain line			C	N		10			LF	S0023ABC	None Detected	N.D.	None	
Piping		Not Insulated			C	N										
Structure		Metal			C	N										
Wall		Plaster, Smooth			C	Y		20			SF	V0000	Non-Asbestos		None	
Wall		Plaster, Rough			A	Y		20			SF	V0000	Non-Asbestos		None	
Wall		Drywall Compound			A	Y		340			SF	S0015A	None Detected	N.D.	None	

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #19 : Reception **Floor: 4** **Room #:** **Area (sqft): 190**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PAINT

System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Wall	Plaster	40		SF	L0010	White	Pb: 0.31 %	Lead (High)
Wall	Drywall and joint compound	340		SF	L0011	White	Pb: <0.00044 %	No
Structure	Metal	100		%	V0005	Red Beam	Pb: 0.17 %	Lead (High)

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #19 : Reception **Floor: 4** **Room #:** **Area (sqft): 190**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

MERCURY

Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #19 : Reception **Floor: 4** **Room #:** **Area (sqft): 190**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PCB

Component	Good	Poor	Unit	Sample	Sample Description	Amount	PCB
Light Ballasts	100		%	V9500			Presumed

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #20 : Open Space **Floor: 4** **Room #:** **Area (sqft): 600**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Ceiling Tiles (lay-in), 12x24 metal			C	Y						V0000	Non-Asbestos		None	
Duct		None Found														
Floor		Mastic, Black		Laminate	D	N		600(7)			SF	V0018	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Mechanical Equipment		None Found														
Other	Window	Caulking, Grey			A	Y		10			LF	V0025	None Detected	N.D.	None	
Piping		Parging Cement			C	N		8			EA	V0006	None Detected	N.D.	None	
Piping		Aircell	Debris		C	N				8(4)	SF	V0022	Chrysotile	50-75%	Confirmed Asbestos	F
Piping		Aircell			C	N		60(7)			LF	V0022	Chrysotile	50-75%	Confirmed Asbestos	F
Piping		Not Insulated			C	N										
Piping		Sweat Wrap pipe insulation			C	N		30(7)			LF	V9000	Confirmed Asbestos		Confirmed Asbestos	F
Structure		Metal			C	N										
Wall		Plaster, Smooth			A	Y		40			SF	V0000	Non-Asbestos		None	
Wall		Drywall Compound			A	Y		1160			SF	V0015	None Detected	N.D.	None	

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #20 : Open Space **Floor: 4** **Room #:** **Area (sqft): 600**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Wall	Drywall and joint compound	1160		SF	V0011	White	Pb: <0.00044 %	No
Wall	Plaster	40		SF	V0010	White	Pb: 0.31 %	Lead (High)
Structure	Metal	100		%	V0005	Red Beam	Pb: 0.17 %	Lead (High)

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #20 : Open Space **Floor: 4** **Room #:** **Area (sqft): 600**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #20 : Open Space **Floor: 4** **Room #:** **Area (sqft): 600**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PCB							
Component	**Good**	**Poor**	**Unit**	**Sample**	**Sample Description**	**Amount**	**PCB**
Light Ballasts	100		%	V9500			Presumed
Caulking	10		LF	P0001	Interior grey window caulking	<0.2 mg/kg	No

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #21 : Office **Floor: 4** **Room #:** **Area (sqft): 90**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Ceiling Tiles (lay-in), 12x24 metal			C	Y						V0000	Non-Asbestos		None	
Duct		None Found														
Floor		Mastic, Black		Laminate	D	N		90(7)			SF	V0018	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Mechanical Equipment		None Found														
Other	Window	Caulking, Grey			A	Y		10			LF	S0025A	None Detected	N.D.	None	
Piping		Parging Cement			C	N		4(7)			EA	V9000	Confirmed Asbestos		Confirmed Asbestos	F
Piping		Aircell			C	N		60(7)			LF	V0022	Chrysotile	50-75%	Confirmed Asbestos	F
Piping		Not Insulated			C	N										
Piping		Sweat Wrap pipe insulation			C	N		30(7)			LF	V9000	Confirmed Asbestos		Confirmed Asbestos	F
Structure		Metal			C	N										
Wall		Plaster, Smooth			A	Y		20			SF	V0000	Non-Asbestos		None	
Wall		Drywall Compound			A	Y		160			SF	V0015	None Detected	N.D.	None	

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #21 : Office **Floor: 4** **Room #:** **Area (sqft): 90**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Wall	Drywall and joint compound	160		SF	V0011	White	Pb: <0.00044 %	No
Wall	Plaster	20		SF	V0010	White	Pb: 0.31 %	Lead (High)
Structure	Metal	100		%	V0005	Red Beam	Pb: 0.17 %	Lead (High)

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #21 : Office **Floor: 4** **Room #:** **Area (sqft): 90**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #21 : Office **Floor: 4** **Room #:** **Area (sqft): 90**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PCB							
Component	**Good**	**Poor**	**Unit**	**Sample**	**Sample Description**	**Amount**	**PCB**
Light Ballasts	100		%	V9500			Presumed
Caulking	10		LF	V0001	Interior grey window caulking	<0.2 mg/kg	No

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #22 : Office **Floor: 4** **Room #:** **Area (sqft): 160**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Ceiling Tiles (lay-in), 12x24 metal			C	Y						V0000	Non-Asbestos		None	
Duct		None Found														
Floor		Mastic, Black		Laminate	D	N		160(7)			SF	V0018	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Mechanical Equipment		None Found														
Other	Window	Caulking, Grey			A	Y		10			LF	V0025	None Detected	N.D.	None	
Piping		Parging Cement			C	N		4(7)			EA	V9000	Confirmed Asbestos		Confirmed Asbestos	F
Piping		Aircell			C	N		60(7)				V0022	Chrysotile	50-75%	Confirmed Asbestos	F
Piping		Not Insulated			C	N										
Piping		Sweat Wrap pipe insulation			C	N		30(7)			LF	V9000	Confirmed Asbestos		Confirmed Asbestos	F
Structure		Metal			C	N										
Wall		Plaster, Smooth			A	Y		60			SF	V0000	Non-Asbestos		None	
Wall		Drywall Compound			A	Y		260			SF	V0015	None Detected	N.D.	None	

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #22 : Office **Floor: 4** **Room #:** **Area (sqft): 160**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Wall	Drywall and joint compound	260		SF	V0011	White	Pb: <0.00044 %	No
Wall	Plaster	60		SF	V0010	White	Pb: 0.31 %	Lead (High)
Structure	Metal	100		%	V0005	Red Beam	Pb: 0.17 %	Lead (High)

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #22 : Office **Floor: 4** **Room #:** **Area (sqft): 160**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #22 : Office **Floor: 4** **Room #:** **Area (sqft): 160**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PCB							
Component	**Good**	**Poor**	**Unit**	**Sample**	**Sample Description**	**Amount**	**PCB**
Light Ballasts	100		%	V9500			Presumed
Caulking	10		LF	V0001	Interior grey window caulking	<0.2 mg/kg	No

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #23 : Office **Floor: 4** **Room #:** **Area (sqft): 100**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Ceiling Tiles (lay-in), 12x24 metal			C	Y						V0000	Non-Asbestos		None	
Duct		None Found														
Floor		Mastic, Black		Laminate	D	N		100(7)			SF	S0018B	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Mechanical Equipment		None Found														
Other	Window	Caulking, Grey			A	Y		10			LF	V0025	None Detected	N.D.	None	
Piping		Parging Cement			C	N		4(7)			EA	V9000	Confirmed Asbestos		Confirmed Asbestos	F
Piping		Aircell			C	N		60(7)			LF	V0022	Chrysotile	50-75%	Confirmed Asbestos	F
Piping		Not Insulated			C	N										
Piping		Sweat Wrap pipe insulation			C	N		30(7)			LF	V9000	Confirmed Asbestos		Confirmed Asbestos	F
Structure		Metal			C	N										
Wall		Plaster, Smooth			A	Y		20			SF	V0000	Non-Asbestos		None	
Wall		Drywall Compound			A	Y		180			SF	S0015B	None Detected	N.D.	None	

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #23 : Office **Floor: 4** **Room #:** **Area (sqft): 100**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Wall	Drywall and joint compound	180		SF	V0011	White	Pb: <0.00044 %	No
Wall	Plaster	20		SF	V0010	White	Pb: 0.31 %	Lead (High)
Structure	Metal	100		%	V0005	Red Beam	Pb: 0.17 %	Lead (High)

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #23 : Office **Floor: 4** **Room #:** **Area (sqft): 100**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #23 : Office **Floor: 4** **Room #:** **Area (sqft): 100**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PCB							
Component	**Good**	**Poor**	**Unit**	**Sample**	**Sample Description**	**Amount**	**PCB**
Light Ballasts	100		%	V9500			Presumed
Caulking	10		LF	V0001	Interior grey window caulking	<0.2 mg/kg	No

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #24 : Office **Floor: 4** **Room #:** **Area (sqft): 100**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Ceiling Tiles (lay-in), 12x24 metal			C	Y						V0000	Non-Asbestos		None	
Duct		None Found														
Floor		Mastic, Black		Laminate	D	N		100(7)			SF	V0018	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Mechanical Equipment		None Found														
Other	Window	Caulking, Grey			A	Y		10			LF	V0025	None Detected	N.D.	None	
Piping		Parging Cement			C	N		4(7)			EA	V9000	Confirmed Asbestos		Confirmed Asbestos	F
Piping		Aircell			C	N		60(7)			LF	V0022	Chrysotile	50-75%	Confirmed Asbestos	F
Piping		Not Insulated			C	N										
Piping		Sweat Wrap pipe insulation			C	N		30(7)			LF	V9000	Confirmed Asbestos		Confirmed Asbestos	F
Structure		Metal			C	N										
Wall		Plaster, Smooth			A	Y		20			SF	V0000	Non-Asbestos		None	
Wall		Drywall Compound			A	Y		180			SF	V0015	None Detected	N.D.	None	

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #24 : Office **Floor: 4** **Room #:** **Area (sqft): 100**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Wall	Drywall and joint compound	180		SF	V0011	White	Pb: <0.00044 %	No
Wall	Plaster	20		SF	V0010	White	Pb: 0.31 %	Lead (High)
Structure	Metal	100		%	V0005	Red Beam	Pb: 0.17 %	Lead (High)

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #24 : Office **Floor: 4** **Room #:** **Area (sqft): 100**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #24 : Office **Floor: 4** **Room #:** **Area (sqft): 100**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PCB							
Component	**Good**	**Poor**	**Unit**	**Sample**	**Sample Description**	**Amount**	**PCB**
Light Ballasts	100		%	V9500			Presumed
Caulking	10		LF	V0001	Interior grey window caulking	<0.2 mg/kg	No

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #25 : Open Space **Floor: 4** **Room #:** **Area (sqft): 300**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Ceiling Tiles (lay-in), 12x24 metal			C	Y						V0000	Non-Asbestos		None	
Duct		None Found														
Floor		Mastic, Black		Laminate	D	N		300(7)			SF	S0018C	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Mechanical Equipment		None Found														
Other	Window	Caulking, Grey			A	Y		10			LF	S0025B	None Detected	N.D.	None	
Piping		Parging Cement			C	N		12(7)			EA	V9000	Confirmed Asbestos		Confirmed Asbestos	F
Piping		Aircell			C	N						V0022	Chrysotile	50-75%	Confirmed Asbestos	F
Piping		Not Insulated			C	N										
Piping		Sweat Wrap pipe insulation			C	N		30(7)			LF	V9000	Confirmed Asbestos		Confirmed Asbestos	F
Structure		Metal			C	N										
Wall		Plaster, Smooth			A	Y		20			SF	V0000	Non-Asbestos		None	
Wall		Drywall Compound			A	Y		580			SF	S0015C	None Detected	N.D.	None	

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #25 : Open Space **Floor: 4** **Room #:** **Area (sqft): 300**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Wall	Drywall and joint compound	580		SF	V0011	White	Pb: <0.00044 %	No
Wall	Plaster	20		SF	V0010	White	Pb: 0.31 %	Lead (High)
Structure	Metal	100		%	V0005	Red Beam	Pb: 0.17 %	Lead (High)

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #25 : Open Space **Floor: 4** **Room #:** **Area (sqft): 300**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PCB							
Component	Good	Poor	Unit	Sample	Sample Description	Amount	PCB
Light Ballasts	100		%	V9500			Presumed
Light Ballasts	100		%	V9500			Presumed
Caulking	10		LF	V0001	Interior grey window caulking	<0.2 mg/kg	No

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #26 : Meeting Room **Floor: 4** **Room #:** **Area (sqft): 150**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Ceiling Tiles (lay-in), 12x24 metal			C	Y						V0000	Non-Asbestos		None	
Duct		None Found														
Floor		Mastic, Black		Laminate	D	N		150(7)			SF	V0018	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Mechanical Equipment		None Found														
Other	Window	Caulking, Grey			A	Y		10			LF	S0025C	None Detected	N.D.	None	
Piping		Parging Cement			C	N		8(7)			EA	V9000	Confirmed Asbestos		Confirmed Asbestos	F
Piping		Aircell			C	N						V0022	Chrysotile	50-75%	Confirmed Asbestos	F
Piping		Not Insulated			C	N										
Piping		Sweat Wrap pipe insulation			C	N		30(7)			LF	V9000	Confirmed Asbestos		Confirmed Asbestos	F
Structure		Metal			C	N										
Wall		Plaster, Smooth			A	Y		20			SF	V0000	Non-Asbestos		None	
Wall		Drywall Compound			A	Y		280			SF	S0015D	None Detected	N.D.	None	

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #26 : Meeting Room **Floor: 4** **Room #:** **Area (sqft): 150**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Wall	Drywall and joint compound	280		SF	V0011	White	Pb: <0.00044 %	No
Wall	Plaster	20		SF	V0010	White	Pb: 0.31 %	Lead (High)
Structure	Metal	100		%	V0005	Red Beam	Pb: 0.17 %	Lead (High)

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #26 : Meeting Room **Floor: 4** **Room #:** **Area (sqft): 150**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9500	Presumed

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #26 : Meeting Room **Floor: 4** **Room #:** **Area (sqft): 150**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #26 : Meeting Room **Floor: 4** **Room #:** **Area (sqft): 150**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PCB							
Component	Good	Poor	Unit	Sample	Sample Description	Amount	PCB
Light Ballasts	100		%	V9500			Presumed
Caulking	10		LF	V0001	Interior grey window caulking	<0.2 mg/kg	No

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #27 : Office **Floor: 4** **Room #:** **Area (sqft): 108**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Ceiling Tiles (lay-in), 12x24 metal			C	Y						V0000	Non-Asbestos		None	
Duct		None Found														
Floor		Mastic, Black		Laminate	D	N		108(7)			SF	V0018	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Mechanical Equipment		None Found														
Other	Window	Caulking, Grey			A	Y		10			LF	V0025	None Detected	N.D.	None	
Piping		Parging Cement			C	N		8(7)			EA	V9000	Confirmed Asbestos		Confirmed Asbestos	F
Piping		Aircell			C	N						V0022	Chrysotile	50-75%	Confirmed Asbestos	F
Piping		Not Insulated			C	N										
Piping		Sweat Wrap pipe insulation			C	N		30(7)			LF	V9000	Confirmed Asbestos		Confirmed Asbestos	F
Structure		Metal			C	N										
Wall		Plaster, Smooth			A	Y		28			SF	V0000	Non-Asbestos		None	
Wall		Drywall Compound			A	Y		188			SF	S0015E	None Detected	N.D.	None	

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #27 : Office **Floor: 4** **Room #:** **Area (sqft): 108**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Wall	Drywall and joint compound	188		SF	V0011	White	Pb: <0.00044 %	No
Wall	Plaster	28		SF	V0010	White	Pb: 0.31 %	Lead (High)
Structure	Metal	100		%	V0005	Red Beam	Pb: 0.17 %	Lead (High)

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #27 : Office **Floor: 4** **Room #:** **Area (sqft): 108**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #27 : Office **Floor: 4** **Room #:** **Area (sqft): 108**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PCB							
Component	**Good**	**Poor**	**Unit**	**Sample**	**Sample Description**	**Amount**	**PCB**
Light Ballasts	100		%	V9500			Presumed
Caulking	10		LF	V0001	Interior grey window caulking	<0.2 mg/kg	No

Limited access above metal ceiling tiles

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #28 : Women's Washroom **Floor: 4** **Room #:** **Area (sqft): 170**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Plaster, Smooth			C	N		100			SF	V0000	Non-Asbestos		None	
Ceiling	Acoustic Tile	Ceiling Tiles (lay-in), 24x48 pinhole with fleck			C	Y						V0000	Non-Asbestos		None	
Ceiling	Acoustic Tile	Ceiling Tiles (lay-in), 24x48 pinhole with width wise fissures			C	Y						V0000	Non-Asbestos		None	
Duct		None Found														
Floor		Terrazzo			A	Y		170			SF	S0020ABC	None Detected	N.D.	None	
Mechanical Equipment		None Found														
Other	Window	Caulking, Grey			A	Y		10			LF	V0025	None Detected	N.D.	None	
Piping		Aircell			C	N		20(7)		1(4)	LF	S0022ABC	Chrysotile	50-75%	Confirmed Asbestos	F
Piping		Aircell	Debris		C	N				1(4)	SF	V0022	Chrysotile	50-75%	Confirmed Asbestos	F
Piping		Not Insulated			C	N										
Structure		Metal			C	N										
Wall		Plaster, Smooth			A	Y		80			SF	V0000	Non-Asbestos		None	
Wall		Ceramic Tiles			A	Y										
Wall		Drywall Compound			A	Y		260			SF	V0015	None Detected	N.D.	None	
Wall		Thin-set, White square pattern		Ceramic Tiles	D	N		340			SF	S0021ABC	None Detected	N.D.	None	

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #28 : Women's Washroom **Floor: 4** **Room #:** **Area (sqft): 170**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Wall	Plaster	80		SF	V0010	White	Pb: 0.31 %	Lead (High)
Wall	Drywall and joint compound	260		SF	V0011	White	Pb: <0.00044 %	No
Wall	Plaster	80		SF	V0010	White	Pb: 0.31 %	Lead (High)
Wall	Plaster	100		SF	V0010	White	Pb: 0.31 %	Lead (High)
Structure	Metal	100		%	V0005	Red Beam	Pb: 0.17 %	Lead (High)

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #28 : Women's Washroom **Floor: 4** **Room #:** **Area (sqft): 170**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #28 : Women's Washroom **Floor: 4** **Room #:** **Area (sqft): 170**

Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PCB							
Component	**Good**	**Poor**	**Unit**	**Sample**	**Sample Description**	**Amount**	**PCB**
Caulking	10		LF	V0001	Interior grey window caulking	<0.2 mg/kg	No
Light Ballasts	100		%	V9500			Presumed

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #29 : Vault **Floor: 4** **Room #:** **Area (sqft): 100**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Plaster, Rough			A	Y		100(7)			SF	V0003	[Asbestos]	N.D.	[Asbestos]	PF
Duct	Not Accessible															
Floor		Concrete (poured)			A	Y										
Floor		Vinyl Floor Tile and Mastic, 9x9 beige			A	Y		50			SF	S0019ABC	None Detected	N.D.	None	
Mechanical Equipment	Not Accessible															
Piping	Not Accessible															
Structure	Not Accessible															
Wall		Plaster, Rough			A	Y		200			SF	V0000	Non-Asbestos		None	

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #29 : Vault **Floor: 4** **Room #:** **Area (sqft): 100**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Wall	Plaster	200		SF	V0010	White	Pb: 0.31 %	Lead (High)

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #30 : Janitors Closet **Floor: 4** **Room #:** **Area (sqft): 30**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Plaster, Rough			A	Y		30			SF	V0000	Non-Asbestos		None	
Duct	Not Accessible															
Floor		Concrete (poured)			A	Y										
Mechanical Equipment	Not Accessible															
Other	Sink	Mastic, Gold			A	Y		1(7)			EA	S0024ABC	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Piping		Not Insulated			A	Y										
Structure	Not Accessible															
Wall		Plaster, Rough			A	Y		200			SF	V0000	Non-Asbestos		None	

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #30 : Janitors Closet **Floor: 4** **Room #:** **Area (sqft): 30**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Wall	Plaster	200		SF	V0010	White	Pb: 0.31 %	Lead (High)

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #31 : Third Floor **Floor:** **Room #:** **Area (sqft): 0**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling	Acoustic Tile	Ceiling Tiles (lay-in), 24x24 Pinhole and Fleck			C	Y						V0004	None Detected	N.D.	None	
Duct	Not Accessible															
Floor		Laminate			A	Y										
Mechanical Equipment	Not Accessible															
Piping	Not Accessible															
Structure	Not Accessible															
Wall		Plaster, Smooth			C	Y		20			SF	V0000	Non-Asbestos		None	
Wall		Drywall Compound			A	Y		120			SF	V0002	None Detected	N.D.	None	

No access above metal ceiling panels

Client: Hamilton-Oshawa Port Authority **Site: Buildings** **Building Name: Head Office**
Location: #31 : Third Floor **Floor:** **Room #:** **Area (sqft): 0**
Survey Date: 2024-10-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Wall	Plaster	80		SF	V0009	Green	Pb: 0.0027 %	No

No access above metal ceiling panels

Legend:

Sample number	
S####	Asbestos sample collected
L####	Paint sample collected
P####	PCB sample collected
M####	Mould sample collected
V####	Material is visually identified to be identical to S####
V0000	Known non hazardous material
V9000	Material visually identified as a Hazardous Material
V9500	Material is presumed to be a hazardous material

Units	
SF	Square feet
LF	Linear feet
EA	Each
%	Percentage
LF	Linear feet

Other	
A	Access
V	Visible
AP	Air Plenum
F	Friable material
NF	Non Friable material
PF	Potentially Friable material
Pb	Lead
Hg	Mercury
As	Arsenic
Cr	Chromium

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

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

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

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

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

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

(7) Management program and surveillance

APPENDIX #2

Contractor Safety Acknowledgement

CONTRACTOR SAFETY ACKNOWLEDGEMENT

This Contractor Safety Acknowledgement is provided to all contractors who have been hired by the Hamilton-Oshawa Port Authority ("**HOPA**"). Upon receipt of the documentation required for your specific role, a HOPA staff member will contact you to schedule a meeting to review such documents and to discuss work site conditions and any other matters required to be addressed before the commencement of your work. If you were hired for project specific work, please refer to Section A. If you were hired for routine maintenance, please refer to Section B.

A. Project Specific

Before commencing any work with the HOPA, you must provide to the HOPA:

1. A completed copy of this Contractor Safety Acknowledgment;
2. A copy of your Site-Specific Health and Safety Plan (**SSHASP**);
    a. The SSHASP must include an analysis of the hazards associated with the work, mitigation measures to be implemented to minimize those hazards, and emergency procedures.
3. Proof of insurance in accordance with the requirements stipulated in the tender documents, and where the tender documents are silent on insurance, at a minimum, General Liability Insurance of at least one million dollars ($1,000,000.00) per occurrence with a maximum deductible of five thousand dollars ($5,000.00), with the HOPA as a named additional insured;
4. A current WSIB Clearance Certificate;
5. A Notice of Project, if requested from the HOPA; and
6. Any other documents as may be requested from the HOPA.

Any documents provided to the HOPA are project specific and are not transferable to another project.

B. Routine Maintenance

You must provide to the HOPA:

A completed copy of this Contractor Safety Acknowledgment	Prior to the commencement of any work and on an annual basis thereafter
A copy of your Health and Safety Policy	Prior to your first job and each time a change is made to your Health and Safety Plan
A copy of the Job Hazard Identification form and SSHASP completed for each job completed as routine maintenance	Upon request from the HOPA
Proof of insurance in accordance with the requirements stipulated in the tender documents, and where the tender documents are silent on insurance, at a minimum, General Liability Insurance of at least one million dollars ($1,000,000.00) per occurrence with a maximum deductible of five thousand dollars ($5,000.00), with the HOPA as a named additional insured;	Prior to the commencement of any work and on an annual basis thereafter
A current WSIB Clearance Certificate	Prior to the commencement of any work and upon submitting any invoices for toe work

and any other documents as may be requested from the HOPA.

CONTRACTOR SAFETY ACKNOWLEDGEMENT

Project Name OR Routine Maintenance Work Description: _____ (the "**Work**")

Work Type (Check which applies): Project ☐ Routine Maintenance ☐

Work Site location: _____ (the "**Worksite**")

Contractor Company Name: _____ (the "**Contractor**")

Contractor Representative Name: _____

HOPA Project Manager: _____

Acknowledgements:

I, the undersigned, have visited the Work Site and I am familiar with the scope of work for the Work described above. I acknowledge and agree that the Contractor:

1. Accepts accountability for the health and safety of the Work Site, as well as the health and safety of its staff, HOPA Staff, visitors to the Work Site, and the general public;

2. Will complete the Work in a manner that is compliant with:
    a. Ontario Occupational Health and Safety Act and its Regulations;
    b. Canada Labour Code Part II;
    c. Canadian Occupational Health and Safety Regulations; and
    d. Any applicable health and safety regulations that may apply to the Work;

    and will ensure all staff and visitors, including subcontractors and any person who accesses the Work Site adheres to same;

3. Will ensure that all workers and subcontractors entering the Work Site comply with the SSHSP and Health and Safety Policy that the Contractor submitted to the HOPA, and all applicable legislation;

4. Will ensure that all tools and equipment including personal protective equipment to be used at the Work Site are in good working condition, are properly maintained, and are certified if required by regulations;

5. Will monitor the use of all tools and equipment and ensure that such are operated only by those workers who have been trained and are skilled in their proper operation;

6. Will ensure that access to the Work Site is controlled by using the proper signage, hoarding, barricades, fencing or other means so required to properly maintain the Work Site, where necessary;

7. Will ensure that procedures are in place at the Work Site for the following:

Item	Yes	No	N/A	Comments
a. Emergency Response & Emergency Contacts				
b. Site Access, signage & protection				
c. Electrical Safety including Lock-out/tag-out				
d. Hot work (cutting, burning, welding)				
e. Fire protection & prevention				
f. Excavations, shoring and pinning				
g. Tools & Equipment				
h. Personal protective equipment (PPE)				
i. Confined spaces entry				
j. Environmental protection, spills response				
k. Waste management and disposal				
l. Material handling				
m. Hoisting, lifting and cranes				
n. Tools and equipment				
o. Motor vehicles and traffic control				
p. Ladders, scaffolding, man-lifts and working from heights				
q. Working on, in or near water				
r. Designated Substances				
s. ensuring that all permanent and temporary buildings and structures meet the prescribed standards				
t. recording and reporting of all accidents, occurrences of harassment and violence, occupational illnesses and other hazardous occurrences known				
u. to ensure that the levels of ventilation, lighting, temperature, humidity, sound and vibration are				

in accordance with prescribed standards				
v. Other (Specify as Required)				

8. Will ensure all individuals that enter the Work Site:
    a. have access to first-aid facilities and health services, sanitary and personal facilities, potable water, safe entry to and exit from the Work Site;
    b. are familiar with and uses in the prescribed circumstances and manner all prescribed safety materials, equipment, devices and clothing; and
    c. are informed of every known or foreseeable health or safety hazard to which they are likely to be exposed in the Work Site;

9. Will advise HOPA immediately if the Contractor or any individual on the Work Site becomes incompliant with any of the above;

10. Will, prior to commencing any work at the Work Site, complete a hazard assessment at the Work Site, address any and all hazard concerns prior to starting any work and advise HOPA of any hazard concerns discovered during the hazard assessment;

11. Will, prior to commencing any work at the Work Site, complete a health and safety inspection at the Work Site, will address any and all concerns prior to starting any work and advise HOPA of any concerns discovered during the inspection;

12. Will ensure the Work Site, is always left in a safe manner such as removing hazardous materials, properly storing all equipment, restricting access where applicable and any other safety measures as the Work Site may require from time to time;

13. Will advise the HOPA of any accidents, occurrences of harassment and violence, occupational illnesses and other hazardous occurrences on the Work Site, immediately;

14. Will advise the HOPA of any inspections performed by the Ministry of Labour or any government representative, immediately; and

15. Where the Contractor is hired for routine maintenance, the Contractor is required to complete a Job Hazard Identification form and SSHASP before each job. The Contractor will keep a copy of all Job Hazard Identification and SSHASP forms on file and readily available to the HOPA, upon request. I understand the HOPA may request a copy of any Job Hazard Identification and SSHASP form at any time and the Contractor will provide such requested copies to the HOPA within three (3) days of receiving notice.

Signature page to follow

Date: _____

_____

Print contractor company name above

_____

Signature

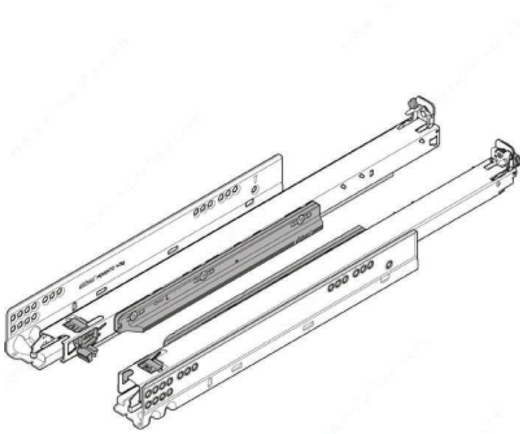
Name:

Title:

I have authority to bind the corporation.

APPENDIX #3

Hardware Sheets



MOVENTO 760H Full Extension Concealed Undermount Slide

Taking another step forward with the new MOVENTO runner system, which provides even more precise runner movement, smooth and synchronized running action, and new adjustment options. With MOVENTO, the front can be adjusted in height and tilt, and lateral and depth adjustments are also possible.

Product number 760H3000B

Length 300 mm

Load Capacity 40 kg

REQUIRED PRODUCTS

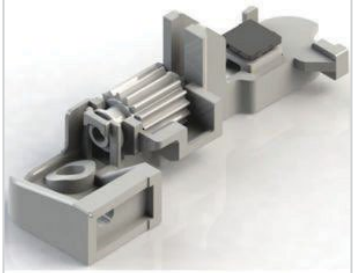
Requires the following products

		Sales unit
	**MOVENTO Locking device** Product no. T51760102 Side: Right	Per unit
	AND	
	**MOVENTO Locking device** Product no. T51760103 Side: Left	Per unit

TECHNICAL SPECIFICATIONS

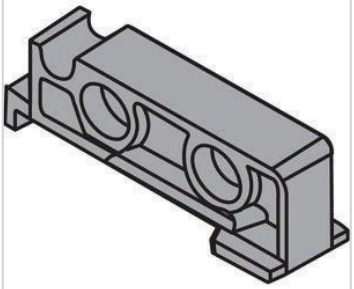
Product number	760H3000B
Product Line	MOVENTO
Motion Technology	Soft-Close
Slide Extension	Full Extension
Brand	Blum
BLUM Technology	Blumotion
Slide Mounted	Bottom-Mounted

SUGGESTED PRODUCTS



Movento Depth Adjustment Bracket

Product number 2987600



MOVENTO/TANDEM Fixing Bracket for Sliding Shelf

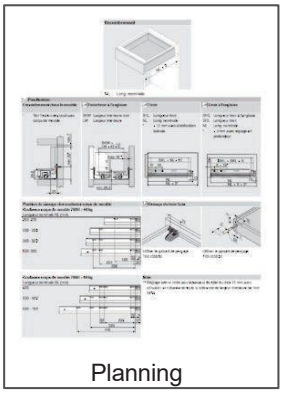
Product number T51700001

Movento Side Stabilization Set

Product number ZS7600MU

RELATED DOCUMENTS

Slides



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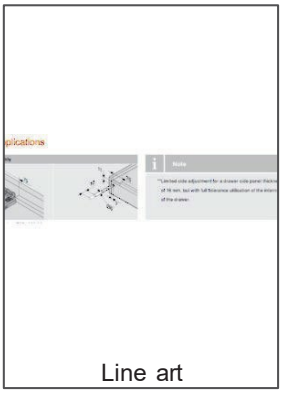

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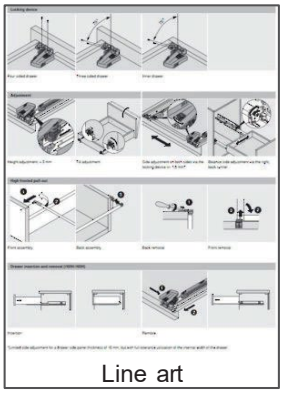


Line art

ADVANTAGES AND BENEFITS

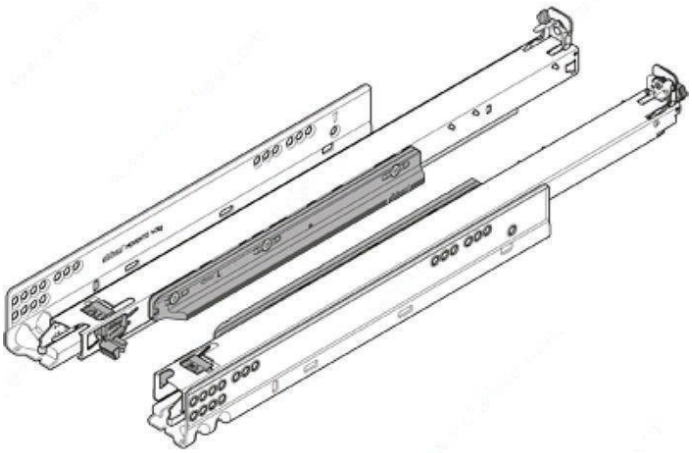
- A new quality of movement upon opening and closing
- New four-way adjustable comfort for precise placement
- Dynamic load capacity of 40 or 60 kg, high sag values, and high stability allow use in multiple applications
- Always uses the same installation position
- High quality for long furniture life

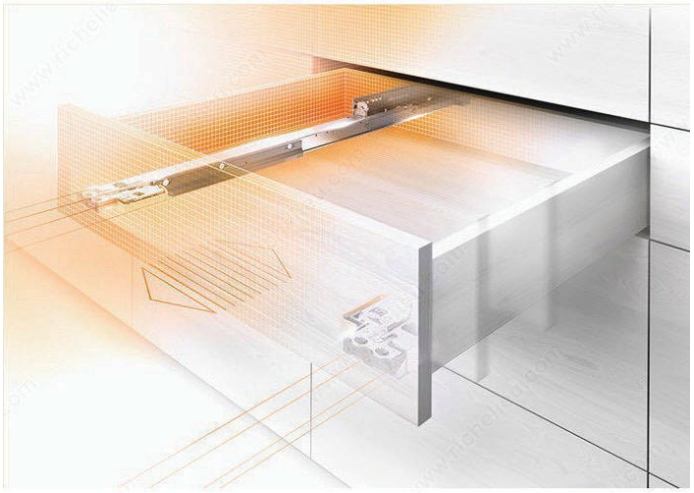
APPLICATION

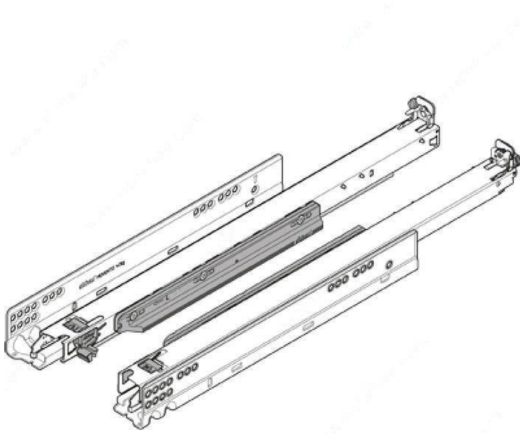
For any living area.

https://www.richelieu.com/QR/760H3000B

PRODUCT PHOTOS







MOVENTO 760H Full Extension Concealed Undermount Slide

Taking another step forward with the new MOVENTO runner system, which provides even more precise runner movement, smooth and synchronized running action, and new adjustment options. With MOVENTO, the front can be adjusted in height and tilt, and lateral and depth adjustments are also possible.

Product number 760H6000B

Length 600 mm

Load Capacity 40 kg

REQUIRED PRODUCTS

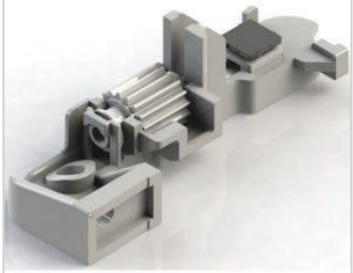
Requires the following products

		Sales unit
	**MOVENTO Locking device** Product no. T51760102 Side: Right	Per unit
	AND	
	**MOVENTO Locking device** Product no. T51760103 Side: Left	Per unit

TECHNICAL SPECIFICATIONS

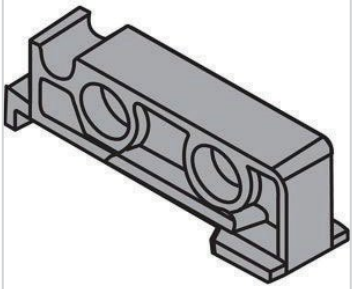
Product number	760H6000B
Product Line	MOVENTO
Motion Technology	Soft-Close
Slide Extension	Full Extension
Brand	Blum
BLUM Technology	Blumotion
Slide Mounted	Bottom-Mounted

SUGGESTED PRODUCTS



Movento Depth Adjustment Bracket

Product number 2987600



MOVENTO/TANDEM Fixing Bracket for Sliding Shelf

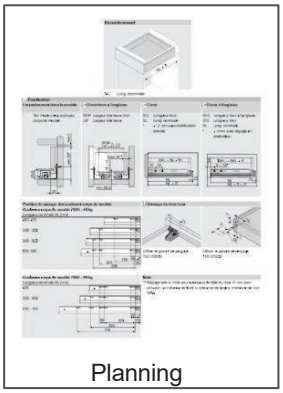
Product number T51700001

Movento Side Stabilization Set

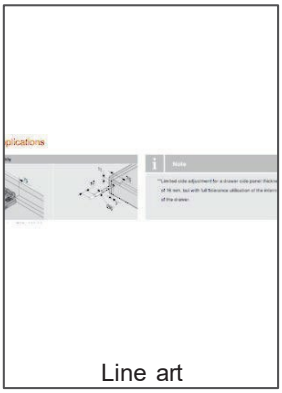
Product number ZS7600MU

RELATED DOCUMENTS

Slides



Planning



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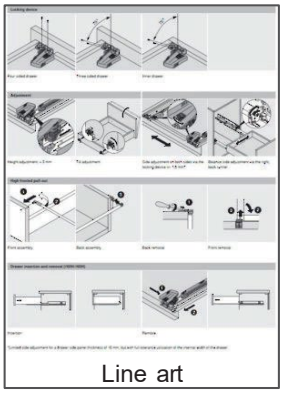


Line art

ADVANTAGES AND BENEFITS

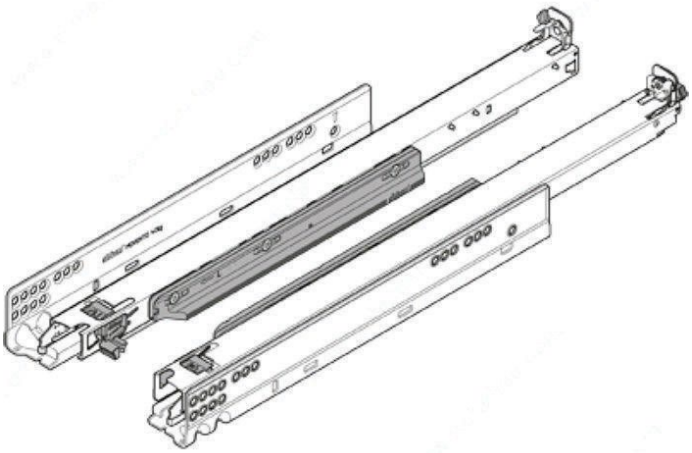
- A new quality of movement upon opening and closing
- New four-way adjustable comfort for precise placement
- Dynamic load capacity of 40 or 60 kg, high sag values, and high stability allow use in multiple applications
- Always uses the same installation position
- High quality for long furniture life

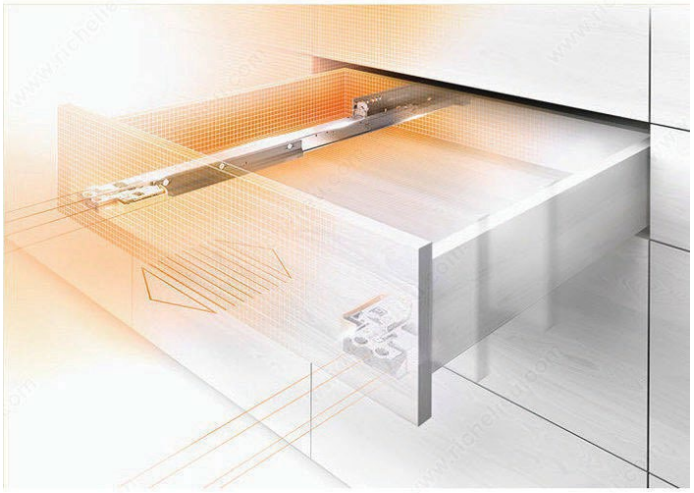
APPLICATION

For any living area.

https://www.richelieu.com/QR/760H6000B

PRODUCT PHOTOS





110° CLIP top BLUMOTION Hinge

Integrated BLUMOTION

Precise movement, like clockwork. Integrated BLUMOTION is a technical masterpiece that fits into the smallest of spaces and provides your furniture doors with silent, effortless closing.
CLIP top BLUMOTION is designed to open and close at least 200,000 times, with a compelling quality of motion, to last the lifetime of the furniture.

Product number 71B355180

Fixing Type Screw-On

Door Position Full Overlay

Packaging Specifications Industrial packaging

Screw/Nail Not Included

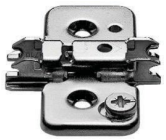
Packaging format Per unit

REQUIRED PRODUCTS

Requires the following products

		Sales unit
	**Zinc-Plated Wood Screw, Flat Head, Square Drive, Coarse Thread, Regular Wood Point** Product no. FKCZ658PR	Box of 15000

Requires ONE of the following products

		Sales unit
	**Cam Mounting Plate** Product no. 173H710180	Per unit
	OR	
	**Horizontal Cam Mounting Plate** Product no. 175H310180	Per unit
	OR	
	**2 Pieces Wing Mounting Plate** Product no. 175H710180	Per unit
	OR	
	**One-Piece Wing Mounting Plate** Product no. 173L610180	Per unit

TECHNICAL SPECIFICATIONS

Product number	71B355180
Use Type	Standard Door
Cabinet Type	Frameless
Milling Depth	13 mm
Door Thickness	Min. 16 mm
Closing Mechanism	Soft-Closing
Hinge Type	CLIP top BLUMOTION
Hinge Opening Angle	+110°
Milling Diameter	35 mm
Hinge Opening Angle	+110°

SUGGESTED PRODUCTS

Arm Cover Cap

Product number 701503180IM
Only For: Clip Hinge with logo / Clip-Top Hinge with Logo

spacer 1.5 mm

Product number 70T3507180

86° Opening Angle Stop for CLIP top BLUMOTION

Product number 70T355390

Arm Cover Cap

Product number 701503180
Only For: Clip Hinges / Clip-Top Hinge

Hand Insertion Tool

Product number ZME0710

Cover Cap for CLIP top BLUMOTION

Product number 70T3504180

Zinc-Plated Wood Screw, Flat Head, Square Drive, Coarse Thread, Regular Wood Point

Product number FKCZ658PR

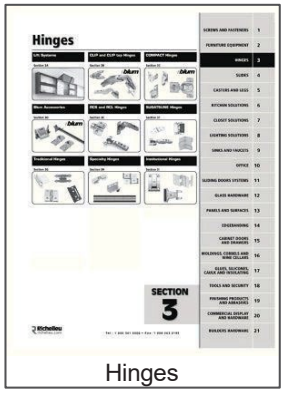
Universal Insertion Ram for Clip and Modul Hinges

Product number MZM0040

TIP-ON long version with bumper

Product number 956A1006

RELATED DOCUMENTS



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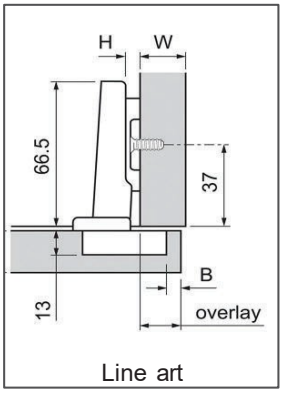

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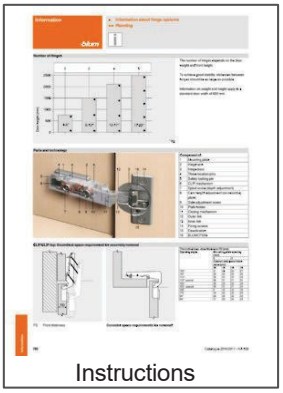
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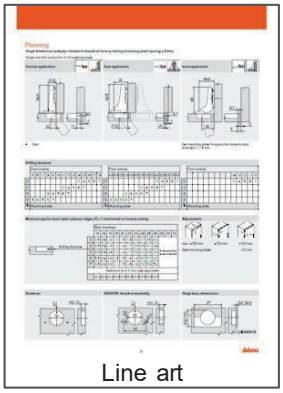

Line art

ADVANTAGES AND BENEFITS

- Innovative technology concentrated into the smallest space, with BLUMOTION integrated into the hinge cup.
- Silent, effortless closing action provides every door with inspiringly perfect motion.
- Effortless closing even for small doors; Blumotion can optionally be deactivated.
- Elegant design for a high-quality look, with compelling technology in a stylish body.
- All-metal hinge, nickel-plated.
- Convenient spiral-tech depth adjustment.
- Compatible with existing mounting plates.
- Features spring closing mechanism.
- Tool-free door-to-cabinet assembly and removal.
- 3-dimensional adjustment with the appropriate mounting plate.
- Features Inserta tool-free cup installation.

IMPORTANT INFORMATION

- Do not use a hammer to insert the hinge into the drilled hole.
- CLIP top BLUMOTION hinges should be operated within the temperature range of 18 °C and 28 °C to ensure optimal functioning.
- Because BLUMOTION function now comes integrated with the hinge, additional assembly processes are no longer necessary after the installation is completed.
- For drilling on melamine 5/8, please use the item M01ZB3502, a drill bit shape without tip.

*** For a greater selection of mounting plates, please refer to the BLUM mounting plates section ***

PRODUCT PHOTOS

CLIP top Hinge - 60° Bi-Fold

Product number 79T850180

Fixing Type Screw-On

Packaging Specifications Not Applicable

Packaging format Per unit

REQUIRED PRODUCTS

Requires the following products

		Sales unit
	**Zinc-Plated Wood Screw, Flat Head, Square Drive, Coarse Thread, Regular Wood Point** Product no. FKCZ658PR	Box of 15000

Requires ONE of the following products

		Sales unit
	**CLIP top Hinge - Zero Protrusion** Product no. 71T750N180 Fixing Type: Screw-On	Per unit
	OR	
	**CLIP top Hinge - Zero Protrusion** Product no. 71T753N180 Fixing Type: Dowel	Per unit
	OR	
	**CLIP top Hinge - Zero Protrusion** Product no. 71T754N180 Fixing Type: Toolless	Per unit
	OR	

CLIP top Hinge - 170°
Product no. 71T654180

Fixing Type: Toolless Door Position: Full Overlay

Per unit

OR

CLIP top Hinge - 170°
Product no. 71T655180

Fixing Type: Screw-On Door Position: Full Overlay

Per unit

OR

CLIP top Hinge - 170°
Product no. 71T658180

Fixing Type: Dowel Door Position: Full Overlay

Per unit

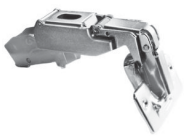
OR

CLIP top Hinge - 170°
Product no. 71T664180

Fixing Type: Toolless Door Position: Half Overlay

Per unit

OR



CLIP top Hinge - 170°
Product no. 71T665180

Fixing Type: Screw-On Door Position: Half Overlay

Per unit

OR

CLIP top Hinge - 170°
Product no. 71T668180

Fixing Type: Dowel Door Position: Half Overlay

Per unit

Requires ONE of the following products

		Sales unit
	**Cam Mounting Plate** Product no. 173H710180	Per unit
	OR	
	**Horizontal Cam Mounting Plate** Product no. 175H310180	Per unit
	OR	
	**2 Pieces Wing Mounting Plate** Product no. 175H710180	Per unit
	OR	
	**One-Piece Wing Mounting Plate** Product no. 173L610180	Per unit

TECHNICAL SPECIFICATIONS

Product number	79T850180
Hinge Type	CLIP top
Use Type	Bi-Fold Door
Cabinet Type	Frameless
Door Position	Corner / Bi-Fold
Door Thickness	Min. 16 mm
Cabinet Thickness	Min. 16 mm
Closing Mechanism	Spring Closing
Milling Diameter	35 mm
Brand	Blum
Milling Depth	11 mm
Hinge Opening Angle	+60°

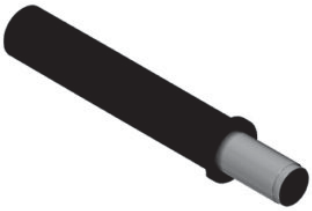
SUGGESTED PRODUCTS

Arm Cover Cap

Product number 90M210390
Finish: Black

Arm Cover Cap

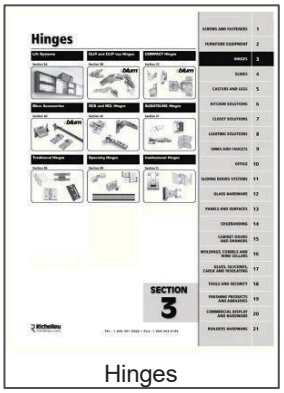
Product number 701503180
Finish: Nickel



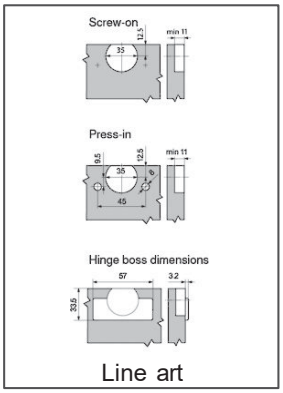
BLUMOTION Cylinder

Product number 9701002

RELATED DOCUMENTS



Hinges



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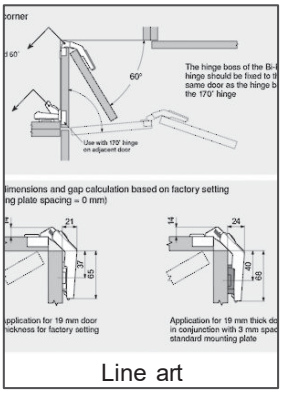

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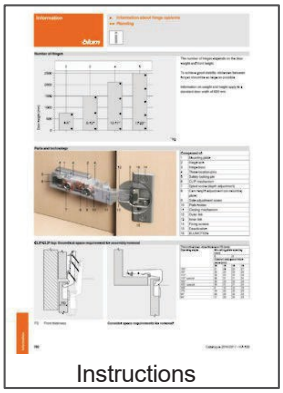

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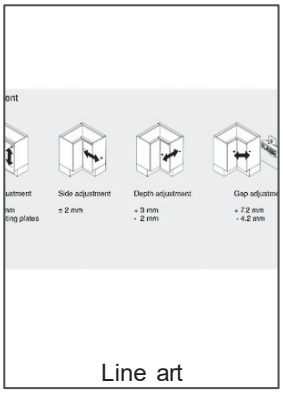
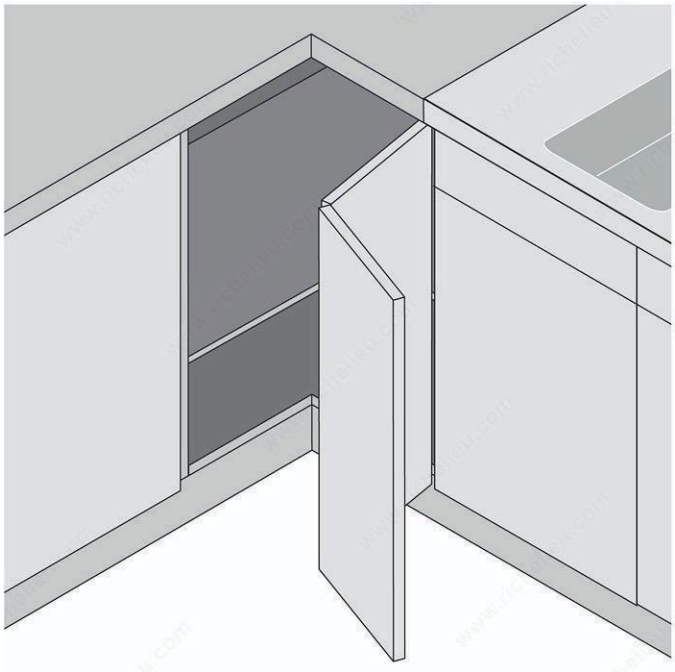


Line art

IMPORTANT INFORMATION

*** For a greater selection of mounting plates, please visit the Blum Mounting Plates section ***

PRODUCT PHOTOS



Contemporary Metal Pull - 7878

The curved handle of this pull contrasts beautifully with geometric posts to make an elegant statement on drawer fronts.

Product number 787896174

Center to Center 96 mm

Finish Matte Chrome

Length - Overall Dimensions 128 mm

TECHNICAL SPECIFICATIONS

Product number	787896174
Pulls and Knobs Style	Contemporary
Material	Metal
Screw/Nail	M4 (Included)
Color Group	Gray and Chrome Group
Model	Modern
Finish Number	174
Suggested Price	From $15.00 to $20.00
Projection - Overall Dimensions	33 mm
Width - Overall Dimensions	20 mm
Collections	New Collection

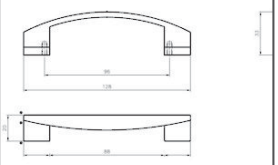
SUGGESTED PRODUCTS

Inspiration Board - 98833B

Product number 98833B

RELATED DOCUMENTS

New Decorative Hardware Collection



Line art

PRODUCT PHOTOS