

Project Manual for the
Dust Collector Replacement & Program Renovations
at
SIR ALLAN MACNAB SECONDARY SCHOOL

at
145 Magnolia Drive
Hamilton, Ontario

for

HWDSB

Hamilton-Wentworth District School Board
20 Education Court
Hamilton, Ontario

HWDSB No.: 2026-128-P02215
CGS Project No.: 25018



1 General

1.1 OWNER

.1 Owner for the Project is:

Hamilton-Wentworth District School Board
20 Education Court
Hamilton, Ontario
L9A 0B9

1.2 CONSULTANTS

.1 Document Responsibility: Refer to Section 00 01 10 - Table of Contents for indication of document responsibility. Abbreviations for entity responsible for document preparation are as indicated below in parentheses.

.2 The following firms comprise the Consultant team for the Project:

.1 Architect (A)

Gacesa Slote Architects
118 James Street North, Suite 300
Hamilton, Ontario
L8R 2K7
Telephone: 905.297.0863

.2 Mechanical Engineer (M)

COPA Engineering Ltd.
29 Rolling Acres Drive
Kitchener, Ontario
N2A 3W5
Telephone: 519.894.0022

.3 Electrical Engineer (E)

Root3 Engineering Ltd.
1920 Yonge Street, Suite 200
Toronto, Ontario
M4S 3E2
Telephone: 437.562.6772

.4 Designated Substance Abatement Consultant (DS)

Pinchin Ltd.
151 York Boulevard, Suite 200
Hamilton, Ontario
L8R 3M2
Telephone: 905.577.6206

END OF DOCUMENT

PROCUREMENT AND CONTRACTING REQUIREMENTS GROUP

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1 General

1.1 STATUS OF AVAILABLE PROJECT INFORMATION

- .1 Available Project information means information of any type and in any form that is expressly identified as available project information relevant to Place of the Work, that have been prepared by third-parties, and are intended strictly as additional information for consideration by Bidders.
- .2 No available Project information forms part of the Contract Documents unless copied or transcribed into Drawings or Specifications, or is expressly listed in the agreement as a Contract Document.

1.2 USE AND RELIANCE UPON AVAILABLE PROJECT INFORMATION

- .1 Available Project information is made available to Bidders to fulfill Owner's duty to disclose all relevant Project information to Bidders.
- .2 Bidders shall interpret and draw their own conclusions about available Project information, including consideration of the time when it was created. Available Project information may be time sensitive. Owner and Consultant assume no responsibility for such interpretations and conclusions.
- .3 Available Project information, or any part thereof, shall not be construed as contract requirements unless also reflected in Drawings or Specifications, and in case of conflict, Drawings or Specifications shall govern.
- .4 Bidders, acting reasonably, may rely on available Project information in preparing their bids, subject to any qualifications stated in such available Project information and unless expressly stated otherwise.
- .5 Bidders are cautioned that such documents, by their nature, cannot reveal all conditions that exist or can occur at Place of the Work.
- .6 Should conditions at Place of the Work, in Consultant's opinion, be found to substantially vary from those identified in available Project information, then changes in the Work may need to be made, with appropriate adjustments being made to Contract Price and Contract Time.
- .7 Direct questions pertaining to available Project information by contacting issuing organization.

1.3 DESIGNATED SUBSTANCE SURVEYS AND AUDITS

- .1 A copy of a designated substance audit report with respect to Place of the Work is being made available as part of the Bid Documents; described as follows:
 - Titled: Hazardous Building Materials Assessment (Preconstruction), Renovations to Sir Allan MacNab Secondary School, 145 Magnolia Drive, Hamilton, ON;
 - File No.: 352293.014;
 - Dated: February 20, 2026;
 - Prepared by: Pinchin Ltd.
- .2 Such reports identify locations and types of designated substances found to be present at Place of the Work.
- .3 Conditions at Place of the Work identified in the report are relevant only at time of survey.
- .4 The condition of some building materials may have changed.

- .5 Items discovered during execution of the Work that are not itemized within the report should be analytically tested by an accredited laboratory before further disturbance.

END OF SECTION

Appendix A – Construction School Specific Information Sheet Sample

In addition to the terms and conditions of the Contract Documents, the Contractor shall follow the protocols of the Construction Site Specific Information Sheet, sample provided below.

A completed version of this document, with site specific content, will be provided to the Contractor at the pre-construction meeting.

Construction School Specific Information Sheet

1. School Information:

School Name: Sir Allan MacNab Secondary School

Bell Times

Morning (School Entry): 8:00 AM

Afternoon (School Dismissal): 2:05 PM

Caretaking Phone Number: 289-922-9766

***After-Hours Emergency Number:** 905-667-3079

****Caretaking Hours**

September to June 6:00 AM – 10:00 PM

December Holiday Break 6:00 AM – 2:00 PM

March Break 6:00 AM – 2:00 PM

July to August 6:00 AM – 2:00 PM

Saturday / Sunday CLOSED

Account Code: HPXXXX

Security Panel Code: XXXX

*Please call the After-Hours Emergency Number noted above if issues arise outside of Caretaking Hours. These would include unanticipated interruption of services, issues with building or room access, fire alarm or security concerns, etc.

**Caretaker hours are not guaranteed. Please confirm with the HWDSB project supervisor prior to any work taking place, and then on a weekly basis throughout the duration of the project.

2. School Entry for afterhours, school holidays or closures:

Please follow these steps upon entry to the building outside of caretaker hours and on school holidays or closures:

1. Call PasWord Protection Services at 1-800-561-3099 and notify them in advance of the day(s) and time(s) that access to the building will be required. They will require the HP code noted above.
2. Disarm the security panel when arriving.
3. Arm the security panel when leaving.
4. Call PasWord Protection Services to verify that the building is armed and secure.

Construction School Specific Information Sheet

Failure to follow this procedure outside of caretaker hours and on school holidays or closures will result in an automatic dispatch of a security guard to the building to verify who has entered/exited the building. Security costs associated with the dispatch of a security guard for failing to follow the procedure will be expensed to the contractor responsible for the incident.

3. Protocol for Work Impacting Fire Alarm System or Devices

The contractor is to follow this procedure when the fire alarm system is impacted.

A. References and Definitions:

Fire Alarm Control and Testing Service Provider: Hamilton Fire Control

Fire Alarm and Security System Monitoring Service Provider: PasWord Protection Services

Fire Watch: An hourly patrol of areas that are not protected/monitored by the fire alarm system. These include but are not limited to, a disconnected device, a covered device, a bypassed device, or device in trouble. The general contractor is responsible for fire watch in all construction areas. Caretaking staff are responsible for fire watch in all other areas of the school. Fire watch is to be recorded in a Fire Watch Log.

Fire Watch Log: The general contractor is to document and maintain a written log confirming fire watch has been conducted hourly. This log is to remain on site for the duration of the project. This written log is maintained separate from the caretaking fire watch log. The caretaking log is digitally recorded within the Boards asset management system (eBase).

B. Mandatory Pre-Construction Site Meeting with Hamilton Fire Control

1. Contractor to request a meeting prior to mobilization with Michael Fleet from Hamilton Fire Control (HFC), the project supervisor from HWDSB, the facility operation supervisor from HWDSB and the head caretaker to review any work that will affect the fire alarm system. This can be coordinated by the project supervisor upon request.

Contact: Michael Fleet - Hamilton Fire Control

Phone: (905) 527-7042

Email: michael@hamiltonfirecontrol.ca

2. Contractor to minute the meeting and submit to the project supervisor and Michael Fleet from HFC for review within 48 hours of the site-walk-through.

C. Mandatory Construction Protocol if the Fire Alarm System is Impacted

Construction School Specific Information Sheet

1. Contractor to follow procedures discussed and documented from the pre-construction site meeting with Hamilton Fire Control.
2. If devices are impacted during occupied hours:
 - Per the Fire Safety Plan, contractor to notify PasWord Protection Services that they'll be on Fire Watch (in the area of the impacted devices only). PasWord Protection Services will not take any action; the notification is for information purposes only.
 - Contractor to either take the device offline or protect/cover it. Fire watch (in the area of the impacted device only) is required in either of these scenarios. If the alarm goes off during work, all occupants, including contractors, are to evacuate the building and the fire department will be dispatched.

If hot work is taking place, prior to the above-noted steps:

- Contractors are required to advise HWDSB at least 24 hours before any hot work is scheduled to take place.
 - The contractor is required to provide a hot work permit to HWDSB at the same time.
3. If devices are impacted outside of occupied hours, and the contractor is the only party in the building:
 - The same protocol above is to be followed.
 4. If the system or specific devices will not be operational while the school is completely vacant (i.e. overnight or on a weekend when no Work is taking place):
 - No action required.

The system is not to be bypassed (device(s) or full system). The system is NOT to be put on test. The only time the system will be put on test and the school will be on Fire Watch is if the system is being tested.

In the event a fire alarm device is activated, all occupants of the school, including contractors, must evacuate the school. The fire department will be dispatched. The contractor will be responsible for all fire department costs resulting from construction.

4. Please follow these steps for planning any service (electrical, gas, water) shutdowns:

A. Internal Localized System/Service Shutdowns:

Construction School Specific Information Sheet

1. Localized shutdowns **require minimum 3 days' notice** to HWDSB project supervisor for coordination with the school facility and staff.
2. Shutdowns must be completed outside of school bell times/operational hours which vary by facility and must be scheduled for evenings after 6:00 PM, weekends or board holidays.
3. If a shutdown will impact the security system, the contractor shall contact PasWord Protection Services at 1-800-561-3099 and notify them in advance of the day(s) and time(s) of the shutdown.
4. If a shutdown impacts the fire alarm system, the contractor shall follow the Fire Alarm Bypass Protocol, section 4 above.
5. If required, the contractor is to coordinate with Board vendor/s to be on site to ensure boilers, roof top units, heat pumps, etc. are functioning properly after service disruption has concluded.

- Chamberlain Building Services Inc - info@chbs.ca, 905-664-1914 or
- Union Boiler Company Limited - info@unionboiler.com, 905-528-7977

6. Process will vary based on services shutdown and ability to localize shutdown.

B. Complete School System/Service Shutdowns:

1. Complete building shutdowns **require minimum 5 days' notice** to HWDSB project supervisor.
2. Shutdowns must be completed outside of school bell times/operational hours which vary by facility and must be scheduled for evenings after 6:00 PM, weekends or board holidays.
3. Contractor to contact PasWord Protection Services at 1-800-561-3099 and notify them in advance of the day(s) and time(s) of shutdown.
4. During the shutdown, the contractor is responsible for following Fire Alarm Bypass Protocol, section 4 above.
5. The contractor is to coordinate with Board vendor/s to be on site to ensure boilers, roof top units, heat pumps, etc. are functioning properly after service disruption has concluded.

- Chamberlain Building Services Inc - info@chbs.ca, 905-664-1914 or
- Union Boiler Company Limited - info@unionboiler.com, 905-528-7977

6. HWDSB project supervisor will coordinate with other HWDSB departments to ensure all systems (IIT, security, communications) are up and running after service disruption has concluded.
7. If required, HWDSB project supervisor will coordinate with City of Hamilton staff if site has shared facilities such as recreation centre, community centre, pool or library, etc.
8. Process will vary based on service shutdown.

C. Heating and Cooling System Shutdowns:

Construction School Specific Information Sheet

1. Heating and cooling system shutdowns **require minimum 5 days' notice** to HWDSB project supervisor
2. Shutdowns must be completed outside of school bell times/operational hours which vary by facility and must be scheduled for evenings after 6:00 PM, weekends or board holidays.
3. The contractor is to coordinate with Board vendor/s to be on site to ensure boilers, roof top units, heat pumps, etc. are functioning properly after service disruption has concluded.

- Chamberlain Building Services Inc - info@chbs.ca, 905-664-1914 or
- Union Boiler Company Limited - info@unionboiler.com, 905-528-7977

4. If the boiler system is drained, the contractor upon refilling the system, is responsible for coordinating Board approved chemical treatment vendor to treat water.

- Aquarian Chemicals Inc - info@aquarianchemicals.com, 905-825-3711

5. Process will vary based on services shutdown and ability to localize shutdown.

D. Asbestos Abatement and Designated Substance Related Work:

1. Designated substance related work **requires minimum 5 days' notice** to HWDSB project supervisor.
2. Designated substance related work in occupied areas must be completed outside of school bell times/operational hours which vary by facility and must be scheduled for evenings after 6:00 PM, weekends or board holidays.

1 General

1.1 WORK OF THIS CONTRACT

- .1 Work of this Contract comprises the following:

Dust Collector Replacement & Program Renovations at
SIR ALLAN MACNAB SECONDARY SCHOOL

located at:
145 Magnolia Drive,
Hamilton, Ontario

and is further identified as:
HWDSB No. 2026-128-P02215, and
GSA Project No.: 25018.

1.2 DIVISION OF WORK

- .1 Division of the Work among Subcontractors and Suppliers is solely Contractor's responsibility. Consultant and Owner assume no responsibility to act as an arbiter to establish subcontract limits between Sections or Divisions of the Work.

1.3 SPECIFICATIONS LANGUAGE AND STYLE

- .1 Specifications are written in imperative mood and in streamlined form. Imperative language is directed to Contractor, unless stated otherwise.
- .2 Complete sentences by reading "shall", "Contractor shall", "shall be", and similar phrases by inference. Where a colon (:) is used within sentences and phrases, read the words "shall be" by inference.
- .3 Fulfil and perform all indicated requirements whether stated imperatively or otherwise.
- .4 When used in the context of a Product, read the word "Provide" to mean "supply and install to result in a complete installation ready for its intended use".

1.4 SPECIFICATIONS MEASUREMENTS AND DIMENSIONS

- .1 Specifications are written using SI Metric measurements and dimensions.
- .2 This does not preclude the use of Products manufactured or produced to Imperial measurements.
- .3 It remains Contractor's responsibility to make the various parts of the Project come together properly and neatly in a complete manner, in accordance with Contract Documents.

1.5 CONTRACT DOCUMENTS FOR CONSTRUCTION PURPOSES

- .1 Contract Documents were prepared by Consultant for the account of Owner. Information contained in Contract Documents reflects Consultant's best judgement in light of the information available to them at the time of preparation. Any use which a third party makes of Contract Documents, or any reliance on or decisions to be made based on them, are the responsibility of such third parties. Consultant accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on Contract Documents.
- .2 Consultant will supply Contractor with a complete set of Contract Documents in electronic form before commencement of the Work. Contractor may print hard copies for construction purposes as required.

1.6 DOCUMENTS AT PLACE OF THE WORK

- .1 Keep the following documents at Place of the Work, stored securely and in good order and available to Owner and Consultant in hard copy and electronic form.
 - .1 Current Contract Documents, including Drawings, Specifications, addenda, bid revisions, and Notices in Writing.
 - .2 Proposed changes, Change Orders, Change Directives, and Supplemental Instructions.
 - .3 Reviewed Shop Drawings, Product data and samples.
 - .4 Field test reports and records.
 - .5 Construction progress schedule.
 - .6 Construction daily log.
 - .7 Meeting minutes.
 - .8 Manufacturer's certifications.
 - .9 Current as-built drawings.
 - .10 Safety Data Sheets (SDS) for controlled Products.
 - .11 Manufacturer's installation and maintenance guidelines.
 - .12 Consultant's field review reports and deficiency reports.
 - .13 Permits and reports issued by authorities having jurisdiction.
- .2 Make documents available to Consultant for review at Place of the Work.

1.7 CONTRACTOR USE OF PREMISES

- .1 Refer to Section 01 14 00 for Contractor use and control of Place of the Work from time of Contract award until Ready-for-Takeover.
- .2 Confine Construction Equipment, Temporary Work, storage of Products, waste materials and debris, and other construction operations to limits required by laws, ordinances, permits and Contract Documents, whichever is most restrictive. Do not unreasonably encumber Place of the Work.

1.8 OWNER-SUPPLIED PRODUCTS

- .1 Owner Responsibilities
 - .1 Order and pay for Owner-supplied Products not already in Owner's possession.
 - .2 Arrange and pay for delivery of Owner-supplied Products F.O.B. Place of the Work, within time frames required by Contractor's construction progress schedule.
 - .3 Advise Contractor in writing of the value of Owner-supplied Products for Contractor's insurance purposes.
 - .4 Arrange and pay for delivery to Contractor of reviewed Shop Drawings, Product data, samples, and manufacturer's instructions and certificates.
 - .5 Inspect deliveries jointly with Contractor.
 - .6 Submit claims for transportation damage.
 - .7 Arrange for replacement of damaged, defective or missing items identified at time of delivery.
 - .8 Arrange for manufacturer's field services.
 - .9 Arrange for delivery of manufacturer's warranties to Contractor for inclusion in operation and maintenance manuals.
- .2 Contractor Responsibilities
 - .1 Designate in construction progress schedule, time frames for delivery of Owner-supplied Products to Place of the Work and for receipt of related submittals. If Place of the Work is not ready to receive delivery of Owner-supplied Products within the time frame indicated in the latest construction progress schedule submitted to Owner, arrange and pay for delivery to a temporary storage location and subsequent delivery to Place of the Work.
 - .2 Review required submittals and notify Consultant of any observed discrepancies or anticipated problems.

- .3 Ensure that course of construction insurance is adequate to cover Owner-supplied Products.
- .4 Receive and unload Owner-supplied Products at Place of the Work.
- .5 Inspect deliveries jointly with Owner. Record and notify Owner and Consultant of shortages and visibly damaged or defective items.
- .6 Handle Owner-supplied Products at Place of the Work, including uncrating and storage. Dispose of waste materials and debris.
- .7 Take appropriate precautions to protect Owner-supplied Products from loss or damage.
- .8 Repair or replace items damaged at Place of the Work.
- .9 Assemble, install, connect, adjust, and finish Owner-supplied Products.
- .10 Arrange for inspections required by authorities having jurisdiction.
- .11 Arrange for or perform testing required by authorities having jurisdiction.
- .12 Workmanship warranty for installation.
- .13 Make Good Owner-supplied Products damaged by Contractor or Subcontractors at Place of the Work.

.3 Schedule of Owner-supplied Products

- .1 Soap dispensers.
- .2 Paper towel dispensers.

1.9 OWNER'S SPECIAL REQUIREMENTS

- .1 Refer to Owner's Request for Tender documents for additional contractual requirements intended to supplement or modify CCDC 2; including the following:
 - .1 Requests for substitution during bidding phase.
 - .2 Defined words and terms.
 - .3 Construction insurance.
 - .4 Surety bonds.
 - .5 WSIB coverage.
 - .6 Payment terms.
 - .7 Timelines for deliverables.
 - .8 Ontario Construction Act timelines, including release of lien holdback.
 - .9 Access to existing facility.

END OF SECTION

1 General

1.1 SUMMARY

- .1 This Section specifies administrative requirements related to Owner's assignment of one or more purchase orders to the Contract.
- .2 Owner has entered into one or more purchase orders with a supplier for pre-purchase and supply of Products for the Project.
- .3 Owner intends to assign such purchase orders to Contractor.
- .4 Upon assignment of each purchase order, the designated supplier shall become a Supplier to Contractor.

1.2 PURCHASE ORDERS AND DESIGNATED SUPPLIER

- .1 Purchase Orders: Supply of dust collector equipment to Place of the Work.
- .2 Designated Supplier:
 - .1 Company Name: Nederman Canada Ltd.
 - .2 Company Address: 5865 McLaughlin Road, Unit 1, Mississauga, ON L5R 1B8.
 - .3 Company Telephone: 905.712.0722.
 - .4 Contact Name: Arsalan Riaz.
 - .5 Contact Email: arsalan.riaz@nederman.com.
- .3 As soon after award of Contract as Owner considers practical, Owner will assign each purchase order to Contractor.
- .4 Coordinate scheduling with designated supplier and incorporate each assignable purchase order into construction progress schedule for the Contract, so as to achieve Ready-for-Takeover, including the work of each assignable purchase order, within the Contract Time for the Contract.
- .5 Installation and commissioning is to be carried out under base contract.
- .6 Contractor to include for warranties outlined in Bid package.
- .7 Include cost of each assignable purchase order as a cash allowance in Contract Price for the Contract, as specified in Section 01 21 00.

END OF SECTION

1 General

1.1 RESTRICTIONS ON USE OF PREMISES

- .1 Limit use of premises for Work, for storage, and for access, to allow:
 - .1 Owner occupancy.
 - .2 Partial Owner occupancy.
 - .3 Work by Other Contractors.
 - .4 Public usage.
- .2 Coordinate use of premises under direction of Owner.
- .3 Conform to Owner's Construction School Specific Information Sheet.

1.2 WORK BY OTHERS

- .1 Work of the Project executed prior to start of Work of this Contract, and which is specifically excluded from this Contract.
 - .1 Removal and storage of existing portable furnishings and equipment from the defined areas of construction at Place of the Work by Owner.

1.3 OWNER OCCUPANCY OF EXISTING FACILITY

- .1 Owner will occupy existing facility during entire construction period.
- .2 Cooperate with Owner in scheduling operations to minimize disruptions and to facilitate Owner usage.

1.4 PARTIAL OWNER OCCUPANCY OF THE WORK

- .1 Schedule designated portions of the Project for Owner's use prior to Ready-for-Takeover.

1.5 RESTRICTED HOURS OF WORK IN OCCUPIED FACILITY

- .1 When performing Work within existing facility beyond the defined areas of construction, coordinate with Owner's representative at Place of the Work to ensure operational program of existing facility is not disrupted. Conduct such coordination not less than 48 hours prior to commencing such portions of the Work.
- .2 Work performed within existing facility beyond the defined areas of construction is restricted to the times indicated in Owner's Request for Tender.
- .3 Make special arrangements with Owner to perform portions of the Work in existing facility beyond the defined areas of construction outside of these hours. Submit requests for special arrangements not less than 48 hours in advance.
- .4 Submit written notice to Owner within 24 hours of any potential disruptions to continuing operations of existing facility.
- .5 Allow for hours of work restrictions in construction progress schedule.

1.6 WORK RESTRICTIONS IN OCCUPIED FACILITY

- .1 Refer to Owner's Request for Tender.
- .2 Ensure construction and manoeuvring by Subcontractors is restricted to within the defined areas of construction at Place of the Work.
- .3 When vehicle manoeuvring is required beyond the defined areas of construction at Place of the Work, arrange for an experienced flag person to safely direct vehicles and keep both workers and non-construction personnel at safe distances.

- .4 Maintain exiting during all phases of construction including, but not limited to, exiting through or adjacent to, defined areas of construction in existing facility and Place of the Work.
 - .5 Conduct a daily construction fencing review walk at beginning of each shift to ensure construction fencing is secure and safely separating the defined areas of construction from occupied facility and outdoor play areas.
 - .6 Contractor is responsible for maintaining one construction access point. This access point must be secured by a locking device during after hours. Contractor will Provide a temporary door where one does not currently exist for any opening required through the protective enclosure to access existing occupied facility. Temporary door requires a locking mechanism. Contractor is solely responsible for maintaining and preventing unauthorized access into defined areas of construction.
 - .7 At no time may Contractor store any Products or Construction Equipment inside existing boiler rooms or custodial rooms. If Products or Construction Equipment are found stored in such locations, Owner will issue one Notice in Writing to Contractor, instructing them to remove such items. If items are not removed within 24 hours, Owner will remove items and cannot guaranty their safe storage.
 - .8 Contractor is not permitted to use any part of existing facility for storage, meeting spaces, site offices, washrooms facilities, or lunch rooms.
 - .9 Microwaves, or other cooking devices, are not permitted inside existing facility, and will be immediately removed by Owner when found.
- 1.7 PRODUCT DELIVERY RESTRICTIONS IN OCCUPIED FACILITY
- .1 Refer to Owner's Request for Tender.
- 1.8 NOISY WORK RESTRICTIONS IN OCCUPIED FACILITY
- .1 Schedule excessively noisy work to avoid disturbance to building occupants. Perform excessive noise generating work outside of Owner's normal operating hours.
 - .2 Use of powder actuated devices is permitted only after regular school hours as identified above, and only after communication with Owner and Consultant at least 48 hours before undertaking such operations.
- 1.9 FOOD AND BEVERAGE RESTRICTIONS IN OCCUPIED FACILITY
- .1 Limit consumption of food and beverages in occupied facilities to only those areas designated by Owner.
 - .2 There shall be no food or beverages allowed within existing facility beyond the defined areas of construction.
 - .3 Workers found to be in violation of this requirement will be required to leave Place of the Work and will be replaced by Contractor.
- 1.10 MAINTAINING LIFE SAFETY SYSTEMS IN OCCUPIED FACILITY
- .1 Maintain operational life safety systems and public access to exits in occupied areas during execution of the Work.
 - .2 Existing Entrances and Exits:
 - .1 Maintain existing entrances and exits to ensure public safety.
 - .2 Where existing entrances and exits are blocked or adversely affected by construction activities, construct temporary entrances and exits in accordance with authorities having jurisdiction.

- .3 Determine nature and exact locations of existing fire and smoke sensors prior to commencement of the Work. Avoid direct or indirect jarring while working in adjacent areas and exercise caution to avoid triggering these devices.
- .4 Be responsible for costs incurred by Owner on account of false fire alarms activated as a result of the execution of the Work without adequate precautions.

1.11 FIRE PROTECTION IN OCCUPIED FACILITY

- .1 Conduct fire watches in strict accordance with Owner's Construction School Specific Information Sheet, Part 3 - Protocol for Work Impacting Fire Alarm System or Devices.
- .2 Fire Watch Log: Prepare and maintain a written fire watch log, recording the following information for each fire watch:
 - .1 Name of facility,
 - .2 Area of fire watch,
 - .3 Date and time of fire watch,
 - .4 Initials of person conducting fire watch, and
 - .5 Status and notes pertaining to fire watch.

END OF SECTION

1 General

1.1 CASH ALLOWANCES FOR SUPPLY AND INSTALLATION OF PRODUCTS

- .1 Amount of each cash allowance includes:
 - .1 Costs to Provide the specified Products, including supply, installation, and related costs, excluding Value Added Taxes.
 - .2 Subcontractor's and sub-Subcontractor's overheads and profits related to cash allowance.
- .2 Amount of each cash allowance does not include Contractor's overhead and profit, and other related costs, which shall be included in Contract Price and not in cash allowance.
- .3 Allow the stipulated sum of \$50,000 for supply and installation of furniture, fitments, equipment, and IT cabling.

1.2 CASH ALLOWANCES FOR ASSIGNABLE PURCHASE ORDERS

- .1 Owner has entered into an assignable purchase order, which will be assigned to this Contractor as specified in Section 01 11 19.
- .2 Amount of each cash allowance includes the amount payable by Contractor to designated Supplier after assignment of the assignable purchase order, excluding Value Added Taxes.
- .3 Amount of each cash allowance does not include costs of the following items, which costs shall be included in Contract Price and not in cash allowance:
 - .1 Unloading, handling, and storage at Place of the Work.
 - .2 Installation and other related costs.
 - .3 Overheads and profits related to cash allowance.
- .4 Allow the stipulated sum of \$38,445.20 for assignment of the dust collector equipment purchase order.

1.3 EXPENDITURE OF CASH ALLOWANCES

- .1 Owner, through Consultant, will supply Contractor with documentation required to permit pricing of a cash allowance item.
- .2 Owner, through Consultant, may request Contractor to identify potential Suppliers or Subcontractors, as applicable, and to obtain at least three competitive prices for each cash allowance item.
- .3 Owner, through Consultant, may request Contractor to disclose originals of each bid, quotation, and other price related information received from potential Suppliers or Subcontractors.
- .4 Owner, through Consultant, will determine by whom and for what amount each cash allowance item will be performed. Obtain Owner's prior written approval in the form of a Change Order before entering into a subcontract, amending an existing subcontract, or performing own forces work included in a cash allowance. Upon issuance of the Change Order, Contractor's responsibilities for a cash allowance item shall be the same as for other work of the Contract.

END OF SECTION

1 General

1.1 DEFINITION

- .1 Substitution means a Product, a manufacturer, or both, not originally specified in Contract Documents by proprietary name but proposed for use by Contractor in place of a Product, a manufacturer, or both, specified by proprietary name.

1.2 SUBSTITUTION PROCEDURES

- .1 Contractor may propose a Substitution wherever a Product or manufacturer is specified by proprietary name(s), unless there is accompanying language indicating that Substitutions will not be considered.
- .2 Contractor may propose a Substitution wherever a Product or manufacturer is specified by proprietary name(s) and accompanied by language such as "or equal", "or approved equal", or other similar words. Do not construe such language as an invitation to unilaterally Provide a Substitution without Consultant's prior written acceptance. Do not order or install any Substitution without a Supplemental Instruction or Change Order. Unauthorized Substitutions will be removed and replaced with specified Product by Contractor.
- .3 Provided a proposed Substitution submission includes all of the information specified in this Section under Submission Requirements for Proposed Substitutions, Consultant will promptly review and accept or reject the proposed Substitution.
- .4 Consultant may accept a Substitution if satisfied that:
 - .1 The proposed substitute Product is the same type as, is capable of performing the same functions as, interfaces with adjacent work the same as, and meets or exceeds the standard of quality, performance and, if applicable, appearance, warranty and maintenance considerations, of the specified Product,
 - .2 The proposed substitute manufacturer has capabilities comparable to the specified manufacturer, and
 - .3 The Substitution provides a benefit to Owner.
- .5 If Contractor fails to order a specified Product or order a Product by a specified manufacturer in adequate time to meet Contractor's construction progress schedule, Consultant will not consider that valid reason to accept a Substitution.
- .6 If Consultant accepts a Substitution, and subject to Owner's agreement, the change in the Work will be documented in the form of either a Supplemental Instruction or Change Order as specified in Section 01 26 00.
- .7 If a Substitution is accepted in the form of a Supplemental Instruction or Change Order, Contractor shall not revert to an originally specified Product or manufacturer without Consultant's prior written acceptance.

1.3 SUBMISSION REQUIREMENTS FOR PROPOSED SUBSTITUTIONS

- .1 Include with each proposed Substitution the following information:
 - .1 Identification of the substitution, including product name, and manufacturer's name, address, telephone numbers, and web site address.
 - .2 Reason or reasons for proposing the Substitution.
 - .3 A statement verifying that the Substitution will not affect the Contract Price and Contract Time or, if applicable, the amount and extent of a proposed increase or decrease in Contract Price and Contract Time on account of the Substitution.
 - .4 A statement verifying that the Substitution will not affect the performance and warranty of other parts of the Work.
 - .5 Manufacturer's Product literature for the Substitution, including material descriptions, compliance with applicable codes and reference standards, performance and test data, compatibility with contiguous materials and systems, and environmental considerations.

- .6 Product samples as applicable.
- .7 A summarized comparison of the physical properties and performance characteristics of the specified Product and the proposed Substitution, with any significant variations clearly highlighted. Values describing the physical properties and performance characteristics of the proposed Substitution must be expressed using the same units of measurement as for the specified Product, and have been tested using the same test methods as used for the specified Product.
- .8 Availability of maintenance services and sources of replacement materials and parts for the proposed Substitution, as applicable, including associated costs and time frames.
- .9 If applicable, estimated life cycle cost savings resulting from the Substitution.
- .10 Details of other similar projects and applications where the Substitution has been used.
- .11 Identification of any consequential changes in the Work to accommodate the Substitution and any consequential effects on the performance of the Work as a whole. A later claim for an increase to the Contract Price or Contract Time for other changes in the Work attributable to the Substitution will not be considered.

END OF SECTION

1 General

1.1 CLARIFICATIONS

- .1 Request written clarifications when meaning of Contract Documents is unclear.
- .2 Do not proceed with related parts of the Work until clarification is received.
- .3 Failure to notify Consultant when Contract Documents are unclear or inconsistent will result in Contractor incurring responsibility for resulting deficiencies and additional costs.
- .4 Clarifications issued by Consultant are deemed to supercede the relevant parts of Contract Documents, regardless whether those documents are cited in the written clarification.

1.2 REQUESTS FOR INFORMATION

- .1 Contractor may, after exercising due diligence to locate the required information, request from Consultant clarification or interpretation of Contract Documents, hereinafter referred to as a request for information (RFI).
- .2 Submit RFI on a form acceptable in content to Consultant, including a detailed description of Contractor's review of Contract Documents leading up to issuance of the RFI. Requests for information that fail to include a detailed review description, or whose description is insufficient in the opinion of Consultant, may not be considered and may be rejected.
- .3 Maintain a log of RFI sent to and responses received from Consultant, complete with corresponding dates. Submit updated RFI log with each application for payment.
- .4 Submit RFI to Consultant sufficiently in advance of affected parts of the Work so as not to cause delay in the Work. Additional costs incurred as a result of failure to submit an RFI in sufficient time will not be reimbursed by Owner.
- .5 RFI will only be received from Contractor. RFI received directly from Subcontractors or Suppliers will not be considered.
- .6 Submit one RFI per RFI form, numbered consecutively in a single sequence, in the order submitted.
- .7 Consultant will review and respond to RFI with reasonable promptness.
- .8 Consultant's response to RFI will not be considered a Change Order or a Change Directive, nor does it authorize changes in the Work, Contract Price or Contract Time.
- .9 If, at any time, Contractor submits a large quantity of RFI, such that Consultant cannot process them within a reasonable period of time, then Consultant will notify Contractor of such in writing. In this event, Contractor and Consultant will jointly prepare an estimate of time necessary for processing RFI, as well as determining an order of priority among submitted RFI. Contractor will accommodate such necessary time at no increase in Contract Time or Contract Price.
- .10 If the information requested in an RFI is apparent from field observations, is contained in Contract Documents or is reasonably inferable from them, Contractor shall be responsible to Owner for reasonable costs charged by Consultant for additional services required to prepare and issue such information.
- .11 A request for information (RFI) will not constitute a notice of claim for a delay.

1.3 VALUATION OF CHANGES BASED ON AGREED UNIT PRICES

- .1 Consultant may, at outset of the Contract or at any other time, request Contractor to submit unit prices anticipated to be required in valuing changes in the Work.

- .2 Contractor shall promptly submit requested unit prices.
- .3 Unit prices are to be valid for a specified duration.
- .4 Unit prices are to exclude fees for overhead and profit, and will be subject to the percentage fees set out in the Contract.
- .5 Consultant will evaluate Contractor's quoted unit prices and, if accepted by Owner in writing, the agreed unit prices will be used to value subsequent proposed changes in the Work wherever they are applicable.

1.4 SUPPLEMENTAL INSTRUCTIONS

- .1 Consultant may issue Supplemental Instructions to clarify Contract Documents, issue additional information, or make minor variations in the Work not involving adjustments in Contract Price or Contract Time.
- .2 If Contractor considers a Supplemental Instruction to require an adjustment in Contract Price or Contract Time, Contractor shall promptly notify Consultant and Owner in writing and shall not proceed with any work related to the Supplemental Instruction pending receipt of a Change Order, a Change Directive, or, in accordance with the dispute resolution provisions of General Conditions of the Contract, a Notice in Writing of a dispute and instructions to proceed.

END OF SECTION

1 General

1.1 SCHEDULE OF VALUES

- .1 Prior to first application for payment, submit for Consultant's review an initial schedule of values.
- .2 Modify initial schedule of values if and as requested by Consultant.
- .3 Obtain Consultant's written acceptance of initial schedule of values prior to first application for payment.
- .4 Together with first and all subsequent applications for payment, submit updated versions of the schedule of values, indicating the values, to the date of application for payment, of work performed and Products delivered to Place of the Work.
- .5 Prepare schedule of values in an electronic spreadsheet format based on the format and content described in CCDC 24-2022, A Guide to Model Forms and Support Documents.
 - .1 Schedule of values must include a separate line item for closeout submittals, with the identified amount of \$5,000.

1.2 CASH FLOW PROJECTION

- .1 Prior to first application for payment, submit for Consultant's review a forecast of approximate monthly progress payments for each month of Contract Time.
- .2 Submit revised cash flow forecasts when required due to significant changes in rate of progress of the Work or significant changes in Contract Price, or when requested by Owner or Consultant.

1.3 WORKERS' COMPENSATION CLEARANCE

- .1 Submit proof of workers' compensation clearance with each application for payment.

END OF SECTION

1 General

1.1 COORDINATION

- .1 Coordinate the Work to ensure the Project proceeds safely and expeditiously.
- .2 Ensure adequate communication among involved parties.
- .3 Allocate mobilization areas at Place of the Work; for field offices and sheds, for temporary sanitary facilities, for access, for traffic, and for parking facilities.
- .4 Coordinate use of Place of the Work and facilities through procedures for Submittals, reports and records, schedules, coordination of Drawings, recommendations, and resolution of ambiguities and conflicts.
- .5 Submit information required for preparation of coordination and interference drawings. Review and approve revised drawings for submission to Consultant.

1.2 OTHER CONTRACTORS

- .1 Cooperate with Other Contractors employed by Owner and, if necessary, coordinate with their work.
- .2 Submit necessary information to Owner to assist in required scheduling of Other Contractors.

1.3 GENERAL REQUIREMENTS FOR MEETINGS

- .1 Schedule and administer meetings in consultation with Consultant, throughout progress of the Work.
- .2 Prepare agenda for meetings.
- .3 Distribute written notice of each meeting 5 Working Days in advance of meeting date to Consultant and Owner.
- .4 Provide physical space and make arrangements for meetings.
- .5 Preside at meetings.
- .6 Record meeting minutes, including significant decisions and identifying action items and action dates by attendees or the parties they represent.
- .7 Submit draft copy of minutes to Consultant within two Working Days after meeting.
- .8 Consultant will review minutes and will submit comments for any necessary revisions or additions within three Working Days.
- .9 Update minutes to reflect Consultant's comments.
- .10 Reproduce and distribute copies of meeting minutes within 5 days after meeting and transmit to meeting participants, affected parties not in attendance, Consultant, and Owner.
- .11 Representatives of parties attending meetings shall be qualified and authorized to act on behalf of the party each represents.
- .12 Schedule meetings on a day that is determined to be convenient by both Contractor and Consultant.

1.4 CONSTRUCTION START-UP MEETING

- .1 Promptly after Contract award, Contractor shall establish time and location of construction start-up meeting to review and discuss administrative procedures and responsibilities.

- .2 Senior representatives of Owner, Consultant, subconsultants, Contractor, including Contractor's project manager and site superintendent, and major Subcontractors shall be in attendance.
- .3 Agenda will include the following:
 - .1 Appointment of official representatives of Owner, Contractor, Subcontractors, Consultant, and subconsultants.
 - .2 Project communications.
 - .3 Contract Documents for construction purposes.
 - .4 Documents at Place of the Work.
 - .5 Contractor's use of premises.
 - .6 Owner-supplied Products.
 - .7 Work restrictions.
 - .8 Contract modification procedures.
 - .9 Payment procedures.
 - .10 Construction progress meetings.
 - .11 Construction progress schedule, including long lead time items.
 - .12 Submittals schedule and procedures.
 - .13 Special procedures.
 - .14 Quality requirements, including testing and inspection procedures.
 - .15 Contractor's mobilization.
 - .16 Temporary utilities.
 - .17 Existing utility services.
 - .18 Construction facilities.
 - .19 Temporary barriers and enclosures.
 - .20 Temporary controls.
 - .21 Field engineering and layout of work.
 - .22 Site safety.
 - .23 Site security.
 - .24 Cleaning and waste management.
 - .25 Closeout procedures and submittals.
 - .26 Procedures for publishing Certificate of Substantial Performance of the Work, including identification of publisher, and procedures for notifying Subcontractors and Suppliers of publication.
 - .27 Commissioning.
 - .28 Other items.

1.5 PREINSTALLATION MEETINGS

- .1 During course of the Work, schedule preinstallation meetings as required by Contract Documents.
- .2 Wherever possible, schedule preinstallation meetings on same date as regularly scheduled progress meetings.
- .3 Contractor, affected Subcontractors and Suppliers, Consultant, manufacturer's representatives, field inspectors and supervisors, and any other specified parties are to be in attendance.
- .4 Agenda will include the following:
 - .1 Review of existing conditions and affected parts of the Work, and any testing thereof.
 - .2 Review of installation procedures and requirements.
 - .3 Review of environmental and field condition requirements.
 - .4 Schedule of the applicable parts of the Work.
 - .5 Schedule of submission for samples and other items requiring Consultant's selection.
 - .6 Requirements for Temporary Work.
 - .7 Requirements for notification for reviews. Allow a minimum of 48 hours notice for Consultant to review the affected parts of the Work.

- .8 Requirements for inspections and tests as applicable. Schedule and undertake inspections and tests.
- .9 Delivery schedule for Products.
- .10 Special requirements and procedures necessary to comply with regulatory requirements and authorities having jurisdiction.

1.6 CONSTRUCTION PROGRESS MEETINGS

- .1 Schedule regular bi-weekly construction progress meetings for duration of the Work.
- .2 Contractor, major Subcontractors currently involved in the Work, Consultant and Owner are to be in attendance.
- .3 Agenda will include the following:
 - .1 Review and approval of minutes from previous meeting.
 - .2 Work progress since previous meeting.
 - .3 Field observations, including any problems, difficulties, or concerns.
 - .4 Construction progress schedule.
 - .5 Submittals schedule.
 - .6 Proposed changes in the Work.
 - .7 Requests for information.
 - .8 Site safety issues.
 - .9 Maintenance of construction quality standards.
 - .10 Other business.

1.7 PROGRESS DRAW MEETINGS

- .1 Schedule regular monthly progress draw meetings for duration of the Work.
- .2 Progress draw meetings may be scheduled to occur immediately following construction progress meeting.
- .3 Contractor, Owner, and Consultant are to be in attendance.
- .4 Submit to Consultant a copy of application for payment not less than two Working Days before scheduled progress draw meeting.
- .5 Consultant may require changes to application for payment prior to progress draw meeting occurring.

END OF SECTION

1 General

1.1 CONSTRUCTION PROGRESS SCHEDULE

.1 Format and Content:

- .1 Prepare schedule in the form of a critical path method (CPM) Gantt chart using appropriate scheduling software.
- .2 Incorporate a work breakdown structure identifying key activities, work packages, and major milestones, including long delivery Products, inspection and testing activities, preparation and review of mock-ups, Owner decisions for cash allowances, shutdown or closure activities, delivery of Owner-supplied Products, Owner performed work, demonstration and training activities, and similar items, at a sufficient level of detail to effectively manage construction progress.
- .3 Indicate milestone dates for Substantial Performance of the Work and Ready-for-Takeover.

.2 Submission:

- .1 Submit initial schedule in accordance with General Conditions of the Contract.
- .2 Consultant will review format and content of initial schedule and request necessary changes, if any, within 5 Working Days after receipt.
- .3 If changes are required, resubmit finalized initial schedule within 5 Working Days after return of reviewed copy.
- .4 Submit updated progress schedule monthly to Owner and Consultant, indicating actual and projected start and finish dates with report date line and progress, activity relationships, critical path, float, and baseline comparison to current progress.
- .5 Include a written report with each updated progress schedule. Indicate work status to date comparing baseline to actual progress, current forecasts, identifying problem areas, anticipated delays and impact on schedule, and planned corrective actions.

1.2 SUBMITTALS SCHEDULE

.1 Format and Content:

- .1 Prepare schedule identifying required Shop Drawings, Product data, and sample submissions, including samples required for testing and including those for Owner-supplied Products.
- .2 Prepare schedule in digital format.
- .3 Incorporate separate line items for each required submittal, organized by Specification sections numbers and titles, and further broken down by individual Products and systems required.
- .4 For each required submittal, show planned earliest date for initial submission, earliest date for return of reviewed submittal by Consultant, and latest date for return of reviewed submittal without causing delay.
- .5 Allow time in schedule for resubmission of submittals, should resubmission be necessary.

.2 Submission:

- .1 Submit initial schedule to Owner and Consultant within 10 Working Days after Contract award.
- .2 Submit schedule as portable document format (.pdf) file.
- .3 Consultant will review format and content of initial schedule and request necessary changes, if any, within 10 Working Days after receipt.
- .4 If changes are required, resubmit finalized initial schedule within 5 Working Days after return of reviewed copy.
- .5 Submit updated submittals schedule monthly to Owner and Consultant.

1.3 SCHEDULE MANAGEMENT

- .1 A schedule submitted as specified and accepted by Consultant will become the baseline schedule and shall be used as the baseline for updates.

- .2 At regular progress meeting, review and discuss current construction progress and submittals schedules with Consultant and Owner, including activities that are behind schedule and planned measures to regain schedule slippage in key areas on or near the critical path.
- .3 Activities considered behind schedule are those with start or completion dates later than the dates shown on the baseline schedule.

1.4 CONSTRUCTION DAILY LOG

- .1 Maintain a construction log, recording on a daily basis the following information:
 - .1 Number of workers actively working at Place of the Work, organized on a Subcontract basis.
 - .2 Subcontractors present at Place of the Work.
 - .3 Identify the parts of the Work being worked on.
 - .4 Identify the working hours being kept at Place of the Work.
 - .5 Activities with intermittent progress.
 - .6 Time lost with an explanation as to cause.
 - .7 Difficulties encountered, such as construction activity delays, labour inefficiencies, labour shortages, etc.
 - .8 Product deliveries.
 - .9 Equipment mobilization and de-mobilization.
 - .10 Demolition conditions.
 - .11 Start and finish dates for each part of the Work.

1.5 RECORDING ACTUAL SITE CONDITIONS ON AS-BUILT DRAWINGS

- .1 Keep one hard-copy set of Drawings at Place of the Work for purpose of creating as-built drawings. Record information and maintain as-built drawings in clean, dry and legible condition.
- .2 Clearly label each drawing as "AS-BUILT DRAWING". Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
- .3 Record actual construction including:
 - .1 Measured depths of elements of foundation in relation to finish first floor datum.
 - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - .3 Measured locations of pipes, ducts, conduits, outlets, fixtures, access panels, and appurtenances, referenced to visible and accessible features of construction.
 - .4 Field changes of dimension and detail.
 - .5 Changes made by Change Orders and Supplemental Instructions.
 - .6 References to Shop Drawings, where Shop Drawings show more detail.
- .4 Do not use as-built drawings for construction purposes.

1.6 PROGRESS PHOTOGRAPHS

- .1 Arrange for periodic digital photography to document and record progress of the Work.
- .2 Photographs will be properly exposed and in focus, with unobstructed views.
- .3 Identify each photograph by Project name and date taken.
- .4 Format photographs as .jpg, .bmp, or .tif format files in high definition resolution.
- .5 Submit progress photographs monthly as part of current application for payment.
- .6 Submit additional photographs showing special conditions when requested by Consultant.

- .7 Do not use progress photographs, or any other Project photographs for promotional purposes without Owner's written consent.

END OF SECTION

1 General

1.1 ADMINISTRATIVE

- .1 Submit specified submittals to Consultant for review. Submit with reasonable promptness and in orderly sequence so as to not cause delay in the Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time or for Product substitutions or other deviations from Drawings and Specifications.
- .2 Where required by authorities having jurisdiction, submit submittals to authorities having jurisdiction for review and approval.
- .3 Do not proceed with Work affected by a submittal until review is complete.
- .4 Present Shop Drawings, Product data, and samples in SI Metric units. Where items or information is not produced in SI Metric units, converted values are acceptable.
- .5 Review submittals, verifying field measurements where applicable, and affix Contractor's review stamp prior to submission to Consultant. Contractor's review stamp represents that necessary requirements have been determined and verified, and that the submittal has been checked and coordinated with requirements of the Work and Contract Documents.
- .6 Verify field measurements and affected adjacent work is coordinated.
- .7 Submittals not meeting specified requirements will be returned with comments.
- .8 Reproduction of construction Drawings to serve as background for Shop Drawings is not permitted.
- .9 Digital files are to be electronically created from original files. Scanned images will be rejected.
- .10 Do not propose Substitutions or deviations from Contract Documents via Shop Drawing, Product data, and sample submittals.

1.2 SHOP DRAWINGS AND PRODUCT DATA

- .1 Indicate Products, methods of construction, and attachment or anchorage, erection diagrams, connections, explanatory notes, and other information necessary for completion of the Work.
- .2 Where Products attach or connect to other Products, indicate that such items have been coordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross-references to Drawings, Specifications, and other already reviewed Shop Drawings.
- .3 Accompany submittals with a transmittal form containing the following information:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification of each submittal item and quantity.
 - .5 Other pertinent data.
- .4 Shop Drawing submittals will include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.

- .4 Contractor's stamp, date and signature of Contractor's authorized representative responsible for Shop Drawing review, indicating that each Shop Drawing has been reviewed for compliance with Contract Documents and, where applicable, that field measurements have been verified.
- .5 Details of appropriate portions of the Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.
 - .7 Operating weight.
 - .8 Wiring diagrams.
 - .9 Single line and schematic diagrams.
 - .10 Relationships to other parts of the Work.
- .5 Product data submittals for controlled Products must include safety data sheets (SDS).
- .6 Submit electronic copy of Shop Drawings, as portable document format (.pdf) files.
- .7 Submit electronic copy of Product data sheets or brochures, as portable document format (.pdf) files.
- .8 Where a submittal includes information not applicable to the Work, clearly identify applicable information and strike out non-applicable information.
- .9 Supplement standard information to include details applicable to Project.
- .10 Allow 10 Working Days for Consultant's review of each submittal and incorporate submittals schedule specified in Section 01 32 00.
- .11 If upon Consultant's review no errors or omissions are discovered, or if only minor corrections are required as indicated, submittal will be returned and fabrication or installation of work may proceed.
- .12 If upon Consultant's review significant errors or omissions are discovered, a copy noted as such will be returned for correction and resubmission. Do not commence fabrication or installation.
- .13 Consultant's notations on submittals are intended to ensure compliance with Contract Documents and are not intended to constitute a change in the Work requiring change to Contract Price or Contract Time. If Contractor considers any Consultant's notation to be a change in the Work, promptly notify Consultant in writing before proceeding with the Work.
- .14 Resubmit corrected submittals through same procedure indicated above, before any fabrication or installation of the Work proceeds. When resubmitting, notify Consultant in writing of any revisions other than those requested by Consultant.

1.3 ENGINEERED SUBMITTALS

- .1 Submittals required to be sealed by a professional engineer are to be prepared, sealed, signed and dated under the direct control and supervision of a qualified professional engineer licensed to practice at Place of the Work.
- .2 Design includes life safety, sizing of supports, anchors, framing, connections, spans and as additionally required to meet or exceed requirements of applicable codes, standards, regulations, authorities having jurisdiction, and design requirements of Contract Documents.

- .3 Engineered submittals are to include design calculations, complete with references to codes and standards used in such calculations, supporting the proposed design represented in the submittal. Prepare calculations in a clear and comprehensive manner so that they can be properly reviewed.
- .4 Submittal engineer shall undertake periodic field review, including review of associated mock-ups when applicable. Such reviews will include review during fabrication at the point of manufacture, and during installation at Place of the Work. Prepare and submit a field review report for each review undertaken.
- .5 Conduct field reviews at intervals appropriate to the progress of the parts of the Work relevant to the engineered submittal. Report on progress and quality of the affected parts of the Work. Determine if installation is in general conformity with Contract Documents and in strict conformance with the accepted engineered submittal.
- .6 Upon completion of the parts of the Work affected by an engineered submittal, submittal engineer shall prepare and submit a Letter of General Conformity to Contractor, Consultant and authorities having jurisdiction. Certify that the parts of the Work affected by the engineered submittal have been designed, fabricated and installed in accordance with Contract Documents and applicable regulatory requirements.
- .7 Include costs of submittal engineer's services in Contract Price.

1.4 SAMPLES

- .1 Submit samples for Consultant's review as requested in Contract Documents.
- .2 Label samples as to origin, Project name, and intended use.
- .3 Deliver samples prepaid to Consultant's business address.
- .4 Notify Consultant in writing of any deviations in samples from requirements of Contract Documents.
- .5 Where a required colour, pattern or texture has not been specified, submit full range of available Products meeting other specified requirements.
- .6 Consultant selection from samples is not intended to change Contract Price or Contract Time. If a selection would affect Contract Price or Contract Time, notify Consultant in writing prior to proceeding with the Work.
- .7 Resubmit samples as required by Consultant to comply with Contract Documents.
- .8 Reviewed and accepted samples will establish the standard against which installed Work will be reviewed.

1.5 INTERFERENCE DRAWINGS

- .1 Prepare interference drawings, identifying and resolving potential conflicts among various parts of the Work, including sprinkler systems, HVAC ductwork, plumbing and drainage lines, lighting, and electrical systems.
- .2 Submit interference drawings electronically as portable document format (.pdf) files to Consultant prior to commencement of the Work.
- .3 Coordinate and review interference drawings with affected Subcontractors prior to commencement of their portions of the Work.

1.6 CERTIFICATES AND CERTIFICATION SUBMITTALS

- .1 Submit written statements, as requested in Contract Documents, certifying installed Products meet specified criteria.

- .2 Include signature of person responsible for preparing certification.

1.7 TEST AND EVALUATION REPORTS

- .1 Submit manufacturers' test and evaluation reports electronically as portable document format (.pdf) files for requirements requested in Specifications and as Consultant may reasonably request.
- .2 Ensure results are expressed in SI Metric units of measurement. Test and evaluation reports recording results only in Imperial units of measurement may be rejected.
- .3 Clearly indicate compliance with specified performance criteria, tested in accordance with specified test methods, and conducted by independent testing agency.
- .4 Test results achieved through the use of alternative test methods will be rejected.

END OF SECTION

1 General

1.1 PROPER CONDUCT OF WORKERS

- .1 Ensure workers conduct themselves in a proper and civilized manner at all times.
- .2 Workers using improper language, cat calls, lewd comments or improper behaviour will be required to leave Place of the Work and will be replaced by Contractor.
- .3 Workers are required to be properly attired at all times.
- .4 Workers wearing clothing exhibiting hateful or offensive images or language will be required to replace or cover such clothing. Workers refusing to do so will be required to leave Place of the Work and will be replaced by Contractor.
- .5 Smoking or vaping of any substance is not permitted at Place of the Work. Workers found doing so will be required to leave Place of the Work and will be replaced by Contractor.
- .6 Consumption of alcohol and use of controlled substances is not permitted at Place of the Work. Workers found doing so will be required to leave Place of the Work and will be replaced by Contractor.

1.2 SPECIAL PROCEDURES FOR INFECTION CONTROL

- .1 Conform to latest edition of CCA COVID-19 - Standardized Protocols for All Canadian Construction Sites.

1.3 LABOUR CONDITIONS

- .1 Ensure rates of wages, working hours, and working conditions at Place of the Work are in accordance with regulatory requirements and authorities having jurisdiction.

1.4 EMERGENCY CONTACT INFORMATION

- .1 Submit emergency contact information for site superintendent to authority having jurisdiction; for their use 24 hours a day, 7 days a week, 52 weeks a year.
- .2 Immediately notify authority having jurisdiction when emergency contact information changes.

1.5 FIRST AID PERSONNEL

- .1 A minimum of one person trained in basic first aid must be present at Place of the Work at all times during performance of the Work.
- .2 This person may perform other duties, but must be immediately available to render first aid when needed.

1.6 SPECIAL PROCEDURES FOR CONTRACTORS WORKING IN AN EXISTING FACILITY

- .1 Comply with Owner's procedures and requirements for construction personnel working in existing facilities.
- .2 Conform to latest edition of "Guidelines For Maintaining Fire Safety During Construction in Existing Buildings", as issued by Office of the Fire Marshal.
- .3 Coordinate requirements with local fire department. Discuss fire safety planning issues and alternative measures.

1.7 SPILL RESPONSE

- .1 Prepare and initiate a spill response procedure in accordance with appropriate authorities having jurisdiction before commencing the Work.

- .2 Supply and maintain spill kit at Place of the Work.
- 1.8 SPECIAL PROCEDURES FOR WORKING IN CONFINED SPACES
- .1 Perform work in confined spaces in accordance with applicable regulatory requirements.
 - .2 Work in confined spaces must be supervised and performed by licenced confined space and hazardous materials personnel.
- 1.9 SPECIAL PROCEDURES FOR WORKING WITH DESIGNATED SUBSTANCES
- .1 Prepare and initiate a health and safety plan in accordance with authorities having jurisdiction prior to commencing construction operations involving excavating, removing, transporting, handling or disposing of potentially contaminated materials.
 - .2 Keep an up-to-date copy of health and safety plan at Place of the Work.
 - .3 Adhere to health and safety plan for duration of removal and disposal of contaminated material from Place of the Work.
 - .4 Provide and maintain a safe working environment for on-site personnel and minimize the impact of construction activities on general public and surrounding environment.
 - .5 Verify workers and visitors to Place of the Work have and are adequately trained in the use of appropriate personal protective equipment.
 - .6 Should any unforeseen, or site-peculiar safety related factor, hazard, or condition become evident during performance of the Work, immediately notify authority having jurisdiction and Consultant, and take prudent temporary action to establish and maintain safe working conditions until suitable permanent action can be implemented. Safeguard workers, the public and the surrounding area from contamination.
 - .7 Perform routine air monitoring at Place of the Work, testing for organic vapours, explosive conditions and oxygen deficient conditions. Evacuate affected areas immediately and implement corrective measures if unsatisfactory conditions are discovered.
 - .8 Perform removal or disturbance of low level lead-containing paint by implementing a basic worker hygiene program in accordance with Environmental Abatement Council of Canada's Lead Guideline for Construction, Renovation, Maintenance and Repair (2014).
 - .9 Perform removal or disturbance of mercury-containing materials by maintaining mercury intact, with no on-site crushing. Following removal, safely store mercury-containing materials at Place of the Work until it can be safely disposed of at a licensed disposal site.
 - .10 Perform removal or disturbance of silica-containing materials in accordance with Ontario Ministry of Labour's guideline, Silica on Construction Projects.
 - .11 Suspected PCB-containing equipment, including light ballasts, shall be assessed upon removal from service to determine PCB content. When identified as containing PCB, appropriately store and dispose of PCB-containing equipment in accordance with SOR 2008-273 - PCB Regulations.
 - .12 In the event of injury to on-site personnel, contact designated hospital and describe injury prior to or during transport of injured personnel. Transport injured personnel to designated medical facility along a predefined route.

- .13 Take appropriate measures to minimize contact of construction vehicles and Construction Equipment with potentially contaminated materials. Decontaminate construction vehicles, Construction Equipment and workers that have come into contact with contaminated materials prior to their leaving Place of the Work.

END OF SECTION

1 General

1.1 REFERENCE STANDARDS

- .1 Reference Standards means consensus standards, trade association standards, guides and other publications expressly referenced in Contract Documents.
- .2 Where an edition or version date is not specified, referenced standards shall be deemed to be the latest edition or revision issued by the publisher at the time of bid closing. However, if a particular edition or revision date of a specified standard is referenced in an applicable regulatory requirement, the regulatory referenced edition or version shall apply.
- .3 Reference standards establish minimum standards. If Contract Documents call for requirements that differ from a referenced standard, the more stringent requirements shall govern.
- .4 If compliance with two or more reference standards is specified and the standards establish different or conflicting requirements, comply with most stringent requirement. Refer uncertainties to Consultant for clarification.
- .5 Specifications refer to standards writing, testing and certification organizations by their acronyms or initialisms, as follows:
 - .1 AA The Aluminum Association;
 - .2 AABC Associated Air Balance Council;
 - .3 AAMA American Architectural Manufacturers Association;
 - .4 ACI American Concrete Institute;
 - .5 AISC American Iron and Steel Construction;
 - .6 AMCA Air Movement and Air Control Association;
 - .7 ANSI American National Standards Institute;
 - .8 ARI Air Conditioning and Refrigeration Institute;
 - .9 ASCC American Society of Concrete Contractors;
 - .10 ASME American Society of Mechanical Engineers;
 - .11 ASTM American Society for Testing and Materials;
 - .12 ASHRAE American Society of Heating, Refrigeration and Air Conditioning Engineers, Inc.;
 - .13 AWMAC Architectural Woodwork Manufacturers' Association of Canada;
 - .14 AWPA American Wire Producers Association;
 - .15 BHMA Builders Hardware Manufacturers Association;
 - .16 BIA Brick Industry Association;
 - .17 CaGBC Canadian Green Building Council;
 - .18 CCMPA Canadian Concrete Masonry Producers Association;
 - .19 CFCA Concrete Floor Contractors Association of Canada;
 - .20 CGA Canadian Gas Association;
 - .21 CGSB Canadian General Standards Board;
 - .22 CHPVA Canadian Hardwood Plywood and Veneer Association;
 - .23 CISC Canadian Institute of Steel Construction;
 - .24 CISCA Ceiling & Interior Systems Construction Association;
 - .25 CKCA Canadian Kitchen Cabinet Association;
 - .26 CLFMI Chain Link Fence Manufacturers' Institute;
 - .27 CPC Concrete Polishing Council;
 - .28 CPCI Canadian Precast Concrete Institute;
 - .29 CPCQA Canadian Precast Concrete Quality Assurance;
 - .30 CPSC Consumer Product Safety Commission;
 - .31 CRCA Canadian Roofing Contractors' Association;
 - .32 CRI Carpet and Rug Institute;
 - .33 CSA Canadian Standards Association;
 - .34 CSC Construction Specifications Canada;
 - .35 CSDMA Canadian Steel Door Manufacturers' Association;

.36	CSSBI	Canadian Sheet Steel Building Institute;
.37	CUFCA	Canadian Urethane Foam Contractors Association Inc.;
.38	CWB	Canadian Welding Bureau;
.39	CWC	Canadian Wood Council;
.40	CWTA	Canadian Wood Truss Association;
.41	DASMA	Door & Access Systems Manufacturers' Association, International;
.42	DHI	Door and Hardware Institute;
.43	DIN	Deutsches Institut für Normung E.V.;
.44	GA	Gypsum Association;
.45	GANA	Glass Association of North America;
.46	HPVA	Hardwood Plywood and Veneer Association;
.47	ICEA	Insulated Cable Engineers Association;
.48	ICRI	International Concrete Repair Institute;
.49	IEEE	Institute of Electrical and Electronics Engineers;
.50	IGMA	Insulating Glass Manufacturers Association;
.51	ISCA	Interior Systems Contractors Association of Ontario;
.52	IWFA	International Window Film Association;
.53	LEED	Leadership in Energy and Environmental Design;
.54	MPI	Master Painters' Institute;
.55	MSS	Manufacturers Standardization Society of the Valve and Fittings Industry;
.56	NAAMM	National Association of Architectural Metal Manufacturers;
.57	NCMA	National Concrete Masonry Association;
.58	NEMA	National Electrical Manufacturers Association;
.59	NFPA	National Fire Protection Association;
.60	NFRC	National Fenestration Rating Council Incorporated;
.61	NHLA	National Hardwood Lumber Association;
.62	NLGA	National Lumber Grades Authority;
.63	OIRCA	Ontario Industrial Roofing Contractors' Association;
.64	OMCA	Ontario Masonry Contractors' Association;
.65	OPSD	Ontario Provincial Standard Drawings;
.66	OPSS	Ontario Provincial Standard Specifications;
.67	OWTFA	Ontario Wood Truss Fabricators Association;
.68	PCI	Precast Concrete Institute;
.69	PEI	Porcelain Enamel Institute;
.70	RSIC	Reinforcing Steel Institute of Canada;
.71	SEFA	Scientific Equipment & Furniture Association;
.72	SMACNA	Sheet Metal and Air Conditioning Contractors' National Association;
.73	SSPC	The Society for Protective Coatings;
.74	SWI	Sealant and Waterproofer's Institute;
.75	TPIC	Truss Plate Institute of Canada;
.76	TSSA	Technical Standards and Safety Authority;
.77	TTMAC	Terrazzo, Tile and Marble Association of Canada;
.78	ULC	Underwriters' Laboratories of Canada;
.79	ULI	Underwriters' Laboratories Incorporated;
.80	WDMA	Window and Door Manufacturers' Association; and
.81	WHI	Warnock-Hersey International.

1.2 QUALITY ASSURANCE

- .1 Quality of work shall be the best quality, executed by workers experienced and skilled in the respective duties for which they are employed.
- .2 Immediately notify Consultant if required work is such as to make it impractical to produce required results.
- .3 Decisions as to the quality or fitness of work in cases of dispute rest solely with Consultant, whose decision is final.

1.3 INDEPENDENT INSPECTION AND TESTING AGENCIES

- .1 Retain and pay for independent inspection and testing agencies to inspect, test, or perform other quality control reviews of parts of the Work.
- .2 Employment of inspection and testing agencies by Contractor does not relieve Contractor from responsibility to perform the Work in accordance with Contract Documents.
- .3 Allow and arrange for inspection and testing agencies to have access to the Work, including access to off-site manufacturing and fabrication plants.
- .4 For inspection and testing required by authorities having jurisdiction, notify Consultant and inspection and testing agencies in a timely manner in advance of required inspection and testing.
- .5 Submit test samples required for testing in accordance with submittals schedule specified in Section 01 32 00.
- .6 Supply labour, Construction Equipment and temporary facilities needed to obtain and handle test samples at Place of the Work.
- .7 If defects are revealed during inspection and testing, the appointed agency will request additional inspection and testing to ascertain full degree of defect. Correct defect and irregularities as advised by Consultant at no additional cost to Owner. Pay costs for retesting and reinspection.

1.4 INSPECTION AND TESTING AGENCY REPORTS

- .1 For inspection and testing required by regulatory requirements, and performed by Contractor retained inspection and testing agencies, promptly submit copies of reports to Consultant, Owner, authority having jurisdiction, and affected Subcontractors.
- .2 Submit reports electronically as portable document format (.pdf) files.

1.5 MANUFACTURER FIELD REVIEW

- .1 When required by Contract Documents, arrange for a qualified manufacturer's representative to review relevant parts of the Work and verify those portions of the Work are being executed in accordance with manufacturer's written recommendations and installation guidelines.
- .2 Manufacturer field review services are intended to ensure specified Products are being used and are being installed on substrates that have been prepared in accordance with manufacturer's written recommendations.
- .3 Unless specified otherwise, manufacturer's representative will undertake a minimum of one field review, with additional reviews being conducted as deemed necessary by manufacturer.
- .4 Within two Working Days of a field review, manufacturer will submit a field review report recording manufacturer representative's observations and recommendations.
- .5 Distribute copies of manufacturer's field review reports to affected Subcontractors, Consultant, and authorities having jurisdiction.

1.6 MOCK-UPS

- .1 Prepare mock-ups of Work as specified in Contract Documents with reasonable promptness and in an orderly sequence, so as not to cause delay in the Work.
- .2 If a mock-up location is not indicated on Drawings, locate where directed by Consultant.
- .3 Include all necessary Products and labour required to fully construct mock-ups.

- .4 Modify mock-up as required until Consultant acceptance is obtained.
 - .5 Accepted mock-ups establish an acceptable standard for the Work.
 - .6 Protect mock-ups from damage until the Work they represent is complete.
 - .7 Unless specified otherwise, accepted mock-ups forming part of the Work may remain as part of the Work.
 - .8 Remove mock-ups only when the Work they represent is complete or when otherwise directed by Consultant.
- 1.7 MILL TESTS
- .1 Submit mill tests certificates as may be requested.
- 1.8 EQUIPMENT AND SYSTEMS
- .1 Submit adjustment and balancing reports for facility service and building equipment systems.
 - .2 Refer to facility service Specifications for definitive requirements.

END OF SECTION

1 General

1.1 TEMPORARY WATER SUPPLY

- .1 Connect to and use Owner's existing water supply for temporary use during construction, subject to existing available volume and pressure. Usage at no cost to Contractor.
- .2 Obtain Owner's written approval prior to connecting to existing water supply.
- .3 Arrange and pay for necessary water supply connections and disconnections.

1.2 TEMPORARY HEATING AND VENTILATION

- .1 Contractor may connect to and use Owner's existing supply of natural gas for temporary use during construction, subject to existing available volume and pressure. Usage at no cost to Contractor.
- .2 Vent construction heaters in enclosed spaces to the outside or use flameless type of construction heaters.
- .3 Provide temporary heat for the Work as required to:
 - .1 Facilitate progress of the Work.
 - .2 Protect the Work against dampness and cold.
 - .3 Prevent moisture condensation on surfaces, freezing, or other damage to finishes or stored Products.
 - .4 Maintain specified minimum ambient temperatures and humidity levels for storage, installation, and curing of Products.
 - .5 After Project is enclosed, maintain interior air temperature between 10 degrees C and 35 degrees C.
- .4 Provide temporary ventilation for the Work as required to:
 - .1 Prevent accumulation of fumes, exhaust, vapours, gases and other hazardous, noxious, or volatile substances in enclosed spaces, as required to maintain a safe work environment meeting applicable regulatory requirements.
 - .2 Ensure hazardous, noxious, or volatile substances do not migrate to Owner occupied spaces.
 - .3 Ventilate temporary sanitary facilities.
- .5 After Project is enclosed, maintain minimum one air change per hour for enclosed areas receiving architectural finishes. Do not allow excessive build up of moisture in the Work.
- .6 New permanent building heating and ventilation systems may be used during construction, at Contractor's option. If used during construction:
 - .1 Owner will pay utility costs resulting from use of permanent systems.
 - .2 Operate systems in a non-wasteful and energy efficient manner. Be responsible for any system damage.
 - .3 Just prior to Ready-for-Takeover, replace filters, clean ducts, and perform other required maintenance to ensure systems are in as near as new condition as possible.
 - .4 Ensure systems manufacturers' warranties do not commence until the date of Ready-for-Takeover or, if manufacturers' warranties do commence earlier when systems are put into use, arrange for necessary extension of manufacturers' warranties or equivalent coverage under Contractor's warranty.

1.3 TEMPORARY ELECTRICAL POWER AND LIGHTING

- .1 Connect to and use Owner's existing electrical supply for temporary use during construction. Usage at no cost to Contractor.
- .2 Obtain Owner's written approval prior to connecting to existing power supply.

- .3 Arrange and pay for necessary connections and disconnections of temporary power and lighting in accordance with regulatory requirements.
- .4 New permanent building power and lighting systems may be used during construction, at Contractor's option. If used during construction:
 - .1 Owner will pay utility costs resulting from use of permanent systems.
 - .2 Operate systems in a non-wasteful and energy efficient manner. Be responsible for any system damage.
 - .3 Just prior to Ready-for-Takeover, replace lamps which have been used for more than two months.
 - .4 Ensure systems manufacturers' warranties do not commence until the date of Ready-for-Takeover or, if manufacturers' warranties do commence earlier when systems are put into use, arrange for necessary extension of manufacturers' warranties or equivalent coverage under Contractor's warranty.

END OF SECTION

1 General

1.1 ADMINISTRATIVE REQUIREMENTS

- .1 Provide temporary construction facilities as necessary for performance of the Work and in compliance with applicable regulatory requirements.
- .2 Maintain temporary construction facilities in good condition for duration of the Work.
- .3 Remove temporary construction facilities from Place of the Work when no longer required.

1.2 CONSTRUCTION PARKING

- .1 Parking at Place of the Work will be subject to the following requirements:
 - .1 On weekends and statutory holidays: 7:30 am until 10:30 pm.
 - .2 Weekdays between July 1 and August 31: No restrictions.
 - .3 Weekdays between September 1 and June 30: 4:00 pm until 10:30 pm.
- .2 Parking at Place of the Work during other times will only be allowed after receipt of Owner's written approval.

1.3 VEHICULAR ACCESS

- .1 Provide and maintain adequate access to Place of the Work, ensuring continuous access by emergency vehicles.
- .2 Existing private roadways at Place of the Work may be used for access to Place of the Work. Contractor assumes responsibility for any damage caused by construction traffic, and agrees to prevent or promptly clean up mud tracking or material spillage.
- .3 Clean municipal roadways located immediately adjacent to Place of the Work, regardless of cause, as follows:
 - .1 At least once per week on Friday afternoons, just before end of Working Day,
 - .2 After construction equipment or vehicles have left Place of the Work, resulting in soil or debris being deposited on roadway surfaces,
 - .3 As directed by authorities having jurisdiction, and
 - .4 As directed by Consultant.
- .4 Municipal Road Closures: Conform to requirements of authorities having jurisdiction.

1.4 FIELD OFFICES

- .1 Interior areas of existing facility may not be used for field offices.
- .2 Provide a temperature controlled and ventilated Contractor's field office, with suitable lighting, sufficiently sized and furnished to accommodate Project meetings and Contract Document layout. Obtain Owner's approval of field office location prior to placement.
- .3 Consultant's Field Office: Provide minimum 10 square metres of temporary office space for Consultant, either separately or within Contractor's field office.
- .4 Provide field offices with at least one operable window and a lockable door.
- .5 Provide field offices with temperature control, ventilation, and suitable power and lighting.
- .6 Equip Contractor's field office with table and chairs to accommodate at least 8 meeting attendees, one 3-drawer filing cabinet and one Drawing rack.
- .7 Provide appropriate emergency and first aid equipment as required by authorities having jurisdiction. Mount equipment in a prominent and easily accessible location, complete with easily identifiable labels.

- .8 Provide public access wi-fi internet service for use by Contractor and Consultant.
- .9 Provide printer/photocopier/scanner for use by Contractor and Consultant.
- .10 Clean field offices weekly.
- .11 Major Subcontractors may provide their own field offices as necessary. Direct locations of Subcontractor field offices.

1.5 STORAGE FACILITIES

- .1 Provide and maintain, in a clean and orderly condition, lockable weatherproof sheds with raised floors for storage of Products and Construction Equipment.
- .2 Do not store Products or Construction Equipment in Contractor's field office or in existing facility.

1.6 SANITARY FACILITIES

- .1 Provide sufficient quantity of temporary lockable sanitary facilities, separate for male and female workers, in accordance with authorities having jurisdiction.
- .2 Obtain Owner's approval of temporary sanitary facilities location prior to placement.
- .3 Keep temporary sanitary facilities locked when Contractor is not present at Place of the Work.
- .4 Keep sanitary facilities clean and fully stocked with necessary supplies.
- .5 Permanent sanitary facilities may not be used during construction.
- .6 Except where connected to municipal sewer system, periodically remove wastes from Place of the Work.

1.7 FIRE PROTECTION

- .1 Provide and maintain temporary fire protection systems and equipment during construction.

1.8 HOISTS AND CRANES

- .1 Provide, operate, and maintain hoists and cranes required for moving construction personnel, Products, and Construction Equipment.
- .2 Make financial arrangements with Subcontractors for use thereof.
- .3 Hoists and cranes shall be operated by a qualified operator.

1.9 PROJECT IDENTIFICATION SIGN

- .1 Provide one Project identification sign complete with graphics and text.
- .2 Project identification sign shall be 2 440 x 2 440 mm in size, of solid and weatherproof construction, with graphics produced by a professional sign company.
- .3 Indicate on Project identification sign the following information:
 - .1 Name of Project,
 - .2 Name and logo of Owner,
 - .3 Name and logo of Consultant, and
 - .4 Name and logo of Contractor.
- .4 Relevant graphics and text will be supplied to Contractor by Owner and Consultant promptly after Contract award.
- .5 Submit Shop Drawings for Project identification sign graphics and text.

- .6 Erect Project identification sign within three weeks of Contract award, in location directed by Consultant.
- .7 Erect Project identification sign plumb and level, with bottom of sign set minimum 1 220 mm above finished grade.
- .8 No other signs or advertisements, other than safety, warning, or directional signs, are permitted without Consultant's prior written approval.
- .9 Maintain Project identification sign in clean condition.
- .10 Remove and dispose of Project identification sign when directed by Consultant.

END OF SECTION

1 General

1.1 ADMINISTRATIVE REQUIREMENTS

- .1 Provide temporary barriers and enclosures necessary to protect the public, and to secure Place of the Work during performance of the Work.
- .2 Comply with applicable regulatory requirements.
- .3 Maintain temporary barriers and enclosures in good condition for duration of the Work.
- .4 Remove temporary barriers and enclosures from Place of the Work when no longer required.

1.2 FENCING

- .1 Erect temporary security and safety site fencing, of type and height determined by Contractor, subject to applicable regulatory requirements.
- .2 Provide lockable access gates as required to facilitate construction access.

1.3 WEATHER ENCLOSURES

- .1 Provide weather tight enclosures to unfinished door and window openings, top of shafts, and other openings in floors and roofs.
- .2 Provide weather enclosures to protect floor areas where walls are not finished and to enclose work areas that require temporary heating.
- .3 Design weather enclosures to withstand wind pressure and snow loading requirements.

1.4 DUST TIGHT SCREENS AND PARTITIONS

- .1 Provide dust tight screens and partitions as detailed on Drawings.
- .2 Localize interior building areas from dust and noise generating activities.
- .3 Erect, maintain, and relocate dust tight screens and partitions as required to facilitate construction operations and Owner's operational requirements.

1.5 FIRE ROUTES

- .1 Maintain fire access routes, including overhead clearances, for use by emergency response vehicles.

1.6 SECURITY AT PLACE OF THE WORK

- .1 Become familiar with Place of the Work and surrounding neighbourhood.
- .2 Provide adequate security measures to prevent vandalism, theft, arson and trespassing by unauthorized persons at Place of the Work.
 - .1 Include for secure, vandal- and tamper-proof solid hoardings over unsecured exterior openings in existing facility at end of each Working Day.
- .3 Maintain security measures for 24 hours a day, 7 days a week, 52 weeks a year, including times when construction may be shut down due to strikes or lockouts.
- .4 Assume responsibility for security of Products, Construction Equipment, Temporary Work, workers' vehicles, and construction vehicles at Place of the Work until Ready-for-Takeover.
- .5 Remove security measures upon Ready-for-Takeover.

1.7 PROTECTION OF BUILDING FINISHES

- .1 Provide necessary temporary barriers and enclosures to protect existing and completed or partially-completed finished surfaces from damage during performance of the Work.

END OF SECTION

1 General

1.1 ADMINISTRATIVE REQUIREMENTS

- .1 Provide temporary controls necessary for performance of the Work and in compliance with applicable regulatory requirements.
- .2 Maintain temporary controls in good condition for duration of the Work.
- .3 Remove temporary controls and Construction Equipment used to provide temporary controls from Place of the Work when no longer required.

1.2 PLANT PROTECTION

- .1 Protect trees and other plant material designated to remain at Place of the Work and on adjacent properties where indicated on Drawings.
- .2 Protect trees and shrubs susceptible to damage during construction to OPSS.MUNI 801.
- .3 For trees designated to remain, protect roots inside dripline from disturbance or damage during excavation and grading. Avoid traffic, dumping, and storage of materials over root zones.
- .4 Minimize stripping of topsoil near trees and other plant material designated to remain at Place of the Work.
- .5 Provide lockable access gates as required to facilitate construction access.

1.3 DUST AND PARTICULATE CONTROL

- .1 Implement and maintain dust and particulate control measures in accordance with applicable regulatory requirements.
- .2 Execute Work by methods that minimize dust from construction operations and spreading of dust at Place of the Work or to adjacent properties.
- .3 Provide temporary dust tight enclosures to prevent extraneous materials resulting from sandblasting or similar operations from contaminating air beyond immediate work area. Refer to Section 01 56 00.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.
- .5 Use appropriate covers on trucks hauling fine, dusty, or loose materials.

1.4 DEWATERING

- .1 Provide temporary drainage and pumping as necessary to dewater excavations, trenches, foundations and other parts of the Work. Maintain such areas free of water arising from groundwater or surface runoff, as required to keep them stable, dry and protected from damage due to flooding.
- .2 Maintain standby equipment necessary to ensure continuous operation of dewatering system.
- .3 Do not pump water containing suspended materials or other harmful substances into waterways, sewers or surface draining systems. Treat or dispose of such water in accordance with applicable regulatory requirements.

1.5 DRAINAGE AT PLACE OF THE WORK

- .1 Maintain grades to ensure proper drainage at Place of the Work.
- .2 Prevent surface water runoff from leaving Place of the Work.

- .3 Prevent precipitation from infiltrating or from directly running off stockpiled Products or waste materials. Cover stockpiled Products and waste materials with impermeable liner during periods of work stoppage including at end of each Working Day.
- .4 Control surface drainage from cuts and fills, from borrow and waste disposal areas, from stockpiles, staging areas and other work areas as required to prevent erosion and sedimentation.
- .5 Control surface drainage by ensuring gutters are kept open and water is not directed across or over pavements or sidewalks, except through pipes or properly constructed troughs. Ensure runoff from unfinished areas is intercepted and diverted to suitable outlets.
- .6 Periodically inspect and clean catch basins and storm lines at Place of the Work to ensure their continuous operation during performance of the Work and upon Ready-for-Takeover.

1.6 EROSION AND SEDIMENT CONTROL

- .1 Minimize amount of bare soil exposed at one time. Stabilize disturbed soils as quickly as practical to minimize erosion. Remove accumulated sediment resulting from construction activity from adjoining surfaces, drainage systems and watercourses. Make Good damage caused by soil erosion and sedimentation.
- .2 Provide and maintain appropriate temporary measures such as silt fences, straw bales, ditches, geotextiles, drains, berms, terracing, riprap, temporary drainage piping, sedimentation basins, vegetative cover, dikes and other measures that may be required to prevent erosion and migration of silt, mud, sediment and other debris.
- .3 Do not disturb existing embankments or embankment protection.
- .4 Periodically inspect erosion and sediment control measures to detect evidence of erosion and sedimentation. Promptly take corrective measures when necessary.
- .5 If soil and debris from Place of the Work accumulate in ditches or other low areas, remove accumulation and restore area to original condition.

1.7 POLLUTION CONTROL

- .1 Take measures to prevent contamination of soil, water and atmosphere through uncontrolled discharge of noxious or toxic substances and other pollutants, potentially causing environmental damage.
- .2 Be prepared, by maintaining appropriate materials, equipment and trained personnel at Place of the Work, to intercept, clean up and dispose of spills or releases that may occur. Promptly report spills and releases that may occur to:
 - .1 Authority having jurisdiction.
 - .2 Person causing or having control of pollution source, if known.
 - .3 Owner and Consultant.
- .3 Contact manufacturer of pollutant, if known and applicable, to obtain safety data sheets (SDS) and ascertain hazards involved and precautions and measures required in cleanup or mitigating actions.
- .4 Take immediate action to contain and mitigate harmful effects of spill or release.

END OF SECTION

1 General

1.1 DEFINITIONS

- .1 Not In Contract (NIC) means an item that requires coordination for its later installation, and which is not Provided as part of the Work.
- .2 Owner-supplied Product means a Product that will be supplied by Owner to Contractor for installation as part of the Work. Refer to Section 01 11 00.

1.2 COMMON PRODUCT REQUIREMENTS

- .1 Provide Products that are not damaged or defective, and suitable for purpose intended, subject to specified requirements. If requested by Consultant, furnish evidence as to type, source, and quality of Products Provided in the Work.
- .2 Products referred to in the singular implies the supply and installation of as many Products as necessary to complete the Work.
- .3 Unless specified otherwise, maintain uniformity of manufacture for like items throughout.
- .4 Unless specified otherwise, Consultant may select colours from manufacturer's complete range of available colours, textures and patterns, including those considered to be premium.
- .5 Permanent manufacturer's markings, labels, trademarks and nameplates on Products are not acceptable in prominent locations, except where required by regulatory requirements or for operating instructions, or when located in mechanical or electrical rooms.

1.3 PRODUCT OPTIONS

- .1 Subject to the provisions of Section 01 25 00:
 - .1 Wherever a Product or manufacturer is specified by a single proprietary name, Provide the named Product only.
 - .2 Wherever more than one Product or manufacturer is specified by proprietary name for a single application, Provide any one of the named Products.
- .2 Wherever a Product is specified by reference to a standard only, Provide any Product that meets or exceeds the specified standard. If requested by Consultant, submit information verifying that the proposed Product meets or exceeds the specified standard.
- .3 Wherever a Product is specified by descriptive or performance requirements, and includes a named example preceded by the abbreviation "eg." (meaning "for example"), Provide the named Product or a similar Product manufactured by one of the named manufacturers that meets or exceeds the specified descriptive and performance characteristics. If requested by Consultant, submit information verifying that a proposed Product meets or exceeds the specified requirements.
- .4 Wherever a Product is specified by descriptive or performance requirements only, Provide any Product that meets or exceeds the specified requirements. If requested by Consultant, submit information verifying that the proposed Product meets or exceeds the specified requirements.

1.4 PRODUCT AVAILABILITY AND DELIVERY TIMES

- .1 Promptly upon Contract award and periodically during construction, review and confirm Product availability and delivery times. Order Products in sufficient time to meet the construction progress schedule and the Contract Time.
- .2 If a specified Product is no longer available, promptly notify Consultant. Consultant will take action as required.

- .3 If delivery delays are foreseeable, for any reason, promptly notify Consultant.
 - .1 If a delivery delay is beyond Contractor's control, Consultant will give direction how to proceed.
 - .2 If a delivery delay is caused by something that was or is within Contractor's control, Contractor shall propose actions to maintain the construction progress schedule for Consultant's review and acceptance.

1.5 STORAGE, HANDLING AND PROTECTION

- .1 Store, handle and protect Products during transportation to Place of the Work and before, during and after installation in a manner to prevent damage, adulteration, deterioration and soiling.
- .2 Comply with manufacturer's instructions for storage, handling and protection.
- .3 Store packaged or bundle Products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in the Work.
- .4 Do not store Products and Construction Equipment detrimental to finished surfaces within the Work where finishing has commenced or has been completed.
- .5 Do not store Products and Construction Equipment in existing facility. Arrange and pay for additional storage facilities either outside at Place of the Work or at a remote location away from Place of the Work, as required. Coordinate storage facility locations at Place of the Work with Owner.
- .6 Comply with requirements of workplace hazardous materials information system (WHMIS) regarding use, handling, storage and disposal of hazardous materials, including requirements for labelling and submission of safety data sheets (SDS).
- .7 Store Products subject to damage from weather in weatherproof enclosures.
- .8 Store sheet Products on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .9 Remove flammable rubbish and packing materials from Place of the Work on a daily basis.
- .10 Remove and replace damaged Products.

END OF SECTION

1 General

1.1 SURVEYOR QUALIFICATIONS

- .1 Engage a registered land surveyor, licensed to practice at Place of the Work.

1.2 SUBMITTALS

- .1 Submit name and address of registered land surveyor performing survey work.
- .2 Submit to Consultant surveys of the Work prepared and issued by registered land surveyor upon completion of the following stages of the Work:
 - .1 Footings and foundations.
 - .2 Rough grading.
 - .3 Utility services and pavements.
 - .4 Finish grading and landscaping.
- .3 Submit a certificate, signed by registered land surveyor and acceptable in content and form to authority having jurisdiction, certifying inverts, elevations, grades, and locations of completed Work are in conformance with Contract Documents.

1.3 SURVEY REFERENCE POINTS

- .1 Locate and confirm permanent reference points prior to commencing work at Place of the Work.
- .2 Preserve and protect permanent reference points at Place of the Work during performance of the Work.
- .3 Do not change or relocate reference points without prior written notice to Consultant.
- .4 Report to Consultant when a reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations. Require registered land surveyor to replace reference points in accordance with original land survey.

1.4 SURVEY REQUIREMENTS

- .1 Establish sufficient benchmarks at Place of the Work, referenced to established benchmarks by survey control points.
- .2 Confirm that existing survey reference points are in accordance with Owner's survey and property limits.
- .3 Establish initial lines and levels for Project layout.
- .4 Maintain a complete, accurate log of control and survey work as it progresses. Record locations with horizontal and vertical data in Project as-built record drawings.

1.5 EXISTING UTILITIES AND STRUCTURES

- .1 Before commencing excavation, drilling, or other earthwork, establish or confirm location and extent of existing underground utilities and structures in work area.
- .2 Promptly notify Consultant if underground utilities, structures, or their locations differ from those indicated in Contract Documents or in available project information. Consultant will give appropriate direction.
- .3 Record locations of maintained, re-routed, and abandoned utility lines.

1.6 VERIFICATION OF EXISTING CONDITIONS

- .1 Where work specified in any Section is dependent on the work of another Section or Sections having been properly completed, verify that work is complete and in a condition suitable to receive subsequent work. Commencement of work of a Section that is dependent on the work of another Section or Sections having been properly completed means acceptance of those existing conditions.
- .2 Verify ambient conditions are suitable before commencing the work of any Section and will remain suitable for as long as required for proper setting, curing, or drying of Products used.
- .3 Ensure substrate surfaces are clean, dimensionally stable, cured, and free of contaminants.
- .4 Notify Consultant in writing of unacceptable conditions.

END OF SECTION

1 General

1.1 DEFINITIONS

- .1 Make Good means to restore new or existing work after being damaged, cut, patched or rejected by Consultant. Use materials identical to original materials, with visible surfaces matching the appearance of original surfaces in all details, and with no apparent junctions between new and original surfaces.

1.2 COLD WEATHER REQUIREMENTS

- .1 Perform the Work continually and avoid weather delays.
- .2 Provide temporary heating and cold weather working measures during cold weather periods and winter months. Refer to Sections 01 51 00 and 01 56 00.
- .3 Construction delays, whether the responsibility of Contractor or otherwise, which result in unanticipated or extended winter work will not be considered justification for claims for additional payments.
- .4 Uniformly distribute heat to avoid hot or cool areas, or excessive drying.

1.3 MANUFACTURER'S INSTRUCTIONS

- .1 Install, erect or apply Products in strict accordance with manufacturer's instructions.
- .2 Specifications requiring the installation, erection or application of Products to conform to a consensus standard does not replace or supercede the requirement to also conform to manufacturer's instructions.
- .3 Where a manufacturer's instructions and the requirements of a specified consensus standard are contradictory, manufacturer's instructions will govern.
- .4 Notify Consultant in writing of conflicts between Contract Documents and manufacturer's instructions where, in Contractor's opinion, conformance with Contract Documents instead of manufacturer's instructions may be detrimental to the Work or may jeopardize manufacturer's warranty.
- .5 Do not rely on labels or enclosures supplied with Products. Obtain written instructions directly from manufacturers.
- .6 Allow manufacturer's representatives to have access to the Work at all times. Render assistance and facilities for such access so that manufacturer's representatives may properly perform their responsibilities. Refer to Section 01 40 00.

1.4 CONCEALMENT

- .1 Conceal pipes, ducts, and wiring in floors, walls and ceilings in finished areas:
 - .1 After review by Consultant and authority having jurisdiction.
 - .2 Where locations differ from those shown on Drawings, after recording actual locations on as-built record drawings.
- .2 Provide incidental furring or other enclosure as required.
- .3 Notify Consultant in writing of interferences before installation.

1.5 FASTENINGS - GENERAL

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials.

- .2 Provide fasteners to full required complement. Products with missing fasteners will be rejected by Consultant.
- .3 Prevent electrolytic action and corrosion between dissimilar metals and materials by using suitable non-metallic strips, washers, sleeves, or other permanent separators to avoid direct contact.
- .4 Use non-corrosive fasteners and anchors for securing exterior work and in spaces where high humidity levels are anticipated.
- .5 Space fasteners within individual load limit or shear capacity, and ensure fasteners provide positive permanent anchorage.
- .6 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .7 Do not use fastenings or fastening methods that may cause spalling or cracking of material to which anchorage is made.
- .8 Fasteners stressed in withdrawal will be rejected.
- .9 Powder-actuated fasteners are to be a system suitable for the specific application, corrosion-resistant, and capable of sustaining without failure a load equal to 10 times the design load when tested to ASTM E1190.
- .10 Do not use powder-actuated fasteners stressed in withdrawal for finished work.
- .11 Do not use powder-actuated fasteners within 100 mm of concrete or masonry edges.
- .12 Do not use powder-actuated fasteners in post-tensioned concrete.

1.6 FASTENINGS - EQUIPMENT

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Bolts shall not project more than one diameter beyond nuts.

1.7 FIRE RATED ASSEMBLIES

- .1 When penetrating fire rated wall, ceiling, or floor assemblies, completely seal voids with firestopping materials, smoke seals, or both, in full thickness of the construction element as required to maintain the integrity of the fire rated assembly.

1.8 TEMPLATES, BUILT-INS AND DIMENSIONS

- .1 Take field measurements and confirm dimensions necessary for the proper execution of the Work.
- .2 Assume responsibility for accuracy and completeness of dimensions.
- .3 Provide forms, templates, anchors, inserts, and accessories to be fixed to, or inserted as part of, the Work.
- .4 Prepare and submit setting drawings, templates, and other information necessary for the placement and installation of Products, holes, sleeves, inserts, anchors, accessories, fastenings, connections, and access panels.
- .5 Supply items in sufficient time, complete with templates and other necessary information, to accommodate installation without causing delay to the Work. Failure to do so will not result in an increase in Contract Price and Contract Time.

- .6 Verify that the Work, as it proceeds, is executed in accordance with dimensions and positions indicated, which maintain levels and clearances to adjacent work, as set out in Contract Documents.
- .7 Verify details and field measurements at Place of the Work prior to fabricating Products of special design to ensure fit.

1.9 INTERFERENCES

- .1 Prior to commencement of the Work, coordinate placement of Products to ensure components are properly accommodated within designed spaces. Prepare and submit interference drawings as specified in Section 01 33 00.
- .2 Be responsible for additional work and costs necessitated by failure to coordinate the parts of the Work.
- .3 Provide adequate access and clearances around Products as required by authorities having jurisdiction, and as required for maintenance purposes by manufacturers.
- .4 Notify Consultant if Contract Documents are in conflict with access and clearance requirements.

1.10 LOCATION OF FIXTURES, OUTLETS AND DEVICES

- .1 Consider location of fixtures, outlets, and devices indicated on Drawings as approximate.
- .2 Locate fixtures, outlets, and devices for minimum interference, maximum usable space, and as required to meet safety, access, maintenance, acoustic, and regulatory, including barrier free, requirements.
- .3 Promptly notify Consultant in writing of conflicting installation requirements for fixtures, outlets and devices. If requested, indicate proposed locations and obtain approval for actual locations.

1.11 REMEDIAL WORK AND MAKING GOOD

- .1 Notify Consultant of, and perform remedial work required to Make Good defective or unacceptable work.
- .2 Ensure properly qualified workers perform remedial work.
- .3 Coordinate adjacent affected work as required.
- .4 Make Good defective and damaged parts of the Work.
- .5 Make Good damage to property located adjacent to Place of the Work.
- .6 Make Good damage to existing surfaces designated to remain as part of the Work.
- .7 Make Good existing conditions as noted on Drawings.
- .8 Prioritize correction of defective work which, in the sole discretion of Owner, adversely affects Owner's day to day operations.
- .9 Make Good damage to the Work resulting from lack of adequate heating protection.
- .10 Make Good damage to utility services in accordance with authority having jurisdiction.

END OF SECTION

1 General

1.1 REQUESTS FOR CUTTING, PATCHING AND REMEDIAL WORK

- .1 Submit written request in advance of cutting, coring, or alteration which affects or is likely to affect:
 - .1 Structural integrity of any element of the Work.
 - .2 Integrity of weather-exposed or moisture-resistant elements.
 - .3 Efficiency, maintenance, or safety of any operational element.
 - .4 Visual qualities of sight-exposed elements.
 - .5 Work of Owner or Other Contractor.
 - .6 Warranty of Products affected.
- .2 Include in request:
 - .1 Identification of Project.
 - .2 Location and description of affected work, including drawings or sketches as required.
 - .3 Statement on necessity for cutting or alteration.
 - .4 Description of proposed work, and Products to be used.
 - .5 Alternatives to cutting and patching.
 - .6 Effect on work of Owner or Other Contractors.
 - .7 Written permission of affected Other Contractors.
 - .8 Date and time work will be executed.

1.2 PRODUCTS

- .1 Unless specified otherwise, when replacing existing or previously installed Products in the course of cutting and patching work, use replacement Products of same character and quality as those being replaced.
- .2 If an existing or previously installed Product must be replaced with a different Product, submit request for substitution as specified in Section 01 25 00.

1.3 PREPARATION

- .1 Inspect existing conditions as specified in Section 01 71 00.
- .2 Provide supports to assure structural integrity of surroundings.
- .3 Provide devices and methods to protect other portions of the Work from damage.
- .4 Provide protection from elements for areas that may be exposed by uncovering work.

1.4 EXISTING UTILITIES

- .1 Where the Work involves breaking into or connecting to existing services, give authority having jurisdiction, Owner and Consultant 48 hours notice for necessary interruption of facility services.
- .2 Maintain excavations free of water.
- .3 Keep duration of interruptions to a minimum.
- .4 Carry out interruptions after regular working hours of occupants, preferably on weekends, unless Owner's prior written approval is obtained.
- .5 Protect and maintain existing active services.
- .6 Record locations of services, including depth, on as-built drawings.
- .7 Construct or erect temporary barriers as specified in Section 01 56 00, as required to protect pedestrian and vehicular traffic.

1.5 CUTTING, PATCHING AND REMEDIAL WORK

- .1 Coordinate and perform the Work to ensure cutting and patching is kept to a minimum.
- .2 Perform cutting, fitting, patching, and remedial work including excavation and fill, to make the affected parts of the Work come together properly and complete the Work.
- .3 Provide openings in non-structural elements of the Work for penetrations of facility services components.
- .4 Perform cutting by methods to avoid damage to other work.
- .5 Provide proper surfaces to receive patching, remedial work and finishing.
- .6 Perform cutting, patching, and remedial work using competent and qualified specialists familiar with the Products affected, in a manner that neither damages nor endangers the Work.
- .7 Do not use pneumatic or impact tools without Consultant's prior written approval.
- .8 Ensure cutting, patching, and remedial work does not jeopardize manufacturers' warranties.
- .9 Refinish surfaces to match adjacent finishes. For continuous surfaces refinish to nearest intersection. For an assembly, refinish entire unit.
- .10 Fit work to pipes, sleeves, ducts, conduit and other penetrations through surfaces with suitable allowance for deflection, expansion, contraction, acoustic isolation and firestopping.
- .11 Maintain fire ratings of fire rated assemblies where cutting, patching or remedial work is performed. Completely seal voids or penetrations of assembly with firestopping and smoke seal materials to full depth, or with suitably rated devices.

END OF SECTION

1 General

1.1 REGULATORY REQUIREMENTS

- .1 Comply with applicable regulatory requirements when disposing of waste materials.
- .2 Obtain permits from authorities having jurisdiction, and pay disposal fees where required for disposal of waste materials and recyclables.

1.2 GENERAL CLEANING REQUIREMENTS

- .1 Provide adequate ventilation during use of volatile or noxious substances. Do not rely on building ventilation systems for this purpose.
- .2 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .3 Prevent cross-contamination during cleaning process.
- .4 Notify Consultant of the need for cleaning caused by Owner or Other Contractors.
- .5 Assign cleaning duties to special dedicated crew with own foreman and of sufficient size and skill to prevent accumulation of waste, debris and dirt at Place of the Work.

1.3 PROGRESSIVE CLEANING AND WASTE MANAGEMENT

- .1 Maintain the Work in tidy and safe condition, free from accumulation of waste materials and construction debris.
- .2 Provide appropriate, clearly marked, containers for collection of waste materials and recyclables. Locate containers where they will not hinder the progress of the Work and Owner's continuing operations.
- .3 Owner's existing waste containers at Place of the Work may not be used during construction.
- .4 Owner's custodial equipment and supplies may not be used during construction.
- .5 Remove waste materials and recyclables from work areas, separate and deposit in designated containers at end of each Working Day. Collect packaging materials for recycling or reuse.
- .6 Remove waste materials and recyclables from Place of the Work at regular intervals.
- .7 Clean interior building areas prior to start of finish work and maintain free of dust and other contaminants during finishing operations.
- .8 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly finished surfaces nor contaminate building systems.

1.4 FINAL CLEANING

- .1 Before final cleaning, arrange a meeting at Place of the Work to determine the acceptable standard of cleaning. Ensure Owner, Consultant, Contractor, and cleaning Subcontractor are in attendance.
- .2 Remove from Place of the Work surplus Products, waste materials, recyclables, Temporary Work, and Construction Equipment not required to perform any remaining work.
- .3 Provide professional cleaning by a recognized, established cleaning company.
- .4 Lock or otherwise restrict access to each room or area after completing final cleaning in that area.

- .5 Re-clean as necessary areas that have been accessed by Contractor's workers prior to Ready-for-Takeover.
 - .6 Remove stains, spots, marks, and dirt from finished surfaces, mechanical and electrical fixtures, furniture, fitments, walls, and floors.
 - .7 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and other finished surfaces, including mechanical and electrical fixtures. Replace broken, scratched or otherwise damaged glass.
 - .8 Remove dust from lighting reflectors, lenses, lamps, bulbs, and other lighting surfaces.
 - .9 Vacuum clean and dust exposed wall, floor, and ceiling surfaces, above suspended ceiling tiles, and behind grilles, louvres, and screens.
 - .10 Clean mechanical, electrical, and other equipment. Replace filters for mechanical equipment if equipment has been used during construction.
 - .11 Remove waste materials and debris from crawlspaces and other accessible concealed spaces.
 - .12 Remove stains, spots, marks, and dirt from exterior facades.
 - .13 Clean exterior and interior window glass and frames.
 - .14 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.
 - .15 Power wash exterior paved surfaces.
 - .16 Use leaf blower to clean landscaped surfaces.
- 1.5 WASTE MANAGEMENT AND DISPOSAL
- .1 Dispose of waste materials and recyclables at appropriate municipal landfills and recycling facilities in accordance with applicable regulatory requirements.
 - .2 Do not burn or bury waste materials at Place of the Work.
 - .3 Do not dispose of volatile and other liquid waste such as mineral spirits, oil, paints and other coating materials, paint thinners, cleaners, and similar materials together with dry waste materials or on the ground, in waterways, or in storm or sanitary sewers. Collect such waste materials in appropriate covered containers, promptly remove from Place of the Work, and dispose of at recycling facilities or as otherwise permitted by applicable regulatory requirements.
 - .4 Cover or wet down dry waste materials to prevent blowing dust and debris.
- 1.6 HAZARDOUS WASTE DISPOSAL
- .1 Refer to Section 02 81 00.
 - .2 If and when required, remove and dispose of hazardous or contaminated waste materials in accordance with applicable regulatory requirements.
 - .3 Hazardous or contaminated waste materials must be transported by a licensed waste hauling company.
 - .4 Submit a copy of hauling company's Certificate of Approval to authority having jurisdiction prior to transporting any hazardous or contaminated waste materials.
 - .5 Stockpile suspected hazardous or contaminated waste material temporarily in neat and secure stockpiles overlying a double layer of 0.20 mm thick high density polyethylene.

- .6 Isolate stockpiles from remainder of Place of the Work and cover with a single layer of 0.20 mm thick polyethylene to prevent entry, wind disturbance or collection of surface water.
- .7 Do not transport potentially hazardous or contaminated waste materials until such materials have been properly identified by appropriate authority having jurisdiction.

END OF SECTION

1 General

1.1 PROTECTION OF EXISTING PROPERTY

- .1 Protect Owner's existing property and property adjacent to Place of the Work from damage.
- .2 Make Good damage to Owner's existing property resulting from performance of the Work.
- .3 Do not undertake to Make Good damage to any property located adjacent to Place of the Work, or acknowledge that such damage was caused or occasioned by Contractor, without first consulting with Owner and receiving written instructions as to the course of action to be followed.
 - .1 Under such circumstances, where there is danger to life or property, Contractor may take such emergency action as he deems necessary to remove the danger.
 - .2 Contractor shall indemnify and hold harmless Owner and Consultant, including their agents and employees from and against claims, demands, losses, costs, damages, actions, suits, or proceedings by third parties that arise out of, or are attributable to, such emergency action.

1.2 PROTECTION OF COMPLETED WORK AND WORK IN PROGRESS

- .1 Adequately protect parts of the Work completed and in progress from any kind of damage.
- .2 Do not load or permit to be loaded any part of the Work with a weight or force that will endanger the safety or integrity of the Work.
- .3 Refer to Product Specifications for material-specific protection requirements.
- .4 Unless specified otherwise, maintain protection until Ready-for-Takeover.
- .5 Remove protection and protective coverings upon expiry of specified duration.
- .6 Promptly Make Good parts of the Work damaged as a result of inadequate protection.

END OF SECTION

- 1 General
 - 1.1 READY-FOR-TAKEOVER
 - .1 Prerequisites to attaining Ready-for-Takeover of the Work are described in General Conditions of the Contract.
 - .2 Ready-for-Takeover is required on or before October 9, 2026.
 - 1.2 INSPECTION AND REVIEW BEFORE READY-FOR-TAKEOVER
 - .1 Contractor's Inspection: Before applying for Consultant's review to establish Ready-for-Takeover of the Work:
 - .1 Ensure specified prerequisites for Ready-for-Takeover of the Work are completed.
 - .2 Conduct an inspection of the Work to identify defective, deficient, or incomplete work.
 - .3 Prepare a comprehensive and detailed list of items to be completed or corrected.
 - .4 Submit an anticipated schedule and costs for items to be completed or corrected.
 - .2 Consultant's Review: Upon receipt of Contractor's application for review, together with Contractor's list of items to be completed or corrected, Consultant will review the Work. Consultant will advise Contractor whether or not the Work is Ready-for-Takeover and will prepare and give Contractor a list of items, if any, to be added to Contractor's list of items to be completed or corrected. Submit to Consultant a revised list of items to be completed or corrected.
 - .3 Maintain the list of items to be completed or corrected and promptly correct or complete defective, deficient and incomplete work. Contractor's inspection and Consultant's review procedures specified above shall be repeated until the Work is Ready-for-Takeover and no items remain on Contractor's list of items to be completed or corrected.
 - .4 When Consultant determines the Work is Ready-for-Takeover, Consultant will notify Contractor and Owner in writing to that effect.
 - 1.3 PREREQUISITES TO FINAL PAYMENT
 - .1 After Ready-for-Takeover of the Work and before submitting an application for final payment in accordance with General Conditions of the Contract:
 - .1 Correct or complete all remaining defective, deficient, and incomplete work.
 - .2 Remove from Place of the Work surplus Products, Construction Equipment, and Temporary Work.
 - .3 Perform final cleaning and waste removal necessitated by Contractor's work performed after Ready-for-Takeover, as specified in Section 01 74 00.
 - 1.4 SUBSTANTIAL PERFORMANCE OF THE WORK
 - .1 The prerequisites to, and the procedures for, attaining Substantial Performance of the Work shall be:
 - .1 Independent of those for attaining Ready-for-Takeover of the Work.
 - .2 In accordance with lien legislation applicable at Place of the Work.
 - 1.5 TAKE-OVER PROCEDURES
 - .1 Conform to OAA-OGCA Document 100-2025, Recommended Procedures Concerning Substantial Performance, Ready-for-Takeover, and Completion of Construction Projects.

END OF SECTION

1 General

1.1 OPERATION AND MAINTENANCE MANUAL

- .1 Prepare a comprehensive operation and maintenance manual, in the language of the Contract, using personnel qualified and experienced for this task.
- .2 Submit an initial draft of operation and maintenance manual for Consultant's review. If required by Consultant's review comments, revise manual contents and resubmit for Consultant's review. If required, repeat this process until Consultant accepts draft manual in writing.
- .3 Submit final version of operation and maintenance manual to Owner in digital format.

1.2 OPERATION AND MAINTENANCE MANUAL FORMAT

- .1 Organize data in the form of an instructional manual.
- .2 Arrange content by systems, under Section numbers and sequence of Table of Contents.
- .3 Prepare operation and maintenance manual as a portable document format (.pdf) file.
- .4 When multiple files are used, correlate data into related consistent groupings. Identify contents of each file in file name.
- .5 Submit operation and maintenance manual on electronic media type acceptable to Owner.
- .6 Include electronic bookmarks for each separate Product and system, with description of Product and major component parts of equipment.
- .7 Include digital copy of Shop Drawings in manual as portable document format (.pdf) files.

1.3 OPERATION AND MAINTENANCE MANUAL - GENERAL CONTENT

- .1 Table of Contents for each volume.
- .2 Introductory information, including:
 - .1 Date of manual submission.
 - .2 Complete contact information for Consultant, subconsultants, other consultants, and Contractor, with names of responsible parties identified for each.
 - .3 Schedule of Products and systems indexed to content of volume.
- .3 For each Product or system, include complete contact information for Subcontractors, Suppliers and manufacturers, including local sources for supplies and replacement parts.
- .4 Product Data: Mark each sheet to clearly identify specific Products, options, and component parts, and data applicable to installation. Delete or strike out inapplicable information. Supplement with additional information as required.
- .5 Reviewed Shop Drawings.
- .6 Permits, certificates, letters of assurance, and other relevant documents issued by or required by authorities having jurisdiction.
- .7 Warranties.
- .8 Operating and maintenance procedures, incorporating manufacturer's operating and maintenance instructions, in a logical sequence.
- .9 Training materials as specified in Section 01 79 00.

1.4 OPERATION AND MAINTENANCE MANUAL - EQUIPMENT AND SYSTEMS CONTENT

- .1 Each Item of Equipment and System: Include description of unit or system and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- .2 Panel Board Circuit Directories: Include electrical service characteristics, controls, and communications.
- .3 Include installed colour coded wiring diagrams.
- .4 Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- .5 Maintenance Requirements: Include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .6 Include servicing and lubrication schedule, and list of lubricants required.
- .7 Include manufacturer's printed operation and maintenance instructions.
- .8 Include sequence of operation by controls manufacturer.
- .9 Include original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .10 Include Contractor's coordination drawings, with installed colour coded piping diagrams.
- .11 Include charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .12 Include list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .13 Include testing and balancing reports.
- .14 Include additional content as specified in Contract Documents.

1.5 OPERATION AND MAINTENANCE MANUAL - PRODUCTS AND FINISHES

- .1 Include Product data, with catalogue number, options selected, size, composition, and colour and texture designations. Include information for re-ordering custom manufactured Products.
- .2 Include instructions for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Include an outline of requirements for routine and special inspections and for regular maintenance to ensure that on-going performance of building envelope will meet initial building envelope criteria.
- .4 Include additional content as specified in Contract Documents.

1.6 OPERATION AND MAINTENANCE MANUAL - WARRANTIES CONTENT

- .1 Separate each warranty with index tab sheets keyed to Table of Contents listing.
- .2 List each warrantor with complete contact information.
- .3 Verify documents are in proper form and contain full information. Ensure warranties are for correct duration, and are in Owner's name.

1.7 PROJECT AS-BUILT RECORD DRAWINGS

- .1 Transfer information marked up on the as-built record drawings during progress of the Work to a master set of electronic drawing files obtained from Consultant.
- .2 Mark revised drawings as "AS-BUILT DRAWINGS".
- .3 Submit completed record drawings in both hard copy and electronic forms to Owner. Submit three hard copies.
- .4 Submit electronic copies as both Autodesk AutoCAD (.dwg) files and portable document format (.pdf) files.

1.8 SPARE PARTS, EXTRA STOCK MATERIALS AND SPECIAL TOOLS

- .1 Supply spare parts, extra stock materials, and special tools in specified quantities.
- .2 Ensure spare parts and extra stock materials are new, not damaged or defective, and of same quality, manufacturer, and batch or production run as installed Products.
- .3 Include tags for special tools identifying their function and associated Product.
- .4 Deliver to and store items at location directed by Owner at Place of the Work. Store in original packaging with manufacturer's labels intact and in a manner to prevent damage or deterioration.
- .5 Catalogue items and submit to Consultant an inventory listing organized by specification Section numbers. Include Consultant reviewed inventory listing in operation and maintenance manual.

END OF SECTION

1 General

1.1 ADMINISTRATIVE REQUIREMENTS

- .1 Demonstrate and train Owner's personnel on operation and maintenance of equipment, building envelope and systems prior to scheduled date of Ready-for-Takeover.
- .2 Owner will prepare a list of personnel to receive training, and will coordinate their attendance at agreed upon times.
- .3 Coordinate and schedule demonstration and training given by Subcontractors and Suppliers.

1.2 SUBMITTALS

- .1 Submit proposed dates, times, durations, and locations for demonstration and training of each item of equipment and each system for which demonstration and training is required. Allow sufficient time for training and demonstration for each item of equipment or system, or time as may be specified in Contract Documents.
- .2 Consultant and Owner will review submittal and advise Contractor of any necessary revisions.
- .3 Submit reports within 5 Working Days after completion of demonstration and training:
 - .1 Identifying time and date of each demonstration and training session.
 - .2 Summarizing the demonstration and training performed.
 - .3 Including a list of attendees.
- .4 Submit video recordings of demonstration and training sessions together with reports.

1.3 PREREQUISITES TO DEMONSTRATION AND TRAINING

- .1 Ensure testing, adjusting, and balancing has been performed in accordance with Contract Documents.
- .2 Ensure equipment and systems are fully operational.
- .3 Ensure copy of completed operation and maintenance manual is available for use in demonstration and training.
- .4 Ensure conditions for demonstration and training comply with manufacturers' recommended requirements.

1.4 DEMONSTRATION AND TRAINING

- .1 Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, and maintenance of each item of equipment and system.
- .2 Review operation and maintenance manual in detail to explain all aspects of operation and maintenance.
- .3 Prepare and insert additional data in operation and maintenance manual if required.

END OF SECTION

1 General

1.1 RELATED SECTIONS

- .1 Section 02 81 00 - Hazardous Materials - General Provisions.
- .2 Section 02 82 00.01 - Asbestos Abatement - Type 1 (Low Risk) Procedures.
- .3 Section 02 82 00.02 - Asbestos Abatement - Type 2 (Moderate Risk) Precautions.
- .4 Section 02 82 00.03 - Asbestos Abatement - Glove Bag.
- .5 Section 02 82 00.04 - Asbestos Abatement - Type 3 (High Risk) Precautions.
- .6 Section 02 82 00.05 - Asbestos Abatement - Type 3 Varied Procedures.
- .7 Section 02 83 10 - Lead Abatement - Class 1 Precautions.
- .8 Section 02 83 11 - Lead Abatement - Class 2 Precautions.

1.2 REFERENCES

- .1 CSA S350-M1980 (R2003): Code of Practice for Safety in Demolition of Structures.
- .2 CSA Z783-12: Deconstruction of Buildings and Their Related Parts.

1.3 SEQUENCING

- .1 Schedule deconstruction activities to minimize disruption to existing facility operations.
- .2 Verify deconstruction schedule with Consultant prior to commencement of the Work.
- .3 Protect existing facility occupants from dust and from any danger arising from deconstruction operations. Refer to Section 01 56 00.
- .4 Coordinate deconstruction activities with designated substance abatement operations, as specified in Section 02 81 00.

1.4 SPECIAL PROCEDURE SUBMITTALS

- .1 Submit three copies of each photograph taken of existing conditions to Consultant.

1.5 QUALIFICATIONS

- .1 Demolition Supervisor: An individual experienced in building deconstruction, capable of ensuring deconstruction is carried out safely, expeditiously, and without unnecessary damage to materials and surfaces that are designated to remain.

1.6 FIELD CONDITIONS

- .1 Inspect and photograph existing adjacent surfaces and assemblies.
- .2 Record conditions and stability in a manner suitable for evaluation of possible damage caused by deconstruction operations.
- .3 Approximate locations of existing facility services may be indicated on Drawings. Owner and Consultant assume no responsibility for accuracy of such information.

2 Products

2.1 REGULATORY REQUIREMENTS

- .1 Permits and Fees: Include tipping charges and other related fees necessary for completion of deconstruction operations.
- .2 Utilities: Obtain approval from authorities having jurisdiction prior to commencing deconstruction operations.
- .3 Hazardous Waste: Conform to authorities having jurisdiction.

2.2 EQUIPMENT

- .1 Deconstruction: Appropriate equipment for type of deconstruction being contemplated.
- .2 Do not use heavy equipment for making openings in existing walls or in confined spaces, and where damage to other parts of the Work or adjacent property may result.

3 Execution

3.1 EXAMINATION

- .1 Refer to Section 01 71 00.
- .2 Verify locations and construction of structures to be demolished.
- .3 Verify construction and details of other existing and adjacent property.
- .4 Verify location of utility and facility services.
- .5 Undertake x-ray investigations of existing building elements designated for selective demolition to determine locations of concealed components.

3.2 PREPARATION

- .1 Erect shoring, bracing and other temporary structures to prevent collapse, settlement, and movement of property. Refer to Section 01 56 00.
- .2 Provide and maintain dust protection screen as specified in Section 01 56 00.
- .3 Provide and maintain weather enclosures as specified in Section 01 56 00.
- .4 Barricade access by unauthorized persons to areas in which deconstruction is in-progress.
- .5 Post danger signs in conspicuous locations to warn persons that deconstruction is in-progress.
- .6 Erect protection to ensure safe access that must be maintained to existing areas still occupied by the public.
- .7 Protect adjacent property from damage caused by deconstruction operations.
- .8 Remove flammable and contaminated materials, and refuse from area before deconstruction operations commence.
- .9 Arrange for disconnection, capping and plugging of facility services that may be affected by deconstruction operations.

3.3 DECONSTRUCTION

- .1 Perform deconstruction work in an expeditious and safe manner.
- .2 Conform to CSA S350-M and CSA Z783.

- .3 Confine deconstruction operations to only those areas required.
- .4 Prevent and contain the spread of dust.
- .5 Do not drop debris more than one storey unless in an enclosed chute. Lower large components carefully, under control and fully supported at all times.
- .6 Withdraw or flatten protruding nails as deconstruction operations proceed.

3.4 SALVAGE

- .1 Carefully remove materials scheduled for salvage to CSA Z783.
- .2 Refer to Drawings for list of items scheduled for salvage.
- .3 Clean and prepare salvaged items for use by others.
- .4 Store salvaged materials in secure locations, protected from damage.
- .5 Items not scheduled for salvage become property of Contractor.

3.5 CLEANING

- .1 Leave Place of the Work in a clean and orderly condition, ready for use by others.
- .2 Remove waste and debris as specified in Section 01 74 00 and in accordance with authorities having jurisdiction.
- .3 Remove protections, barricades and other temporary constructions on completion of deconstruction operations.
- .4 Make Good property and materials damaged during deconstruction operations.

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 00.03 Asbestos Abatement – Type 2 Glove Bag Method
 - .4 Section 02 82 00.04 Asbestos Abatement – Type 3 Procedures
 - .5 Section 02 82 00.05 Asbestos Abatement – Type 3 Varied Procedures
 - .6 Section 02 83 10 Lead Abatement – Class 1 Procedures
 - .7 Section 02 83 11 Lead Abatement – Class 2 Procedures
- .3 Site Conditions identifies all known hazardous building materials within the Project Area. The information provided is for general reference only. It is recommended each contractor 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 “Hazardous building Materials Assessment (Preconstruction), Interior Renovations, Sir Allan MacNab Secondary School, 145 Magnolia Drive, Hamilton, Ontario”, dated February 20, 2026, prepared by Pinchin Ltd., file number 352293.014.

1.3 Outline of Work

- .1 Coordinate the following items with the Owner's Project Manager and the Construction Manager, which are to be included in the abatement contractor's scope of work, including but not limited to: electrical isolations, GFI connection, water connections, HVAC and exhaust ventilation system isolation, bin placement, schedule, disconnects, etc.
- .2 Refer to the Contract Drawings for the extent of construction work and the Work Areas.
- .3 Install Hoarding Walls between Abatement Work Areas and Occupied Areas as required.
- .4 Perform the following work in Room 1064 (Location 7561):
 - .1 Using Type 1 procedures, remove and dispose of non-asbestos vinyl floor tiles prior to starting the Type 3 set up.
 - .1 Include to remove all vinyl floor tiles present below millwork and/or raised platforms.
 - .2 Using Type 2 procedures using power tools equipped with a HEPA filtered dust collection device, remove all items attached to floor with asbestos-containing levelling compound where scheduled to be removed, prior to starting the Type 3 set up.
 - .3 Using Type 3 procedures prescribed in the Section identified in Related Work, remove and dispose of the following:
 - .1 All ceiling tiles, grids, perimeter tracks, supports etc.
 - .2 All lights, tubes, fixtures, supports etc.
 - .3 Walls, doors, windows, scheduled for removal.
 - .4 HVAC ducting, AHU, diffusers and return air grilles where scheduled to be removed. Clean to an arm's length within remaining ductwork and seal with rip-proof poly.
 - .1 Remove asbestos-containing duct mastic where present on ducting.
 - .5 All asbestos-containing sprayed fireproofing and overspray.
 - .1 Clean all electrical boxes and conduit (including on the inside).
 - .2 Remove/detach/disconnect items as required to access fireproofing for removal. Reinstall/reconnect all removed items once all fireproofing is removed.
 - .6 All asbestos-containing levelling compound and non-asbestos mastic. Use power tools/grinding machine equipped with a HEPA filtered dust collection device.
 - .7 Walls where scheduled for removal and/or openings are required. Asbestos-containing sprayed fireproofing debris and or vermiculite is presumed present within the wall cavities.
 - .1 Where vermiculite is encountered, spray foam all openings to prevent vermiculite release.
 - .2 Include for a full enclosure on exterior where openings are required.
 - .8 All asbestos and non-asbestos pipe and duct insulation.
 - .9 Carefully remove ductwork as required to access fireproofing for removal. Clean and store ducts if not scheduled for removal. Reinstall ductwork following work.

- .5 Perform the following work on Exterior at Room 1064:
 - .1 Using Type 2 procedures using power tools equipped with a HEPA filtered dust collection device, attach hangers, supports, Unistrut where affixed to asbestos-containing texture finish
 - .2 Using Type 3 Varied procedures prescribed in the Section identified in Related Work, remove and dispose of HVAC ducting, AHUs, where scheduled for removal. Clean to an arm's length within remaining ductwork. Remove asbestos-containing duct mastic where present.
- .6 Perform the following work in Corridors (Location 7569, 7554, 7708, 7696):
 - .1 Using Type 3 Varied procedures prescribed in the Section identified in Related Work, remove and dispose of HVAC ducting, AHUs, VAVs, diffusers, and return air grilles where scheduled for removal. Clean to an arm's length within remaining ductwork. Remove asbestos-containing duct mastic where present.
- .7 Perform the following work in Room 1076 (Location 7558):
 - .1 Use Type Glove Bag Procedures to remove and dispose of asbestos-containing parging cement on pipe fittings (include for 35 fittings).
 - .1 If for reasons of pipe 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 following Type 3 procedures in accordance with Ontario Regulation 278/05 for greater than 1 square meter.
 - .2 Using Type 2 procedures using power tools equipped with a HEPA filtered dust collection device, remove/install pipe hangers/supports where affixed to asbestos-containing paint/compound on structure.
- .8 Perform the following work in Room 2066, 2066A, 2066B, 2065, 2065A (Locations 7689, 7690, and 7688):
 - .1 Using Type 1 procedures, remove and dispose of the following:
 - .1 Non-asbestos vinyl floor tiles.
 - .1 Include to remove all vinyl floor tiles present below millwork and/or raised platforms.
 - .2 Asbestos-containing Bakelite countertops.
 - .3 Tackboards/whiteboards with presumed asbestos-containing mastic.
 - .4 Asbestos-containing transite panels from fume hoods and transite pipe.
 - .2 Using Type 2 procedures prescribed in the Section identified in Related Work, perform the following work using power tools/grinding machine equipped with a HEPA filtered dust collection device. Site isolation is to include visual barrier comprised of rip-proof polyethylene sheeting, where necessary and where occupants are present.
 - .1 Remove all items including but not limited to, ceilings items, millwork, electrical/mechanical items, conduit, junction boxes, HVAC supports,

- light fixtures and hangers, millwork, ceiling grid/tracks etc scheduled for removal, attached to floor with asbestos-containing levelling compound and or attached to structure with asbestos-containing compound.
- .2 Remove all asbestos-containing floor levelling compound and non-asbestos mastic.
- .3 Install/attach items, including but not limited to, millwork, electrical/mechanical items, conduit, junction boxes, HVAC supports, light fixtures and hangers, ceiling grid/tracks etc. attached to concrete structure with asbestos-containing compound.
- .4 Create openings in walls as required, remove partition wall, and remove exterior window and masonry.
 - .1 Where vermiculite is encountered, spray foam all openings to prevent vermiculite release.
- .3 Using Type 2 procedures, remove and dispose of bulkhead scheduled for removal.
- .4 Use Type Glove Bag Procedures to remove and dispose of concealed asbestos-containing pipe insulation where present concealed in millwork (include for 50 fittings).
 - .1 If for reasons of pipe 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 following Type 3 procedures in accordance with Ontario Regulation 278/05 for greater than 1 square meter.
- .5 Using Type 3 Varied procedures prescribed in the Section identified in Related Work, remove and dispose of HVAC ducting, fume hood exhausts, diffusers, and return air grilles where scheduled for removal. Clean to an arm's length within remaining ductwork. Remove asbestos-containing duct mastic where present.
- .9 Perform the following work on the Roof (where work is scheduled):
 - .1 Using Type 1 procedures, remove items where presumed asbestos-containing roofing materials are disturbed by work. Removal is to be completed using non powered hand tools.
 - .1 Use Type 2 asbestos procedures, as outlined in Section 02 82 00.02, if removal is done using power tools equipped with HEPA filtered dust collection devices.
- .10 Follow lead procedures prescribed in the Section identified in Related Work when disturbing lead-containing paint.
- .11 Follow mercury procedures when removing all light fixtures and fluorescent light tubes. Place all light fixtures into containers to avoid breakage.
- .12 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.
- .13 Protect surfaces, building fabrics and items remaining within the Abatement Work Area.

- .14 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.
- .15 Isolate the Abatement Work Area from adjoining Occupied and Non-Occupied Areas whether present at an interior or exterior location.
- .16 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.
- .17 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.
- .18 Perform selective demolition of mechanical and electrical equipment, building components, materials and items scheduled for demolition at locations required to facilitate asbestos removal.
- .19 Remove and dispose of as appropriate waste, building components, materials and items contaminated by hazardous materials that cannot be effectively cleaned.
- .20 Encapsulate remaining hazardous materials at locations where removal is deemed impractical by the Abatement Consultant.
- .21 Encapsulation will not be permitted where removal of building materials or structures scheduled for demolition will facilitate access to the asbestos materials in question.
- .22 Final clean work area to remove visible signs of asbestos and other hazardous materials, other debris or settled dust.
- .23 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.
- .24 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 Canada (EAC) 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-containing: Paints containing lead at a concentration of 0.009% (90 ppm) or greater.
- .17 Lead Waste: Waste generated from removal of lead-containing materials, or the substrate and paint finish where left intact.
- .18 Mercury Waste: Equipment, materials or items containing mercury or contaminated with mercury.
- .19 Milestone Inspection: Inspection of the Abatement Work Area at a defined point in the abatement operation.
- .20 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.
- .21 Non-Friable Material: Material that when dry cannot be crumbled, pulverized or powdered by hand pressure.
- .22 Occupied Area: Any area of the building or adjoining space outside the Abatement Work Area.
- .23 Personnel: All Contractor's employees, sub-contractors employees, supervisors.
- .24 PCM: Phase Contrast Microscopy.
- .25 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).
- .26 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 PCB Regulations, SOR 2008-273 and R.R.O. 1990, Reg 362.
 - .4 Regulation 490/09 Designated Substances.
 - .5 Environmental Abatement Council of Canada (EACC), Lead Guideline For Construction, Renovation, Maintenance or Repair, October 2014.
 - .6 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, an Overall Superintendent(s), who has authority to oversee all aspects of the work, including but not limited to, estimating and negotiation of changes to the contract, update of submission requirements, scheduling, manpower and equipment requirements, and direct communication and co-ordination with Abatement Consultant and Owner's representative.

- .2 Provide on site, in addition to the Overall Superintendent(s), and for each work shift, a Shift Superintendent, who has authority regarding all aspects related to manpower, equipment and production.
- .3 At all times during work, the 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 For Type 3 asbestos abatement, workers must be trained and certified per Section 20 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 Ministry of Labour Notice of Project form.

- .5 Copy of Certificate of Approval for disposal of hazardous materials waste and location of landfill.
- .6 Pre-removal damage survey of the Abatement Work Area(s), waste transport routes, and bin storage areas
- .2 Submit the following information regarding personnel prior to starting work:
 - .1 Proof in the form of a certificate that supervisory personnel have been certified as supervisors under the Ministry of Training, Colleges and Universities course 253S.
 - .2 Proof in the form of a certificate that workers have been certified under the Ministry of Training, Colleges and Universities course 253W.
 - .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 Performance data on negative air units including DOP tests which must be no more than 3 months old if the unit is vented outdoors or which must be performed on site immediately prior to initial usage and when HEPA filters are changed if the unit is vented indoors.
 - .3 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.
 - .4 Proof of calibration of DOP testing equipment.
- .4 Submit the following prior to isolating the work area:

.1 Safety Data Sheets for chemicals or material used in the course of the Abatement Project.

.5 Submit the following upon completion of the work.

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

1.12 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:

.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 - Contaminated Perimeter Preparation

.1 Inspection of Abatement Work Area upon completion of limited demolition or abatement and complete installation of upper seals.

.3 Milestone Inspection – Contaminated Demolition Inspection

- .1 Inspection of required demolition under contaminated conditions, prior to commencement of abatement activities.
- .4 Milestone Inspection – Bulk Removal Inspection
 - .1 Inspection during asbestos removal, monitoring removal methods, site deficiencies, performing occupied air monitoring, etc.
- .5 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.
- .6 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 3 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.
- .7 Milestone Inspection – Dismantling Inspection
 - .1 Inspection of the Abatement Work Area and adjacent areas, following completion of all abatement and required air sampling, but prior to Contractor demobilization from the Site.
 - .2 Inspection of the Abatement Work Area and adjacent areas, following completion of all abatement and required air sampling, but prior to re-establishment of items.
- .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.

1.13 Air Monitoring - Asbestos

- .1 Air monitoring will be performed using Phase Contrast Microscopy (PCM) following the National Institute for Occupational Safety and Health Method 7400.
- .2 Co-operate in the collection of air samples, including providing workers to wear sample pumps for up to full-shift periods. Contractor will be responsible for the cost of testing equipment repairs or resampling resulting from the actions of the Contractor's forces.
- .3 Results of PCM samples at or exceeding 0.05 fibres per cubic centimeter of air (fibre/cc) or greater, outside an Abatement Work Area, or from within the Abatement Work Area during or following Glove Bag Work, will indicate asbestos contamination of these areas. Respond as follows:
 - .1 Suspend work within the adjoining Abatement Work Area until written authorization to resume work has been received from the Abatement Consultant.
 - .2 Isolate and clean area in the same manner applicable to the Abatement Work Area.

- .3 Maintain work area isolation, and repeat clean-up operations until visual inspection and air monitoring results are at a level equal to that specified.
- .4 At the discretion of the Abatement Consultant provide additional negative air units at locations specified in response to elevated fibre levels being detected in the Clean Change Room or Occupied Areas.
- .4 Results of PCM samples at or greater than 0.01 fibres per cubic centimeter of air (fibre/cc), collected within the Abatement Work Area enclosure after the site has passed a visual inspection, and an acceptable coat of lock-down agent has been applied, will indicate asbestos contamination of these areas. Respond as follows:
 - .1 Maintain work area isolation and re-clean entire work area. Then apply another acceptable coat of lock-down agent to exposed surfaces throughout the work area.
 - .2 Repeat above measures until visually inspected and air monitoring results are at a level equal to that specified
 - .3 Alternate to items above, the Asbestos Abatement Contractor can pay for analysis of PCM samples by Transmission Electron Microscopy (TEM) at NVLAP accredited laboratory.
 - .1 Enclosure to remain sealed, with negative pressure maintained, and subject to required daily inspections until TEM results are received.
- .5 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.
- .6 Cost of additional inspection and sampling performed as a result of elevated fibre levels in areas outside the Abatement Work Area or from within the work area following completion of work, will be back-charged to the Contractor.

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 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.
- .4 Place placards in accordance with Transportation of Dangerous Goods Act.

1.17 Differential Pressure Monitoring

- .1 Provide and install differential pressure monitors as specified in each section.
- .2 Replace damaged or non-functional equipment at the request of the Abatement Consultant.
- .3 Record at minimum twice daily, and when damage to the enclosure is identified and repaired, the following information:
 - .1 Name of inspector.
 - .2 Date and time.
 - .3 Pressure reading.
 - .4 Repairs completed, if applicable.
- .4 Maintain specified differential pressure.
- .5 Stop contaminated work and take corrective action if pressure differential drops below the specified level. Notify the Abatement Consultant immediately.

1.18 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.

1.19 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 bursting 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 Lead Waste Container: An impermeable container acceptable to disposal site and Ministry of the Environment, that is:
 - .1 Dust tight.
 - .2 Suitable for the type of waste.

- .3 Evaluated for leachable lead content, and disposed of in accordance with applicable regulations.
 - .1 Where lead waste exceeds 5.0 mg/L of lead in the TCLP analysis, label as lead waste and dispose of as leachate toxic hazardous waste.
 - .2 Where lead waste is below 5.0 mg/L of lead in the TCLP analysis, disposed of as construction waste.
- .13 OSB: Oriented Strand Board.
- .14 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.
- .15 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.
- .16 Protective Clothing: Disposable coveralls complete with head covering and full body covering that fits snugly at the ankles, wrists and neck.
- .17 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.
- .18 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.
- .19 Sprayer: Garden type portable manual sprayer or water hose with spray attachment if suitable.
- .20 Tape: Duct tape or tape suitable for sealing polyethylene to surfaces under both dry and wet conditions in the presence of Amended Water.
- .21 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 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 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.

- .5 Install polyethylene drop sheets below areas of work.
- .6 Install polyethylene sheeting on openings in walls and floors (as required) and seal.
- .7 Install signage in clearly visible locations and in sufficient numbers to adequately warn of an asbestos dust hazard.
- .8 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.
- .9 Provide power from ground fault interrupt circuits.
- .10 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.
- .11 Provide amended water for wetting ACM, and adequate method of wetting (garden sprayers, airless sprayers, etc).
- .12 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 - Vinyl Floor Tiles with Asbestos-Containing Levelling Compound

- .1 Wedge a heavy duty scraper in seam of two adjoining tiles and gradually force edge of one tile up and away from floor. Do not break off pieces of tile, but continue to force balance of tile up.
- .2 Place tile, without breaking into smaller pieces, into Asbestos Waste Container.
- .3 Force scraper through tightly adhered areas by striking scraper handle with a hammer.
- .4 Heat tile thoroughly with a hot air gun until heat penetrates through tile and softens adhesive in areas where scraper will not remove tile.
- .5 Place removed ACM directly into an asbestos waste container.
- .6 HEPA vacuum floor on completion of work in area.

3.5 Asbestos Removal - Removal of Other Non-Friable Asbestos Materials – Duct Mastic, Bakelite Countertops, Tackboard/Whiteboard Mastic, Transite Panels/Piping, Roofing Materials

- .1 Wet all material to be disturbed.
- .2 Undo fasteners if necessary to remove material.
- .3 Break material only if unavoidable, and wet material if broken during work.
- .4 Use only non-powered hand-held tools to remove ACM.
- .5 Scrape to remove material adhered to substrate.
- .6 Place removed ACM directly into an asbestos waste container.

3.6 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.

3.7 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 Transfer Room to be generally 2000 mm x 2000 mm x 2200 mm high. Increase size

accordingly to accommodate number of workers.

- .2 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.
- .3 Install one layer of rip-proof polyethylene sheeting over one layer of 6 mil polyethylene sheeting beneath entire Transfer Room.
- .4 Install one layer rip-proof polyethylene sheeting over roof.
- .5 Turn 600 mm of polyethylene down the sides over polyethylene on the perimeter walls.
- .6 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, 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 Hoarding Walls between Abatement Work Area perimeter and occupied areas as necessary.
- .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.
- .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 Place required tools to complete the abatement with the Abatement Work Area.
- .15 Install Signage in clearly visible locations and in sufficient numbers to adequately warn of an asbestos dust hazard.

3.3 Site Preparation – No Enclosure Required

- .1 Install caution tape around work area where existing walls are not present.
- .2 Cover walls, floors, finishes, millwork, equipment and furnishings remaining in the Abatement Work Area with polyethylene sheeting before disturbing ACM to control the spread of dust.
- .3 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.

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

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

.6 Place HEPA vacuum in Abatement Work Area.

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

3.4 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.

3.5 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.

3.6 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.

3.7 Asbestos Removal – Bulkhead

- .1 Use the procedures described above under *Site Preparation – Enclosure Required*.
- .2 Remove bulkhead using non-powered hand-held tools. Place directly into polyethylene waste bag, or sealed container until at waste bin.
- .3 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.

3.8 Asbestos Removal - Flooring Mastic/Levelling Compound 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.

3.9 Asbestos Disturbance - Removal/Installation of Items Affixed to Block Walls with Asbestos-Containing Levelling Compound, to Concrete Structure with Asbestos-Containing Compound, and/or to Asbestos-Containing Texture Finish using HEPA Filtered Power Tools

- .1 Use the procedures described above under *Site Preparation – No Enclosure Required*.
- .2 Site isolation to include a visual barrier comprised of rip-proof polyethylene sheeting, where incessancy and where occupants are present.
- .3 Wet all material to be disturbed.
- .4 Use only power tools with an effective HEPA dust collection device.
- .5 Turn on HEPA dust collection device attached to power tool. HEPA device to remain operational throughout work.
- .6 Remove/install all items affixed to walls as required.
- .7 Place ACM waste directly into an asbestos waste container.
- .8 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.

3.10 Asbestos Removal – Block Walls

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

- .2 Wet all material to be disturbed.
- .3 Remove block walls for openings/penetrations required for mechanical equipment.
- .4 Where vermiculite is encountered, spray foam all openings to prevent vermiculite release.
- .5 Clean up asbestos-containing sprayed fireproofing debris where present.
- .6 Place removed ACM directly into an asbestos waste container.
- .7 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.

3.11 Application of Post Removal Sealant

- .1 Apply one coat of Post Removal Sealant with an airless sprayer, in accordance with Manufacturer's Instructions, to cover all surfaces on all items in the Abatement Work Area, including but not limited to polyethylene, ACM substrate, structural steel, and surfaces scheduled for demolition.
- .2 Do not apply post removal sealant to materials that will be damaged by its application.

3.12 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.

3.13 Waste and Material Handling

- .1 Refer to Section 02 81 00.

3.14 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 negative air discharge panel and reinstall glazing to match existing.
 - .4 Clean, mop and vacuum Abatement Work Area and area beneath Decontamination Facilities.
 - .5 Enable building air handling systems.

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 following Type 2 procedures outlined in Section 02 82 00.02 for less than 1 square meter, or following Type 3 procedures outlined in Section 02 82 00.03 for quantities 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 use compressed air to clean or remove 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 Refer to Section 02 81 00 Hazardous Materials – General Provisions for the Outline of Work.
- .2 Install Hoarding Walls between Abatement Work Area boundaries as required.
- .3 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 3 or High 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 respiratory protection to all personnel:
 - .1 Full Face Air Purifying Respirators with P100 high efficiency (HEPA) cartridge filters during projects when performing wet abatement of sprayed applied surfacing materials containing chrysotile asbestos, or wet abatement of other non-surfacing asbestos-containing material specified in this section.
 - .2 Non-powered half-face respirators with P100 high efficiency (HEPA) cartridge filters for:
 - .1 Removing visible dust and friable material from surfaces in the work area prior to construction of enclosure.
 - .2 Dismantling of Type 3 (High Risk) enclosures, using Type 2 (Moderate Risk) Procedures.
- .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 Differential Pressure Monitoring

- .1 Install differential pressure monitor at a location chosen by the Abatement Consultant.
- .2 Co-operate with the Abatement Consultant in collection of pressure monitoring data.
- .3 Maintain specified differential pressure at monitoring location. Negative air pressure is to be -0.02 inches of water, relative to the area outside the enclosed area.

1.5 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 - Contaminated Perimeter Preparation

- .3 Milestone Inspection – Contaminated Demolition Inspection
- .4 Milestone Inspection – Bulk Removal Inspection
- .5 Milestone Inspection - Visual Clearance
- .6 Milestone Inspection – Clearance Sampling
- .7 Milestone Inspections – Dismantling Inspection

PART 2 PRODUCTS AND FACILITIES

2.1 Materials and Equipment

- .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 Windows: Install sufficient transparent windows in hoarding walls to allow observation of entire work area from outside the enclosure where existing solid walls do not make up the perimeter.

2.3 Decontamination Facilities

- .1 Workers' Decontamination Facility: A decontamination facility comprised of three linked rooms, Contaminated Change Room, a Shower Room, and a Clean Change Room.
 - .1 Rooms, Occupied Areas and Abatement Work Areas, shall be separated by curtained doorways at each door.
- .2 Contaminated Change Room: Room between Shower Room and Abatement Work Area.
 - .1 Locate on contaminated side of Shower Room.
 - .2 Install asbestos waste container for asbestos contaminated protective clothing.
 - .3 Install storage facilities for any personal protective equipment to be reused in Abatement Work Area including boots, hard hats, etc., but excluding respirators.
 - .4 Install hooks and shelves as required for personal protective equipment.
 - .5 Minimum size of generally 2 m x 2 m. Increase size accordingly to accommodate number of workers.
- .3 Shower Room: Room between Clean Change Room and Contaminated Change Room.
 - .1 Install one walk through shower unit for every six workers.
 - .2 Install constant supply of hot and cold water, controllable at each shower. Water supply must be sufficient to provide water at a minimum temperature of 40 degrees Celsius (maximum 50 degrees) in a volume required for all workers to properly decontaminate.
 - .1 Install individual hot and cold shut-off valves on water supply located on clean side of Shower Room. Connect shower to these valves.
 - .2 Install individual controls inside the shower to regulate water flow and temperature.
 - .3 Install rigid piping or Shower Hose with watertight connections for supply and drains.
 - .4 Install a sealed drip pan under and around the showers, 150 mm deep.

- .5 Install sump pumps, sufficient for volume of waste shower water from showers and drip pan. Direct waste shower water to sanitary drains.
- .6 Install ground fault protected power switch on clean side of shower for sump pumps, or timed for shut off.
- .7 Provide adequate quantity of soap, shampoo, clean towels
- .8 Install an Asbestos Waste Container for disposal of used respirator filters, on the contaminated side of the Shower Room.
- .4 Clean Change Room: A room between the Shower Room and Occupied Areas.
 - .1 Install hooks and shelves on clean side of shower in clean Change Room for storage of respirators.
 - .2 Install lockers or hangers for workers' street clothes and personal belongings.
 - .3 Install vented wood door in wood frame at doorway to Occupied Area. Door must have locking passage set. Provide two keys to Abatement Consultant and one to Owner.
 - .4 Install hose bib on domestic cold water pipe for connection on clean side of Abatement Work Area.
 - .5 Install electric hot water tank for showers in decontamination facility.
 - .6 Provide ground fault protected power supply to hot water tanks, sump pump, battery chargers.
 - .7 Install a fire extinguisher, mount to wall.
 - .8 Minimum size of generally 2m x 2m. Increase size accordingly to accommodate number of workers.
- .5 Waste and Equipment Decontamination Facility: Waste and Equipment Decontamination Facility comprised of three linked rooms: a Container Cleaning Room, a Holding Room and a Transfer Room.
 - .1 Purpose of Waste and Equipment Decontamination Facility is to provide a means to decontaminate asbestos waste containers, scaffolding, vacuums, and other tools and equipment and materials required in the Abatement Work Area.
 - .2 Rooms, Occupied Areas and Abatement Work Areas, shall be separated by curtained doorways at each door.
- .6 Container Cleaning Room: Room between Abatement Work Area and Holding Room of sufficient size to allow proper washing of equipment and waste containers or double bagging of asbestos waste. All wash water shall be treated as asbestos contaminated waste.
- .7 Holding Room: Room between Container Cleaning Room and Transfer Room, of sufficient size to accommodate at least two asbestos waste containers and two workers double bagging waste, or for largest item of equipment used.
 - .1 Install a fire extinguisher mounted to wall.
- .8 Transfer Room: Room between Holding Room and Occupied Area, acting as an air lock for the transfer of waste.
- .9 Construction of Decontamination Facilities
 - .1 Install floor protection as follows:
 - .1 Install one layer of rip-proof polyethylene sheeting over two layers of 6 mil polyethylene sheeting beneath entire decontamination facility.

- .2 Turn 600 mm of polyethylene up the sides of the decontamination facility and overlap with the polyethylene sheeting covering the walls.
- .3 Install plywood with taped and caulked joints between layers of 6 mil polyethylene where required to protect surfaces from water damage (e.g. carpet).
- .2 Install walls as follows:
 - .1 Around all rooms, between all rooms, at entrance to Abatement Work Area and at entrance to Occupied Area.
 - .2 Install 38 x 89 mm wood framing at 610 mm o/c with continuous top and sill plates.
 - .3 Install one layer rip-proof polyethylene sheeting on interior walls of Decontamination Facility.
 - .4 Install one layer rip-proof polyethylene sheeting both sides on interior dividing walls of Decontamination Facility.
 - .5 Install one layer rip-proof polyethylene sheeting over one layer of 6 mil polyethylene sheeting on walls exposed to the Abatement Work Area.
 - .6 For perimeter walls exposed to the Abatement Work Area, install 13 mm plywood or OSB caulked and sealed at joints, beneath one layer of 6 mil and one layer of rip-proof polyethylene sheeting, on Abatement Work Area side of framing.
 - .7 Install one layer rip-proof polyethylene sheeting over one layer of 6 mil polyethylene sheeting on walls exposed to the Occupied Area.
 - .8 For perimeter walls exposed to the Occupied Area, install 13 mm plywood or OSB caulked and sealed at joints, over polyethylene sheeting, on Occupied Area side of framing. Paint with 2 coats white latex.
- .3 Install roof as follows:
 - .1 Install joists. Size of joists is to be determined by clear span. Consult Provincial Building Code. For clear spans up to 2850 mm use SPF Select 38 x 140 mm wood joist at 400 mm o/c with continuous 38 x 140 mm wood headers, and install strapping beneath joists.
 - .2 At the Contaminated Change Room and where roof is exposed to the Abatement Work Area, install 19 mm plywood or OSB over joists. Caulk and tape joints and install one layer rip-proof polyethylene sheeting over 2 layers of 6 mil polyethylene sheeting.
 - .3 Where roof is not exposed to the Abatement Work Area, install one layer rip-proof polyethylene sheeting over joists.
 - .4 Turn 600 mm of polyethylene down the sides over polyethylene on the perimeter walls.
 - .5 At underside of joists in all rooms, install one layer of polyethylene sheeting.
 - .6 Minimum interior clear height 2000 mm to underside of joist.
- .10 Curtained Doorways
 - .1 Construct as follows:
 - .1 Install two flap doors, full width and height of door opening at all doors between chambers, facilities and Abatement Work Area.

- .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 Clean 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 using Type 2 (Moderate Risk) Procedures.
- .4 Without disturbing asbestos-containing materials:
 - .1 Remove specified items and turn-over to Owner.
 - .2 Remove specified items and dispose as clean waste.
- .5 Install Hoarding Walls between Abatement Work Area and Occupied Area, as required.
- .6 Install Decontamination facilities.
 - .1 Worker Decontamination Facility to be located within the Abatement Work Area.
 - .2 Waste Decontamination Facility to be located within the Abatement Work Area.
- .7 Install one layer of rip-proof polyethylene sheeting over 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 Electrical Equipment.
 - .5 Mechanical Equipment.
- .8 Seal openings (excepting electrical trenches) in floor using tape, polyethylene, etc. Openings in floor are to be sealed independently prior to installation of polyethylene sheeting on floor. Include floors of duct and service shafts.
- .9 Seal openings in walls below ceiling level using polyethylene, tape, etc. including but not limited to windows, doors, vents, diffusers, etc.
- .10 Install one layer of rip-proof polyethylene sheeting over one layer of 6 mil polyethylene sheeting, on floor surfaces in Abatement Work Area.
 - .1 Extend floor protection a minimum of 300 mm up all vertical surfaces in the Abatement Work Area.
- .11 On walls within and forming the perimeter of the Abatement Work Area install two layers of 6 mil polyethylene sheeting.

- .1 At junction of floor and wall surface overlap floor polyethylene with wall polyethylene by a minimum of 300 mm at each layer. One layer of wall polyethylene must always overlap the top layer of floor polyethylene.
- .12 Establish negative pressure in Abatement Work Areas as follows:
 - .1 Discharge HEPA filtered negative pressure 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 on the exterior side of the window frame and make weather-tight with caulking.
 - .3 For each negative pressure unit, provide a 300 mm diameter, duct opening through panel.
 - .4 Cover duct opening with wire screen and/or chicken wire or extruded metal screen to prevent insect and animal entry.
 - .5 Direct discharge away from building access points.
 - .6 Store glazing for reinstallation upon completion of work.
 - .2 Into Occupied Areas. Direct so that it does not discharge at building occupants.
 - .3 Use polyethylene discharge ducting or metal reinforced polyethylene discharge ducting in locations where the ducting must be protected from damage or collapse.
 - .4 Install and make airtight all negative air discharge ducting.
 - .5 Discharge ducting is not to be longer than required, and to be straight, so that the length of the ducting does not reduce the flow from negative pressure machines.
- .13 Install Ground Fault Panel.
- .14 Install temporary lighting in all work areas at levels that will provide for a safe and efficient use of the work area.
- .15 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.
- .16 Install hose bib on domestic cold water pipe for connection of hoses for wetting.
 - .1 Install hoses with watertight connections and airless sprayers to wet asbestos-containing materials.
- .17 Shut down HVAC systems serving the Abatement Work Area.
 - .1 Leave induction units at building exterior walls on lowest supply setting when temperatures are below 0°C so windows and exterior walls do not ice.
 - .2 Disable any exhaust/return systems at induction units, washrooms, etc.
 - .3 Seal and protect induction units with one layer of 6 mil polyethylene sheeting.
- .18 Perform clean demolition of non-asbestos materials as specified.

- .19 Notify Abatement consultant Milestone Inspection - Clean Site Preparation. Obtain written approval for this Milestone Inspection before proceeding.
- .20 Install signage in clearly visible locations and in sufficient numbers to adequately warn of an asbestos dust hazard.
- .21 Post Ministry of Labour Notice of Project.

3.2 Contaminated Perimeter Preparation

- .1 Perform the following using Type 3 (High Risk) procedures including using the required personal protective equipment specified.
 - .1 Remove ceiling including grids, support and channels, or other obstructions around perimeter of Abatement Work Area. Remove ceilings in sections equal to the containment preparation work that can be performed in one shift.
 - .2 To complete:
 - .1 Install a layer of 6 mil polyethylene on all openings at upper perimeter, above ceiling after cleaning of overspray or dust from wall.
 - .2 Carefully wet asbestos-containing sprayed fireproofing and remove, from deck and beams along the upper perimeter of the Abatement Work Area, a line of asbestos 300 mm wide to allow for installation of upper perimeter seal.
 - .3 Install upper perimeter seal from front of wall to deck above using one layer of rip-proof polyethylene sheeting. Seal completely.
 - .3 Seal any remaining holes in existing perimeter walls, columns, deck, etc. exposed by removal of tile at perimeter of Abatement Work Area.
 - .4 Notify Abatement Consultant to the need for Milestone Inspection - Contaminated Perimeter Preparation.

3.3 Contaminated Site Preparation

- .1 Perform the following using Type 3 (High Risk) procedures including using the required personal protective equipment specified.
 - .1 Remove lenses from light fixtures.
 - .2 Remove lamps from light fixtures. Lamps are to be recycled. Do not dispose of fluorescent lamps.
 - .3 Remove light fixtures and associated electrical supply cable back to the junction box.
 - .4 Remove PCB ballasts and handle as per Section 02 84 00.
 - .5 Remove non-PCB ballasts.
 - .6 Remove diffusers.
 - .7 Remove flex duct back to rigid ducts.
 - .8 Seal openings in ductwork with rip-proof poly. Cap openings in live ducts with equal gauge metal and duct sealant.
 - .9 Remove ceiling mounted items specified to be turned over to.
 - .10 Remove remaining ceiling mounted items specified to be removed.
 - .11 Remove remaining ceiling tiles, grid and hangers.
 - .12 Cut hangers as close to deck as possible.
 - .13 Reinstall temporary lighting previously supported by ceiling system.

- .14 Temporarily support all existing electrical and mechanical services and items supported by the ceiling systems, that are not scheduled to be removed.
- .15 Clean and protect electrical systems in the Abatement Work Area with polyethylene and tape. Include all communication, coaxial, triaxial, fire and public address systems, wiring, conduit, speakers, heat and smoke detectors, alarms, exit lights, junction boxes, etc.
 - .1 Mark/tag any items within or passing through the Abatement Work Area that are to remain live.
- .16 For HVAC systems to remain active within the Abatement Work Area, perform the following:
 - .1 Remove insulation from exterior of duct.
 - .2 Clean outside and seal duct or equipment with one layer of rip-proof polyethylene sheeting over one layer of 6 mil polyethylene sheeting so as to make air tight.
 - .3 Seal HVAC systems while deactivated.
 - .4 Seal seams of cap and duct with duct sealant, tape and polyethylene sheeting. Smoke test seal after system is reactivated. Reseal and retest as required.
 - .5 Include in this preparation all active ductwork and equipment presently insulated with asbestos-containing products.
 - .6 Smoke test seals regularly and maintain.
- .17 Clean and seal holes or penetrations in deck, ducts, etc. when exposed by ceiling removal.
- .18 Remove ducts as required to access sprayed fireproofing. Clean and store ducts. Reinstall these ducts at completion of work. Cost to be included under work of this section.
- .19 Notify Abatement Consultant to the need for Milestone Inspection - Contaminated Perimeter Preparation.

3.4 Maintenance Of Contaminated Abatement Work Area

- .1 Inspect Abatement Work Area at the beginning and end of each working period and once on each day work does not take place. Inspection must be performed by competent person.
- .2 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.
- .3 Perform Differential Pressure Monitoring on a frequent basis and record pressure at start and end of shift at a minimum.
- .4 Inspect polyethylene sheeting and ensure it is effectively sealed and taped. Repair damage and remedy defects immediately.
- .5 Inspect electrical panels and ensure locks and tags are on panels prior to entering the Abatement Work Area.
- .6 Maintain Abatement Work Area in tidy condition.
- .7 Remove waste and debris frequently.
- .8 Remove standing water on polyethylene/floor at the end of every shift.

- .9 Turn off water supply to hoses and reduce pressure in hose, prior to leaving the Abatement Work Area at end of shift.
- .10 Turn off water supply to showers, at the end of every shift.
- .11 Ensure shower pans are pumped out at the end of every use and shift.

3.5 Wet Removal

- .1 Do not use compressed air to clean or remove dust or debris.
- .2 Remove and dispose of remaining non-asbestos items before, during or after wet removal.
- .3 Spray asbestos-containing sprayed or trowelled material with Amended Water using airless spray equipment prior to removal. Saturate ACM to prevent release of airborne fibres during removal.
- .4 Remove asbestos-containing sprayed or trowelled material specified to be removed, clean substrate.
 - .1 Fully saturated ACM may be scraped directly into waste containers or may be allowed to fall to floor.
 - .2 ACM cannot be allowed to fall from one level to the next.
- .5 Spray asbestos-containing pipe insulations with Amended Water using airless spray equipment.
- .6 Remove pipe insulations specified to be removed and clean substrate. Maintain exposed surfaces of insulation or lagging in a wet condition.
 - .1 Full saturation of insulation will not be required if material is immediately bagged and not allowed to fall to floor.
 - .2 ACM cannot be allowed to fall from one level to the next.
- .7 Spray asbestos-containing duct and mechanical equipment insulations with Amended Water using airless spray equipment.
- .8 Remove exterior duct and mechanical equipment insulations specified to be removed and clean substrate. Maintain exposed surfaces of insulation in a wet condition.
 - .1 Full saturation of insulation will not be required if material is immediately bagged and not allowed to fall to floor.
 - .2 ACM cannot be allowed to fall from one level to the next.
- .9 Remove obstructions as required to remove the ACM.
 - .1 Notify Abatement Consultant if item is not specified to be removed and inhibits removal of ACM.
 - .2 Do not demolish any existing walls etc. that form the perimeter of the Abatement Work Area without prior written permission from Abatement Consultant.
- .10 Clean the inside of ducts remaining in place.
- .11 All dislodged ACM shall be maintained in wet state until placed in asbestos waste containers for disposal.
- .12 As work progresses, and at regular intervals, place waste in asbestos waste containers and remove from the Abatement Work Area.
- .13 After completion of gross asbestos removal work, perform the following:

- .1 Wet clean surfaces from which ACM has been removed with stiff bristle brushes, vacuums, wet-sponges etc. to remove all visible residue and asbestos-containing materials.
 - .2 Wet clean surfaces which ACM has fallen on using stiff bristle brushes, vacuums, wet-sponges etc. to remove all visible residue and asbestos-containing materials
 - .3 Wet clean other surfaces in the Abatement Work Area, including the decontamination facilities, scaffolding, equipment, polyethylene sheeting on floor and walls surfaces etc., ducts and similar items not covered with polyethylene sheeting.
 - .4 Remove wash water as contaminated waste.
 - .5 Remove waste.
 - .6 Level of cleanliness must be acceptable to Abatement Consultant.
 - .7 Remove and dispose of the pre-filters from all negative air units as asbestos-contaminated waste.
- .14 Notify Abatement Consultant to the need for Milestone Inspection - Visual Clearance.

3.6 Encapsulation

- .1 Where Abatement Consultant provides written approval, encapsulate ACM as follows:
 - .1 Apply encapsulant to fully seal the surface of the remaining sprayed asbestos.
 - .2 Use colour coded (bright red) encapsulant to identify encapsulated sprayed ACM.
 - .3 Encapsulation will not be permitted where removal of non-operating ventilation ducts, ceiling structures, and similar items would allow access to the material.

3.7 Waste and Material Handling

- .1 Refer to Section 02 81 00.

3.8 Application Of Post Removal Sealant

- .1 Wet Removal
 - .1 Obtain Abatement Consultant's written permission to proceed.
 - .2 Apply one coat of Post Removal Sealant with an airless sprayer, in accordance with Manufacturer's Instructions, to cover all surfaces on all items in the Abatement Work Area, including but not limited to polyethylene, ACM substrate, structural steel, and surfaces scheduled for demolition.
 - .1 Do not apply post removal sealant to materials that will be damaged by its application.
 - .3 Notify Abatement Consultant to the need for Milestone Inspection – Clearance Sampling.
- .2 Dry removal
 - .1 Obtain Abatement Consultant's written permission to proceed.
 - .2 Apply Post Removal Sealant onto polyethylene on floors and walls with a mop. Do not apply near live electrical equipment.
 - .3 HEPA vacuum remainder of site to remove any dust and debris.
 - .4 Notify Abatement Consultant to the need for Milestone Inspection – Clearance Sampling.

3.9 Air Clearance Monitoring

- .1 Site must be dry prior to Air Clearance Monitoring.
- .2 The number of Air Clearance Monitoring samples will be as follows:
 - .1 2 samples for less than 10 square metres.
 - .2 3 samples for 10 to 500 square metres.
 - .3 5 samples for more than 500 square metres.
- .3 Prior to air clearance monitoring, install clean 20-inch fans for air circulation during Air Clearance Monitoring.
 - .1 At least one fan per 10,000 cubic feet of space in Abatement Work Area.
 - .2 Install in centre of Abatement Work Area and space evenly.
 - .3 The fan exhaust shall be directed upwards or toward the ceiling.
 - .4 The fans shall be operated on the lowest speed setting.
- .4 Restrict access to Abatement Work Area and operate negative air units for a 12 hour period prior to Milestone Inspection – Clearance Sampling.
- .5 The HEPA filtered negative pressure machines shall be in operation during clearance air monitoring.
- .6 In the presence of the Abatement Consultant, immediately prior to air clearance monitoring, use a leaf blower to dislodge loose fibre.
 - .1 Direct leaf blower against walls, ceilings, floors, and other surfaces.
 - .2 Perform this for at least five minutes per 1,000 sq. ft. of Abatement Work Area.
- .7 PCM samples will be collected as per Air Monitoring Section.

3.10 Abatement Work Area Dismantling

- .1 Use Type 2 worker precautions during dismantling.
- .2 Operate negative air units during dismantling.
- .3 Polyethylene, tape, cleaning material, etc. to be treated as asbestos waste.
- .4 Wash remaining 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.
- .5 Clean Abatement Work Area, Equipment and Access area, washing/Showering Room.
- .6 Remove upper seals, and seals over tops of walls, on deck, at columns, etc. within the Abatement Work Area.
- .7 Remove top layer of polyethylene sheeting from surfaces protected by two or more layers of polyethylene sheeting. The bottom layer of polyethylene will remain until all re-fireproofing is complete. Remove outer layer as follows:
 - .1 Remove asbestos contaminated Polyethylene by carefully rolling away from walls to centre of Abatement Work Area.
 - .2 Cut the lower layer of polyethylene sheeting to expose the baseboards, window sills, cabinets, shelves and other horizontal surfaces that may be contaminated by fallen ACM.
 - .3 Remove visible fibres or residue found during removal of polyethylene using a HEPA vacuum.

- .4 Remove polyethylene protection and hoarding walls where hoarding walls separate occupied areas from work area. Hoarding walls to remain are identified on asbestos demolition drawings.
- .8 Remove top layer of polyethylene on walls, finishes, and equipment.
- .9 Remove remaining polyethylene sheeting.
- .10 Remove water hoses and shut off at source.
- .11 Remove Signs, Hoarding Walls, Decontamination Facilities.
- .12 Seal vacuum hoses and fittings, flexible ductwork and all tools used in contaminated work site in 6 mil polyethylene bags prior to removal from Work Area.
- .13 Remove temporary lights.
- .14 Remove negative air unit prefilters. Dispose of as asbestos contaminated waste.
- .15 Remove HEPA filtered negative pressure machines and discharge ducting.
- .16 Immediately upon shutting down negative air units, seal air inlet grill and exhaust vent with polyethylene and tape.

3.11 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 Decontamination Facilities.
 - .7 Enable building air handling systems.

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
- .3 Work on HVAC systems including rigid ducting/air handling units in a building with sprayed asbestos-containing fireproofing is classified as a Type 3 operation under Section 12 (4) 3 of Regulation 278/05. However, in order to determine appropriate procedures; testing has been performed by HWDSB, which indicates the varied measures and procedures provide equivalent protection for workers, as required by Section 23 of O. Reg. 278/05.
- .4 The following Type 3 equivalent procedures must be followed when removing all ductwork, air handling unit (AHU), VAVs, diffusers, return air grilles, fume hood exhausts, and rooftop exhaust fans from the Work Areas. This work is considered to be a Type 3 equivalent; the abatement contractor must provide this procedure, in advance, to the joint health and safety committee or the health and safety representative.
- .5 The varied procedures include specific worker training in the varied procedures (effectively Type 2 measures and procedures); varied worker decontamination procedures, varied enclosure procedures and varied air monitoring requirements.

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 3 or High 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 respiratory protection to all personnel:
 - .1 Full Face Air Purifying Respirators with P100 high efficiency (HEPA) cartridge filters during projects when performing wet abatement of sprayed applied surfacing materials containing chrysotile asbestos, or wet abatement of other non-surfacing asbestos-containing material specified in this section.
- .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.

PART 3 EXECUTION

3.1 Clean Site Preparation

- .1 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 using Type 2 (Moderate Risk) Procedures.
- .2 Install polyethylene drop sheets, caution tape and asbestos warning signs in Abatement Work Areas.
- .3 Install polyethylene sheeting on over walls or fixtures (i.e. masonry walls, millwork, lockers etc.).
- .4 Shut down HVAC systems serving the Abatement Work Area.
- .5 Notify Abatement consultant Milestone Inspection - Clean Site Preparation. Obtain written approval for this Milestone Inspection before proceeding.
- .6 Install signage in clearly visible locations and in sufficient numbers to adequately warn of an asbestos dust hazard.
- .7 Post Ministry of Labour Notice of Project.

3.2 Removal of Ductwork, Diffusers, Return Air Grilles, VAVs, Fume Hood Exhausts and Rooftop Exhaust Fans

- .1 Remove ductwork, diffusers, return air grilles, VAVs, fume hood exhausts, and roof top exhaust fans where scheduled to be removed, and use only hand-held non-powered tools. Avoid hammering ductwork or using tools that cause vibration.
- .2 Clean interior of ductwork to remain within arm's length and immediately seal open ends of systems or ductwork to remain.
- .3 Clean all ductwork, diffusers, return air grilles, VAVs, fume hood exhausts, and rooftop exhaust fans and dispose of as clean waste.

3.3 Asbestos Removal - Removal of Ductwork and Air Handling Equipment

- .1 Dismantle AHU components as required into manageable sections. Use only hand-held non-powered tools or power shears. Avoid hammering ductwork or using tools that cause vibration.
- .2 Remove filters from air handling units.
- .3 Remove all air handling components.
- .4 Abatement Contractor may choose to either:
- .1 Clean all metal components and dispose of as clean waste.
OR
- .2 Dispose of all as ACM waste.

- .5 HEPA vacuum or wet clean the 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.

3.4 Maintenance Of Contaminated Abatement Work Area

- .1 Inspect Abatement Work Area at the beginning and end of each working period and once on each day work does not take place. Inspection must be performed by competent person.
- .2 Inspect polyethylene sheeting and ensure it is effectively sealed and taped. Repair damage and remedy defects immediately.
- .3 Maintain Abatement Work Area in tidy condition.
- .4 Remove waste and debris frequently.
- .5 Remove standing water on polyethylene/floor at the end of every shift.
- .6 Turn off water supply to hoses and reduce pressure in hose, prior to leaving the Abatement Work Area at end of shift.

3.5 Wet Removal

- .1 Do not use compressed air to clean or remove dust or debris.
- .2 Remove and dispose of remaining non-asbestos items before, during or after wet removal.
- .3 Clean the inside of ducts remaining in place.
- .4 All dislodged ACM shall be maintained in wet state until placed in asbestos waste containers for disposal.
- .5 As work progresses, and at regular intervals, place waste in asbestos waste containers and remove from the Abatement Work Area.
- .6 After completion of gross asbestos removal work, perform the following:
 - .1 Wet clean surfaces in the Abatement Work Area
 - .2 Remove wash water as contaminated waste.
 - .3 Remove waste.
 - .4 Level of cleanliness must be acceptable to Abatement Consultant.
- .7 Notify Abatement Consultant to the need for Milestone Inspection - Visual Clearance.

3.6 Waste and Material Handling

- .1 Refer to Section 02 81 00.

3.7 Application Of Post Removal Sealant

- .1 Wet Removal
 - .1 Obtain Abatement Consultant's written permission to proceed.
 - .2 Apply one coat of Post Removal Sealant with an airless sprayer, in accordance with Manufacturer's Instructions, to cover all surfaces on all items in the Abatement Work Area, including but not limited to polyethylene, ACM substrate, structural steel, and surfaces scheduled for demolition.

- .1 Do not apply post removal sealant to materials that will be damaged by its application.

3.8 Abatement Work Area Dismantling

- .1 Use Type 2 worker precautions during dismantling.
- .2 Polyethylene, tape, cleaning material, etc. to be treated as asbestos waste.
- .3 Wash remaining 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.
- .4 Clean Abatement Work Area.
- .5 Remove polyethylene drop sheets.
- .6 Remove Signs.
- .7 Seal vacuum hoses and fittings, flexible ductwork and all tools used in contaminated work site in 6 mil polyethylene bags prior to removal from Work Area.

3.9 Re-Establishment of Items

- .1 Upon completion of work:
 - .1 Clean, mop and vacuum Abatement Work Area and area beneath Decontamination Facilities.

END OF SECTION

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PART 1 GENERAL

- .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 lead-containing materials following Class 1 or Low Risk procedures, and Pinchin and Owner specific requirements.
- .3 Comply with requirements of this Section when performing following Work:
 - .1 Removal of lead-containing surface coatings with a chemical gel, stripper or paste.
 - .2 Removal of materials coating with lead-containing surface coatings, using non-powered hand tools, where the materials remains primarily intact, and is not crumbled, pulverized or powdered.

1.3 Instruction and Training

- .1 Provide instruction and training to all workers including the following:
 - .1 Hazards of lead.
 - .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 abatement 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 including decontamination of the worker.
 - .5 Instruction and training must be provided by a competent person.

1.4 Personal Protection

- .1 Provide non-powered half-face respirators with P100 high efficiency cartridge filters when requested by personnel.
- .2 Provide protective clothing, when requested by personnel, entering the Abatement Work Area, including:
 - .1 Disposable protective clothing that does not readily retain or permit skin contamination, consisting of full body covering including head covering with snug fitting cuffs at wrists, ankles, and neck.

- .3 Provide protective clothing, to all personnel entering the Abatement Work Area, including:
 - .1 Dust impermeable gloves appropriate for the work being completed.
- .4 Wear hard hats, safety shoes and other personal protective equipment required by applicable construction safety regulations.
- .5 Lead-specific soaps and hygiene indicators are recommended to be provided for shower and hand-wash stations.

1.5 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 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 Provide washing facilities consisting of a wash basin, clean water, soap and towels.
 - .1 Workers are to use washing facilities each time leaving the Abatement Work Area.
- .2 Stored or non-fixed items, including but not limited to equipment, furniture, waste etc., shall be removed from the Abatement Work Area prior to abatement work.
- .3 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.
- .4 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.
- .5 Remove visible dust from all surfaces in the work area including those to be worked on, using HEPA Vacuums or wet wiping.
- .6 Provide amended water for wetting materials, and adequate method of wetting (garden sprayers, airless sprayers, etc.).
- .7 Provide electrical power and shut off for operation of powered tools and equipment. Provide ground fault interrupter circuits on power source for electrical tools, in accordance with applicable CSA Standard.
 - .1 Ensure safe installation of electrical lines and equipment.
- .8 Do not use compressed air to clean or remove dust or debris.
- .9 Frequently and at regular intervals during the work, clean up dust and waste using HEPA vacuums and/or wet sweeping or mopping.
- .10 Frequently and at regular intervals, place all waste in waste containers.
- .11 Immediately upon completion of work, clean area with HEPA vacuum and/or wet sweeping or mopping.

3.2 Site Preparation – No Enclosure Required

- .1 Isolate Abatement Work Area with barrier tape.
- .2 Protect floor surfaces covered from wall to wall with polyethylene sheets.
- .3 Maintain Abatement Work Area in tidy condition.
- .4 Remove waste and debris frequently.
- .5 Remove standing water on polyethylene/floor at the end of every shift.
- .6 Turn off water supply to hoses and reduce pressure in hose, prior to leaving the Abatement Work Area at end of shift.

3.3 Lead-Containing Paint Abatement

- .1 Removal methods minimizing dust generation should be used wherever possible.
 - .1 Wet methods are to be used to reduce dust generation.
 - .2 Wetting agents should be used where possible.

- .3 Wet methods are not to be used if it creates a hazard or cause damage to equipment or to project.
- .2 Provide drop sheets below all lead operations that may produce dust, chips or debris containing lead.
- .3 Waste water from cleaning or removal operations must be contained, for treatment or disposal.
- .4 Remove lead-containing paint in small sections and pack as it is being removed in sealable lead waste containers.
- .5 Follow manufacturer's instructions for all use of chemical gels, strippers and pastes.
 - .1 Ensure agent neutralizers, were required, are applied.
 - .2 Do not use chemical gels, strippers or pastes on surfaces where they are scheduled to be repainted, and the material affect the new paint application.
- .6 After completion of stripping work, wire brush and wet sponge surface from which lead based paint has been removed to remove visible material. During this work keep surfaces wet.
- .7 After wire brushing and wet sponging to remove visible lead-containing paint, wet clean entire work area, and equipment used in process.
 - .1 Compressed air or dry sweeping not be used to clean up lead-containing dust or waste.
 - .2 Ensure all waste is cleaned and packaged.
- .8 Seal filled containers. Clean external surfaces thoroughly by wet sponging. Remove from immediate working area to staging area. Clean external surfaces thoroughly again by wet sponging. Wash containers thoroughly pending removal to outside.

3.4 Waste Management and Disposal

- .1 Per Section 02 81 00.

3.5 Final Cleaning

- .1 Remove polyethylene sheet by rolling it away from walls to centre of work area. Vacuum visible lead containing particles observed during cleanup, immediately, using HEPA vacuum.
- .2 Place polyethylene sheets, tape, cleaning material, clothing, and contaminated waste in plastic bags and sealed labelled waste containers for transport.
- .3 Conduct final check to ensure no dust or debris remains on surfaces as result of dismantling operations.

END OF SECTION

PART 1 GENERAL

- .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 lead-containing materials following Class 2 or Moderate Risk procedures, and Pinchin and Owner specific requirements.
- .3 Comply with requirements of this Section when performing following Work:
 - .1 Removal of lead containing paint using power tools with an effective dust collection system equipped with HEPA filter.
 - .2 Demolition of plaster or other building components that crumble, pulverize or powder and are covered with lead-containing surface coating.

1.3 Instruction and Training

- .1 Provide instruction and training to all workers including the following:
 - .1 Hazards of lead.
 - .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 abatement 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 including decontamination of the worker.
 - .5 Instruction and training must be provided by a competent person.

1.4 Personal Protection

- .1 Provide the following respiratory protection to all personnel, at minimum:
 - .1 Non-powered half-face respirators with P100 high efficiency cartridge filters.
- .2 Provide protective clothing, to all personnel entering the Abatement Work Area, including:
 - .1 Dust impermeable gloves appropriate for the work being completed.

- .2 Disposable protective clothing that does not readily retain or permit skin contamination, consisting of full body covering including head covering with snug fitting cuffs at wrists, ankles, and neck.
- .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.
- .5 Lead-specific soaps and hygiene indicators are recommended to be provided for shower and hand-wash stations.

1.5 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 Transfer Room to be generally 2000 mm x 2000 mm x 2200 mm high. Increase size accordingly to accommodate number of workers.
- .2 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.
- .3 Install one layer of rip-proof polyethylene sheeting over two layers of 6 mil polyethylene sheeting beneath entire Transfer Room.
- .4 Install one layer rip-proof polyethylene sheeting over roof.
- .5 Turn 600 mm of polyethylene down the sides over polyethylene on the perimeter walls.
- .6 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 Provide washing facilities consisting of a wash basin, clean water, soap and towels.

.1 Workers are to use washing facilities each time leaving the Abatement Work Area.

.2 Stored or non-fixed items, including but not limited to equipment, furniture, waste etc., shall be removed from the Abatement Work Area prior to abatement work.

.3 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.

.4 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.

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

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

.7 Provide electrical power and shut off for operation of powered tools and equipment. Provide ground fault interrupter circuits on power source for electrical tools, in accordance with applicable CSA Standard.

.1 Ensure safe installation of electrical lines and equipment.

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

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

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

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

3.2 Site Preparation –Enclosure Required

- .1 Install Transfer Room where duration of work is to last longer than one 8 hour shift.
- .2 Install Curtained Doorways.
- .3 Install polyethylene sheeting at openings in walls (as required) and seal.
- .4 Seal openings in floor using tape, caulking, polyethylene, etc. Floor openings are to be sealed independently prior to installation of floor polyethylene.
- .5 Install polyethylene sheeting on floors of Abatement Work Area. Use sufficient layers to provide adequate protection for carpeting and equipment.
 - .1 Cover floors first so that polyethylene on walls is overlapped by at least 305 mm.
- .6 Install 6 mil polyethylene sheeting on walls to remain, within the Abatement Work Area., including existing walls that make up, or are within, the Abatement Work Area.
- .7 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.
- .8 Place required tools to complete the abatement with the Abatement Work Area.
- .9 Install temporary lighting in enclosure to a level that will provide for safe and efficient use of work area - minimum 550 LUX.
- .10 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 Operate HEPA filtered negative pressure machines continuously from first disturbance of ACM until completion of dismantling.
 - .4 Replace prefilters to maintain specified flow rate.
 - .5 Replace HEPA filter as required to maintain flow rate and integrity of unit.
 - .6 Discharge HEPA filtered negative air machines to building exterior, where possible.
 - .1 Direct discharge away from building access points.
- .11 Install Signage in clearly visible locations and in sufficient numbers to adequately warn of lead hazard, and lead hazard where appropriate.

3.3 Site Preparation – No Enclosure Required

- .1 Cover materials to remain in the Abatement Work Area with polyethylene sheeting before disturbing lead-containing materials to control the spread of dust.
- .2 Install caution tape around work area where existing walls are not present.
- .3 Install temporary lighting in enclosure to a level that will provide for safe and efficient use of work area - minimum 550 LUX.
- .4 Place HEPA vacuum in Abatement Work Area.
- .5 Place required tools to complete the abatement with the Abatement Work Area.

- .6 Install Signage in clearly visible locations and in sufficient numbers to adequately warn of a lead dust hazard.

3.4 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.

3.5 Lead Abatement

- .1 Use the procedures described above under *Site Preparation – Enclosure Required*.
 - .1 Demolition of plaster or other building components that crumble, pulverize or powder and are covered with lead-containing surface coating.
- .2 Use the procedures described above under *Site Preparation – No Enclosure Required*.
 - .1 Removal of lead containing paint using power tools with an effective dust collection system equipped with HEPA filter.
- .3 Provide washing facilities consisting of a wash basin, clean water, soap and towels.
 - .1 Workers are to use washing facilities each time leaving the Abatement Work Area.
- .4 Removal methods minimizing dust generation should be used wherever possible.
 - .1 Wet methods are to be used to reduce dust generation.
 - .1 Wetting agents should be used where possible.
 - .2 Wet method not be used if it creates a hazard or cause damage to equipment or to project.
- .5 Provide drop sheets below all lead operations that may produce dust, chips or debris containing lead.
- .6 Waste water from cleaning or removal operations must be contained, for treatment or disposal.
- .7 Remove lead containing paint in small sections and pack as it is being removed in sealable waste containers.
- .8 Waste generated should be maintained wet until cleaned and packaged.
- .9 After completion of stripping work, wire brush and wet sponge surface from which lead based paint has been removed to remove visible material. During this work keep surfaces wet.

- .10 After wire brushing and wet sponging to remove visible lead containing paint, wet clean entire work area, and equipment used in process.
 - .1 Compressed air or dry sweeping not be used to clean up lead-containing dust or waste.
 - .2 Ensure all waste is cleaned and packaged.
- .11 Seal filled containers. Clean external surfaces thoroughly by wet sponging. Remove from immediate working area to staging area. Clean external surfaces thoroughly again by wet sponging. Wash containers thoroughly pending removal to outside. Ensure containers are removed by workers who have entered from uncontaminated areas dressed in clean coveralls.

3.6 Waste Management and Disposal

- .1 Per Section 02 82 00.

3.7 Final Cleaning

- .1 Following specified cleaning procedures, and when lead wipe sampling is below acceptable concentrations proceed with final cleanup.
- .2 Remove polyethylene sheet by rolling it away from walls to centre of work area. Clean visible lead containing particles observed during cleanup, immediately, using HEPA vacuum.
- .3 Place polyethylene sheets, tape, cleaning material, clothing, and contaminated waste in plastic bags and seal. Dispose of in accordance with waste materials generated.
- .4 Clean Work areas and Transfer Room, where present.
- .5 Remove sealed waste containers and equipment used in Work and remove from work areas at appropriate time in cleaning sequence.
- .6 Conduct final check to ensure no dust or debris remain on surfaces as result of dismantling operations.

END OF SECTION

PROJECT: 25018 Sir Allan MacNab Secondary School
145 Magnolia Drive
Hamilton, Ontario

3/5/2026

ROOM FINISH SCHEDULE

ROOM	NUMBER	FLOOR	BASE	WALLS	CEILING	ACCENT WALL	REMARKS	
IT CLASSROOM 1064	1064	EPOXY	RUB	PT	PT*/EXP		*PAINT GYPSUM BOARD BULKHEAD & EXPOSED CEILING STRUCTURE, DUCTWORK, PIPING AND ELECTRICAL CONDUIT	
COSMETOLOGY CLASSROOM 2066	2066	RUB	RUB	PT	PT*/SL		*PAINT ALL EXPOSED CEILING STRUCTURE, DUCTWORK, PIPING AND ELECTRICAL CONDUIT	
								
	LEGEND NOTES:							
		EX	EXISTING					
	FLOOR	RUB	RUBBER FLOORING TILES					
	BASE	RUB	RUBBER BASE					
	WALLS	PT	PAINT					
	CEILING	EXP	EXPOSED CEILING TO BE PAINTED					
		SL	SUSPENDED SLATS					
	NOTES	PAINT ALL DRYWALL BULKHEADS, SEE RCP FOR LOCATIONS.						
		PAINT ALL DOORS AND FRAMES. PAINT ALL GYPSUM BOARD BULKHEADS						

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ACCESSORIES SCHEDULE

ROOM	NUMBER	ACCESSORY	QUANTITY/RM
IT CLASSROOM	1064	Soap Dispenser*	1
		Paper Towel Dispenser*	1
COSMETOLOGY CLASSROOM	2066	Soap Dispenser*	2
		Paper Towel Dispenser*	2
REMARKS: * = PROVIDED BY OWNER / INSTALLED BY GENERAL CONTRACTOR			

