

Project Manual for the
Corridor Ceiling & Accessibility Renovations
at
ORCHARD PARK SECONDARY SCHOOL

at
200 DeWitt Road
Stoney Creek, Ontario

for

The logo for the Hamilton-Wentworth District School Board (HWDSB) consists of the letters "HWDSB" in a bold, blue, sans-serif font. The letters are set against a light blue rectangular background.

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

HWDSB No.: 2025-133-P02090
CGS Project No.: 23014



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)

Curran Gacesa Slote Architects
118 James Street North, Suite 301
Hamilton, Ontario
L8R 2K7
Telephone: 905.297.0863

.2 Hardware Consultant (H)

Group 87 Architectural Hardware Inc.
3245 Harvester Road, Unit #1
Burlington, Ontario
L7N 3T7
Telephone: 905.639.4676

.3 Mechanical Engineer (M)

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

.4 Electrical Engineer (E)

Mantric Engineering
1595 16th Avenue, Suite 301
Richmond Hill, Ontario
L4B 3N9
Telephone: 289.271.5151

.5 Designated Substance Abatement Consultant (DS)

MTE Consultants Inc.
1016 Sutton Drive, Unit A
Burlington, Ontario
L7L 6B8
Telephone: 905.639.2552

END OF DOCUMENT

PROCUREMENT AND CONTRACTING REQUIREMENTS GROUP

**Document
Responsibility**

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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 DOCUMENTS DESCRIBING EXISTING FACILITY

- .1 Documents describing existing facility and Place of the Work are being made available as part of Bid Documents; as described on Cover Sheet of Drawings.
- .2 These documents were prepared by others and neither Owner nor Consultant take responsibility for accuracy of information, nor verify they represent actual conditions at Place of the Work.

1.4 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 Bid Documents; titled as follows:
 - Titled: Corridor Ceiling & Accessibility Renovation Project, Orchard Park Secondary School, Designated Substance Audit Report, 200 Dewitt Road, Hamilton, ON;
 - File No.: 56042-100;
 - Revised: January 23, 2025;
 - Prepared by: MTE Consultants Inc.

- .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 MTE Consultants Inc. 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: Insert School Name

Bell Times

Morning (School Entry): 0:00 AM
Afternoon (School Dismissal): 0:00 PM
Aftercare Program Dismissal: 6:00 PM

Caretaking Phone Number: 000-000-0000
***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: HP0000
Security Panel Code: 0000

*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 API Alarm Inc. at 1-877-787-5237 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 API 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. Hot Work Permits:

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.

4. Protocol for Work Impacting Fire Alarm System or Devices

The Contractor is to follow this guide when the fire alarm system is impacted during school renovations.

References and Definitions:

Fire Alarm Control and Testing Service Provider: Hamilton Fire Control

Fire Alarm and Security System Monitoring Service Provider: API Alarm Inc.

Fire Watch: An hourly patrol of the school when the fire alarm system is on bypass, in trouble, or a device is disconnected/red-capped. Contractors cover the construction area; caretakers cover the occupied school area.

Fire Watch Log: A written record of the Fire Watch, maintained separately by contractors and caretakers and kept on the school premises at all times.

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.

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.

Mandatory Construction Protocol if the Fire Alarm System is Impacted

1. Contractor to follow procedures discussed and documented from the pre-construction site meeting with Hamilton Fire Control.
2. If fire alarm devices in the occupied area of the school **are not** affected:
Contractor to maintain Fire Watch within the construction area only and keep a Fire Watch log for the duration of Work affecting the fire alarm system. Fire Watch is not required during unoccupied hours.
3. Contractor is to schedule Work after hours when devices within occupied areas of the school will be affected, excepting certain circumstances.
4. If fire alarm devices in the occupied area of the school **are** affected, and the Work cannot be done after hours:
 - 4.1. Contractor to notify Caretaking that fire watch is required 24 hours before Work affecting the fire alarm system begins.
 - 4.2. Caretaking to post Fire Watch notice that the school is on Fire Watch on the exterior doors.
 - 4.3. Caretaking to maintain Fire Watch and keep a Fire Watch Log for the duration of Work affecting the fire alarm system until the Contractor notifies them the devices are no longer affected. Fire Watch is not required during unoccupied hours.
 - 4.4. Contractor to maintain Fire Watch and keep a Fire Watch log for the duration of work affecting the fire alarm system. Fire Watch is not required during unoccupied hours.
 - 4.5. Contractor to notify Caretaking when the Work affecting the fire alarm system is complete and the devices are functioning normally.

Mandatory Additional Requirements:

- **Everyone to Evacuate if Alarm Activates:** 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.
5. Please follow these steps for planning any service (electrical, gas, water) shutdowns:
 - A. Internal Localized System/Service Shutdowns:
 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.

Construction School Specific Information Sheet

3. If a shutdown will impact the security system, the contractor shall contact API Alarm Inc. at 1-877-787-5237 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 API Alarm Inc. at 1-877-787-5237 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:

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.

Construction School Specific Information Sheet

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:

Corridor Ceiling & Accessibility Renovations at
ORCHARD PARK SECONDARY SCHOOL

located at:
200 DeWitt Road,
Stoney Creek, Ontario

and is further identified as:
HWDSB No. 2025-133-P02090, and
CGS Project No.: 23014.

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.

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 2-2020; 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 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.

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 furniture 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 FACILITIES

- .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 FACILITIES

- .1 Movement of workers, Construction Equipment and Products through corridors or on Owner's property is not permitted 30 minutes before and after regular school hours. Regular school hours are defined as starting at 8:00 am and ending at 2:08 pm local time, Mondays to Fridays, during the school year. No restrictions apply during summer months.
- .2 During the above times, 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 FACILITIES

- .1 Schedule Product deliveries to Place of the Work as follows:
 - .1 August 26 - June 30: Only during the hours of 7:00 am to 8:00 am and 3:30 pm to 5:00 pm, Mondays to Fridays.
 - .2 July 1 to August 25: No restrictions apply.

1.8 NOISY WORK RESTRICTIONS IN OCCUPIED FACILITIES

- .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 FACILITIES

- .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 FACILITIES

- .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 FACILITIES
- .1 Conduct fire watches in strict accordance with Owner's Construction School Specific Information Sheet, Part 4 - 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 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 3 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 Include proof of Submittal engineer's professional liability insurance with minimum limit of liability of \$5,000,000 per claim. Identify insurer, policy number and policy term on duly signed certificate of insurance.

- .3 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.
- .4 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.
- .5 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.
- .6 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.
- .7 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.
- .8 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 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.

1.3 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.

1.4 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.

1.5 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.

1.6 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.

1.7 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.

1.8 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 Guidelines by Authorities Having Jurisdiction: Conform to the following guideline documents issued by Province of Ontario:
 - .1 Silica on Construction Projects.
 - .2 Lead on Construction Projects.
- .9 Mercury Precautions: Ensure workers handling, removing and disposing of mercury-containing materials have been properly trained by a competent and qualified person.
- .10 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.
- .11 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 services Sections 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: 7:30 am until 10:30 pm.
 - .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 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 of workers, materials, 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 SIGNS

- .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 wood frame and plywood 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 3 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 82 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 January 2, 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 affect.
 - 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 PARTIAL USER OCCUPANCY
 - .1 If partial Owner occupancy of a part of the Work is required before the date of Ready-for-Takeover of the Work of the Contract, the provisions of this Section shall apply to the extent applicable, to that part of the Work that Owner intends to occupy.
 - 1.5 SUBSTANTIAL PERFORMANCE OF THE WORK
 - .1 Prerequisites to, and 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.

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 Product Specifications.
- 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 Product Specifications.
- 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 quantities specified in technical specification Sections.
- .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 technical specification Sections.
 - .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 82 00 - Asbestos Abatement.

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 82 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 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 REQUIREMENTS

- .1 Read this section in conjunction with all other sections so as to conform to Division 1, and the General Requirements of the project.
- .2 Inform all sub-trades of the presence of Asbestos Containing Materials identified in the documents.
- .3 The Contractor involved directly or indirectly with the removal, handling, management, transportation and disposal of Asbestos Containing Materials and Asbestos Waste in any and all aspects shall take all reasonable precautions, due care and diligence to prevent asbestos from becoming airborne and shall take all reasonable precautions to control and prevent the spread of airborne asbestos in the event of an incident, accidental release or loss of containment. Cost of additional work by the Contractor and/or Consultant to rectify unsatisfactory conditions, shall be charged to the Contractor.
- .4 No allowance will be made for any difficulties encountered or any expenses incurred on account of any conditions of the site or any item existing thereon that is visible or known or can be reasonably anticipated.
- .5 The Contractor shall be prepared to respond throughout the duration of the project in order to repair, encapsulate remove or otherwise manage additional asbestos as required. The abatement contractor shall provide an emergency contact phone number and be on call to provide emergency services.
- .6 The abatement contractor shall control all water migration (including leakage and spillage) from the abatement work area to areas below/adjacent. It is the responsibility of the contractor to protect all items from damage caused by water used in the abatement work area(s). The abatement contractor must immediately mitigate any and all damage to the satisfaction of the owner and Consultant resulting from water used in the abatement work area(s) at their own expense. No allowances shall be made as a result of lost time, resources, materials or equipment.
- .7 It is the Contractor's responsibility to ensure all construction aspects of the project are conducted in accordance with applicable construction safety legislation, regulations and general approved practice. This includes, but is not limited to; all means, methods, techniques, sequences, procedures, safety programs and precautions used.

1.2 DEFINITIONS

- .1 Asbestos Containing Material: Materials that contain 0.5 percent or more asbestos by dry weight.
- .2 Asbestos Waste: is material that contains asbestos in more than a trivial amount or proportion as defined by Ontario Regulation 347 as amended by Ontario Regulation 558/00 and includes the following:
 - .1 Solid or liquid waste that results from the removal of asbestos-containing construction or insulation materials and contains asbestos;
 - .2 Commercial waste and/or domestic waste that contains asbestos;

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Asbestos Abatement

- .3 Non-hazardous solid industrial waste that contains asbestos; and
- .4 Materials determined or deemed contaminated with asbestos.
- .3 Authorized Visitors: The Consultant or their representative, Architect, Owner's representatives, and persons representing regulatory agencies.
- .4 Contractor: Contractors or Sub-Contractor performing work included in this specification.
- .5 Consultant: Owner's Representative providing inspection and air monitoring.

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PART 2 – SCOPE OF WORK

2.1 SUMMARY OF MATERIALS

- .1 Refer to the following documents regarding Designated Substances within the work areas. The survey and documentation of Designated Substances is required by Section 30 of the Occupational Health and Safety Act and shall be read in conjunction with these specifications.
 - .1 *“Designated Substance Audit Report – Orchard Park Secondary School Corridor Ceiling & Accessibility Renovation Project, 200 Dewitt Road, Stoney Creek, ON”* dated January 6, 2025 prepared by MTE Consultants Inc.
 - .2 Removal and/or disturbance of asbestos-containing materials shall be performed in accordance with Ontario Regulation 278/05 – Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations.
 - .3 Removal and/or disturbance of lead-based and lead-containing materials shall be performed in accordance with the Environmental Abatement Council of Canada's Lead Guideline for Construction, Renovation, Maintenance and Repair (2014)
 - .4 Removal and/or disturbance of mercury-containing materials shall be performed in a manner which maintains the mercury intact, with no on-site crushing. Following removal, mercury-containing materials shall be safely stored on-Site until the Contractor can safely dispose of the materials at a licensed landfill.
 - .5 Removal and/or disturbance of silica-containing materials shall be performed in accordance with the Ministry of Labour's Guideline Silica on Construction Projects.
 - .6 Suspect PCB-containing equipment, including light ballasts, shall be assessed upon removal from service to determine PCB content. If identified as PCB-containing, equipment shall be appropriately stored and disposed of by the Contractor in accordance with SOR 2008-273 - PCB Regulations.
- .2 ACM may be present in concealed locations and become apparent during construction, renovation, alteration, or maintenance activities. Should any suspect ACM be discovered during the course of regular construction, renovation, alteration, or maintenance activities,

work should cease and the materials should not be disturbed. Suspect ACM must be treated as asbestos-containing or sampled and proven to not contain asbestos. Any activities that require disturbance of ACM must be performed in accordance with Ontario Regulation 278/05. It is the responsibility of the constructor to provide supervision and training and undertake due care and diligence in situations where such discoveries can and would occur.

- .3 Upon discovery of suspect or known ACM not identified or referred to in Section 2.0 or the reports referenced, the constructor shall immediately notify, orally and in writing; an inspector at the office of the Ministry of Labour nearest the workplace, the owner/representative, the Contractor and the joint health and safety committee or the health and safety representative, if any, for the workplace. The written notice shall include the following:
 - .1 The name and address of the person giving the notice;
 - .2 The name and address of the owner of the place where the work will be carried out;
 - .3 The municipal address or other description of the place where the work will be carried out sufficient to permit the inspector to locate the place, including the location with respect to the nearest public highway;
 - .4 A description of the work that will be carried out;
 - .5 The starting date of the work that will be carried out; and
 - .6 The name and address of the supervisor in charge of the work.
- .4 No work that is likely to involve handling, dealing with or disturbing or removing the discovered materials shall be done unless it has been determined whether the material is asbestos-containing; or, the work is performed in accordance to Ontario Regulation 278/05 as though the materials were asbestos-containing materials and, in the case of sprayed-on friable material, as though it contained a type of asbestos other than Chrysotile.

2.2 SUMMARY OF MATERIALS

- .1 Where required to complete the scope of the proposed renovations, disturbance of Asbestos-Containing Materials shall be performed as follows, in accordance with Ontario Regulation 278/05:

Location	ACM	Asbestos Operation	Notes
Above Drop Ceilings	Insulation on Pipe Fittings (i.e. elbows, T's, valves, etc)	Type 2	Removal using a glove bag
		Type 3	Removal of greater than 1 m ² (without the use of a glove bag)

Location	ACM	Asbestos Operation	Notes
Washroom 1059, 1059A, 1059B and Stairwells L2, Z2, Y2 & B2	Drywall Ceiling	Type 1	Removal of less than 1 m ²
		Type 2	Removal of greater than 1 m ²
Stairwells L1, Z1, Y1 & B1	Asbestos Cement (Transite) Ceiling Tiles	Type 1	Removal using non-powered hand tools in conjunction with dust suppression
Main Entrance	Black Window Glazing	Type 1	Removal using non-powered hand tools in conjunction with dust suppression
Main Entrance	Exterior White Sealant	Type 1	Removal using non-powered hand tools in conjunction with dust suppression

2.3 SCHEDULING

- .1 The Contractor shall schedule and perform work in accordance with the Contract Time established in the agreement.

2.4 INSPECTION

- .1 From project set-up to completion of clean-up, the Asbestos Abatement Consultant will be present on both the inside and outside of the work area.
- .2 Inspections will be conducted to confirm the Contractor's compliance. Failure to comply with the specified requirements may result in a stoppage of work at no additional cost to the Owner.
- .3 Promptly notify the Consultant of any ACM or potential ACM discovered during the work and not apparent in the audit, specifications or site meeting(s). DO NOT disturb such material until given direction by the Consultant. Assume such material to contain asbestos of a type other than Chrysotile until proven otherwise. Failure to notify the Consultant of ACM prior to removal will result in the dispute of payment of fees for any extra work performed.
- .4 The following inspections will be conducted at the Owner's cost. Provide Consultant with minimum of 24 Hours verbal notice:
 - .1 Pre Start Inspection: conducted after completion of work area set-up and prior to start of contaminated work.
 - .2 Contaminated Work Inspections: inspections and routine monitoring of the abatement will be conducted for the duration of the work.

- .3 Final Inspection: conducted after removal of all ACM, and application of lockdown agent to confirm cleanliness. Additional labour or materials expended by the Asbestos Abatement Contractor to provide satisfactory performance to the level specified shall be at no additional cost.
- .4 Final Clearance Air Testing: All Type 3 asbestos removals completed indoors are subject to air clearance testing in accordance with Ontario Regulation 278/05 by the Consultant prior to the shut-down of Negative Air Units and/or tear-down of the enclosure in whole or in part. Clearance air testing shall be conducted in accordance with sample methods and procedures prescribed in Ontario Regulation 278/05 Section 17 and Table 3.

2.5 SUBMITTALS

- .1 Submit to the Consultant upon request:
 - .1 AAW and AAS certification and relevant training for all workers/supervisors on-site and involved in the project.
 - .2 Names, credentials and contact information of Site superintendent and shift supervisors.
 - .3 All necessary permits, certificates, and documents for all aspects of the work to be completed.
 - .4 Ministry of Labour Notice of Project if applicable.
 - .5 Certificate of Approval for transportation of asbestos waste.
 - .6 Negative air unit performance leak tests.
 - .7 HEPA/P100 filtered vacuum performance leak tests.
 - .8 Any and all proposed changes, alterations, deviations intended to be made in scope, procedures and/or measures from these specifications or associated regulations, guidelines and standards.
- .2 The contractor shall have all asbestos waste transported under a current and valid Certificate of Approval or Provisional Certificate of Approval that specifically authorizes the transportation of asbestos waste in bulk. A copy of the Certificate of Approval will be maintained on-site and within the transport vehicle(s) and will be provided to the Consultant upon request.

2.6 PERMITS AND REGULATIONS

- .1 Comply with all federal, provincial and local requirements, Regulations and Acts as well as client/owner corporate policies and procedures pertaining to asbestos and health and safety, provided that in any case of conflict among these requirements or with these specifications the more stringent requirements shall apply.
- .2 Comply will all aspects of the Occupational Health and Safety Act Revised Statues of Ontario, 2005.
- .3 Comply with Ontario Regulation 278/05 "Asbestos on Construction Projects and in

Buildings and Repair Operations”, made under the Occupational Health and Safety Act.

- .4 Comply with “Handling, Transportation and Disposal of Asbestos Waste’ in accordance with Ontario Regulation 347 as amended by Ontario Regulation 558/00, under the Environmental Protection Act (General-Waste Management), June 1992.
- .5 Before varying a measure or procedure described in Ontario Regulation 278/05, or these specifications, the contractor/constructor must ensure that the varied measure(s) and/or procedure(s), affords protection for the health and safety of workers and building occupants that is at least equal to the protection that would be provided by complying with Ontario Regulation 278/05. Written notice of the varied measure(s) and/or procedure(s) shall be given in advance to the joint health and safety committee and safety representative, if any, for the workplace. Such notice shall also be provided to the Consultant.

2.7 INSTRUCTION AND TRAINING

- .1 It shall be the responsibility of the Constructor to inform all workers involved in this project of the hazards in regard to the work to be performed and ensure appropriate training has been provided to all workers.
- .2 Every worker shall be properly trained in accordance with Section 19 of Ontario Regulation 278/05 in the removal/management of asbestos as a Type 1, Type 2 and Type 3 Operation and have had instruction and training in:
 - .1 Asbestos awareness;
 - .2 The hazards of asbestos exposure;
 - .3 Personal hygiene and work practices;
 - .4 The use, cleaning, maintenance, selection and disposal of respirators and protective clothing; and
 - .5 The measures and procedures prescribed by Ontario Regulation 278/05.
- .3 Instruction and training related to personal protective equipment and hygiene shall include but shall not necessarily be limited to:
 - .1 Limitations of the equipment;
 - .2 Inspection and maintenance of the equipment;
 - .3 Fitting of the equipment; and
 - .4 Disinfecting and decontamination of the equipment.
- .4 The abatement contractor shall ensure that every worker/supervisor involved in a Type 3 operation meets the training and certification requirements of Section 20 of Ontario Regulation 278/05.

2.8 WORKER PROTECTION

- .1 All personal protective equipment shall be used and maintained in accordance to the manufactures specifications and/or federal, provincial, local regulations and Acts and any

corporate policies and procedures.

- .2 All Personal protective equipment shall be of a nature that can be readily and effectively decontaminated or shall be of a disposable type.
- .3 Damaged, deteriorated or defective personal protective equipment shall be repaired or replaced immediately and the worker shall not continue with their duties until such damages, deterioration or defects have been corrected.
- .4 All personal protective equipment shall be durable enough and otherwise suitable to withstand the nature of the work being performed and the environmental conditions present within the work area(s).
- .5 The contractor shall provide all workers with personally issued respirators suitable for protection against asbestos and acceptable to the Ministry of Labour.
- .6 It shall be the responsibility of the contractor/constructor to ensure that all procedures for the use of respiratory equipment in accordance with Ontario Regulation 278/05 and manufacturers requirements are complied with. This shall include but shall not necessarily be limited to:
 - .1 The worker being physically able to perform the required duties while wearing the respirator;
 - .2 Respirators must be fit checked by qualitative or quantitative fit testing. Instruction must be provided as defined by the Occupational Health and safety Act;
 - .3 Air purifying respirators will be equipped with Ministry of Labour and NIOSH approved N 100, P 100, R 100 or HEPA hard exterior cassette style filters and shall be fitted so that an effective seal exists between the respirator and the workers face;
 - .4 Supplied air respirators will have supply air meet the Canadian Standards Association (CSA) standard Z180.1-00, Compressed Breathing Air and Systems (March 2000);
 - .5 Cleaning and disinfecting of respirator(s) after each use or more often if needed;
 - .6 Inspection of respirator(s) and/or respiratory equipment before each use;
 - .7 The proper storage in a clean, dry and sanitary location when respirator(s) are not in use; and
 - .8 The development of written procedures regarding selection, use and care of respirators.
- .7 Protective Clothing: The contractor shall provide every worker who enters the work area with disposable coveralls and gloves which:
 - .1 Shall be made of a material that does not readily retain nor permit the penetration of asbestos fibres;
 - .2 Shall consist of head covering and full body covering that fits snugly at the ankles, wrists and neck, in order to prevent asbestos fibres from reaching the garment and

- skin under the protective clothing;
- .3 Shall include suitable footwear; and
- .4 Shall be repaired or replaced if torn or damaged.
- .8 The contractor shall provide worker(s) with Canadian Standards Association approved head, hearing and foot protection for the work being performed and as required by applicable construction safety regulations.

2.9 AUTHORIZED VISITOR PROTECTION

- .1 The contractor shall provide all prescribed personal protective equipment to authorized visitors to the work area(s).
- .2 Ensure authorized visitors have received required training prior to entry to the work areas.
- .3 Instruct authorized visitors in all relevant procedures to be followed while in and around the work area(s).

PART 3 - APPROVED PRODUCTS

3.1 MATERIALS AND EQUIPMENT

- .1 Amended Water: Water with a surfactant agent added to reduce water tension for thorough wetting of fibres.
- .2 Decontamination Shower: For the purpose of worker decontamination, a portable self-contained shower equipped with the following shall be utilized:
 - .1 Hot and cold water connections;
 - .2 Interior hot and cold fixtures that can be controlled by the person using the shower; or provide a constant water temperature of not less the 40 Celsius but not greater 50 Celsius;
 - .3 A containment basin of sufficient capacity to collect and contain the quantity of water required for at least one worker to properly decontaminate; and
 - .4 Shall be supplied with soap and clean towels.
- .3 Drop Sheets: Fire retardant Polyethylene: 0.15mm (6mil) minimum thickness or Fire retardant Fibre Reinforced (FR) polyethylene: 0.15mm (6mil) minimum thickness. New Materials Only.
- .4 Exhausted Ducting: For use with Negative Air Unit(s) shall be flexible reinforced heavy duty type duct and be free of tears, punctures and damage and be otherwise suitable for the conditions of the work area(s). The cross sectional area of the ducting shall be maintained during the operation of the Negative Air Unit(s). And reasonable care shall be taken to ensure the ducting does not become damaged.
- .5 Micronic Water Filter: Shall be used to filter contaminated water that is to be discharged to

local sanitary sewers. Contaminated water includes but is not necessarily limited to wash down water and decontamination shower water. The filter shall be equipped with a secondary 5 micrometer filter. As an alternative to filtration, contaminated water may be collected in appropriate waste containers for off-site disposal.

- .6 Negative Air Units: Shall be equipped with HEPA/P100 filters and shall have performance leak testing to verify efficiency of filters. Copies of filter tests shall be provided to the consultant upon request.
- .7 Power Tools: Used in the cutting, grinding, drilling, abrading, sanding, vibrating or removal of Asbestos Containing Material, as a Type 2 Operation, shall be equipped with an effective dust collection device with a HEPA/P100 filtration system capable of capturing all debris and dust generated by the tool. All tools and assemblies of dust collection and filtration equipment will be subject to approval and testing by the Consultant as seen fit prior to use.
- .8 Pressure Differential Measuring Device: Shall be capable of measuring pressure differential of 0.02 inches of water column and shall otherwise measure pressure differential in an appropriate range and interval. The device shall be dedicated to the site/work area, properly calibrated, installed and maintained throughout the duration of work to measure pressure differential between the enclosed removal area and the occupied area and shall be acceptable to the consultant. Daily records shall be kept by the contractor, on site, and made available to the consultant.
- .9 Sealant: A suitable water based post-removal sealer appropriate for the lock-down and sealing of asbestos fibres to polyethylene sheeting and cleaned substrate.
- .10 Sprayer(s): Shall be capable of delivering low velocity mist pattern spray of Amended water or sealant. Sprayers may be hand held reservoir type or powered airless units.
- .11 Surfactant: A commercial or industrial agent that when added to potable water reduces surface tension.
- .12 Tape: Shall be able to create and maintain a suitable seal on polyethylene and other materials within the work area under both wet and dry conditions and ambient temperatures for the duration of the work being performed and shall otherwise be suitable for the work being performed.
- .13 Waste Containers: Waste shall be contained in two overlying dust tight containers impervious to asbestos fibres. The outer container shall be a minimum of 0.15mm (6mil.) thick sealable polyethylene waste bag.
 - .1 Should the waste material include sharp objects/materials, the inner container shall be a sealable metal, cardboard, fibre or plastic type suitable to resist puncturing of the containers;
 - .2 Containers shall be cleaned with a damp cloth or vacuum equipped with a HEPA filter immediately before being removed from the work area;
 - .3 Outer waste containers shall have a pre-printed cautionary asbestos warning identifying it as asbestos waste in both official languages clearly visible and legible in a colour which contrasts with the background on which it is printed; and,
 - .4 Be otherwise suited for the waste being contained.

- .14 Vacuums: Shall be equipped with HEPA/P100 filters and shall have performance leak testing to verify efficiency of filters. Copies of filter tests shall be provided to the consultant upon request.

3.2 SIGNAGE AND PLACARDS

- .1 Before beginning work, post a sufficient number of signs at each entrance/exit to the work area(s) warning of asbestos hazards and restricting access to authorized persons wearing personal protective equipment.
- .2 On both sides of all containers and vehicles used in the transport of asbestos waste in large easily legible letters of a minimum of ten centimetres (10cm) in height which contrast in colour with the background of the container or vehicle the following words shall be clearly displayed:
- .1 CAUTION: CONTAINED ASBESTOS FIBRES; Avoid Creating Dust and Spillage; and,
- .2 Asbestos May be Harmful to Your Health; Wear Approved Protective Equipment.

PART 4 - EXECUTION

4.1 GENERAL REQUIREMENTS – ALL PROCEDURES

- .1 Before beginning work, post at each entrance/exit to the work area(s) a sufficient number of signs warning of asbestos hazards and restricting access to authorized persons wearing personal protective equipment.
- .2 Eating, drinking, chewing or smoking shall not be permitted in the work area.
- .3 Where wet removals are to take place de-energize and disable with proper lock-out tag-out procedures electrical systems.
- .4 Temporary electrical distribution systems equipped with Ground Fault Circuit Interrupters (GFCI) shall be supplied and used by the Contractor during wet removals.
- .5 Remove all items from the work area(s). If items are affixed or otherwise cannot be removed from the work area(s), ensure that they are pre-cleaned using a HEPA/P100 filtered vacuum or damp wiping and completely covered and sealed with polyethylene sheeting and otherwise adequately protected.
- .6 Before commencing with work, disable and seal all ventilation to and from the work area and ensure ventilation remains disabled throughout the duration of activities. Seal any and all openings within the work area(s).
- .7 Removal of Asbestos Containing Materials shall commence only after set-up is complete.
- .8 Frequently and at regular intervals during the Work and immediately upon completion of the work clean up and place all asbestos dust, debris and waste in approved waste containers.
- .9 Prevent the spread of dust from the Work Area.

- .10 At completion of Work or at the end of the work day, remove from work area(s) all asbestos waste and in accordance with requirements of Ontario Regulations and these specifications dispose of asbestos waste off-site.

4.2 EXECUTION OF TYPE 1 OPERATION

.1 Set-Up

- .1 Ensure adequate signage is posted restricting access to the work area to authorized personnel.
- .2 Prevent the spread of dust from the work area using measures appropriate to the work to be done. Use single layer rip proof polyethylene drop sheets. In areas with carpeted or textured floors which cannot be readily cleaned use double layer rip proof polyethylene over flooring in work area(s).
- .3 Provide facilities for washing hands and face.
- .4 Allow for inspection by the Consultant to confirm that set-up is sufficient prior to the start of work.

.2 Asbestos Removal

- .1 If a worker requests, the contractor shall supply a respirator in accordance with Ontario Regulation 278/05 Table 2 requirements, suitable for protection against asbestos and protective coveralls and the worker shall wear the respirator and coveralls.
- .2 Perform removal of ACM in a manner to reduce dust creation to lowest level practicable by:
- Dust and waste shall not be permitted to fall freely from one work level to another
 - Use of hand tools only for the removal of ACM
 - Careful removal of ACM
 - Continual wetting of Asbestos Containing Materials throughout the work
 - Placing removed asbestos waste directly into approved waste containers
- .3 All workers shall proceed to washing facilities and wash hands and face before leaving the work area.

.3 Clean-Up

- .1 After completion of the removal; perform final thorough cleanup of polyethylene, barriers, drop sheets, tools, equipment, items, work area(s) and adjacent areas using HEPA/P100 filtered vacuum or damp wiping methods. Ensuring work area(s) and all items within the work area(s) are clean of visible asbestos dust, debris and waste. Place and seal asbestos dust debris and waste in approved waste containers.
- .2 Allow for inspection by Consultant to determine abatement is complete and an acceptable level of cleanliness prior to application of sealant.
- .3 Wet and fold polyethylene drop sheets and barriers in a manner which contains

asbestos dust, debris and waste, place and seal in approved waste containers.

- .4 If Personal Protective Equipment was requested and used by the worker prior to leaving the work area(s) clean all asbestos dust, debris and waste from clothing and personal protective equipment (PPE). Remove and place disposable PPE in approved waste container.
- .5 Immediately before their removal from the work area, clean each filled waste container using HEPA/P100 filtered vacuum and place and seal in a secondary clean waste container.

4.3 EXECUTION OF TYPE 2 OPERATION

.1 Set-Up

- .1 Construct an enclosure using polyethylene sheeting that extends from floor to ceiling and encompasses the entire work area where asbestos containing materials will be removed or encapsulated. The enclosure shall include the following:
 - Double flap weighted air lock doors at all entrances, exits and doorways of the enclosure and rooms within the enclosure;
 - Transparent windows for inspection purposes from outside the enclosure area;
 - Sealed edges of the entire enclosure using tape or other suitable methods; and
 - Ensure all edges of enclosure are securely fixed.
- .2 Construct a decontamination facility as close as practicable to the work area which shall include the following:
 - A room suitable for changing into protective clothing and for storing contaminated protective clothing and equipment; and,
 - A room suitable for changing into street clothes and for storing clean clothing and equipment.
- .3 Arrange configuration of the above-mentioned rooms so that (a) person(s) entering/exiting the work area must pass through each room in the correct order.
- .4 Allow for inspection by the Consultant to confirm that set-up is sufficient prior to the start of work.

.2 Asbestos Removal

- .1 Workers entering the work area shall don all appropriate personal protective equipment including coveralls and respiratory protection prior to entering the work area.
- .2 Before commencing with work and at the beginning and end of each work shift and at a minimum of at least once per day the enclosure shall be inspected for any defects or deficiencies.
- .3 Any defects or deficiencies observed shall be repaired forthwith and no work other than such repairs shall be conducted until repair activities are completed

- .4 Other than loose material which is pulverized, crumbled and or powdered and shall be removed by HEPA/P100 filtered vacuum, Asbestos Containing Materials to be removed or disturbed shall be thoroughly wetted with Amended Water before and during work unless wetting creates a hazard or causes damage.
 - .5 Perform removal of ACM in a manner to reduce dust creation to lowest level practicable by:
 - Dust and waste shall not be permitted to fall freely from one work level to another;
 - Use of hand tools only for the removal of ACM;
 - Careful removal of ACM;
 - Continual wetting of Asbestos Containing Materials throughout the work; and
 - Placing removed asbestos waste directly into approved waste containers.
 - .6 All workers shall proceed to the washing facilities while wearing respirator and shall wash hands and face before leaving the work area.
- .3 Clean-Up
- .1 After completion of the removal; perform final thorough cleanup of polyethylene, barriers, tools, equipment, items, work area(s) and adjacent areas using HEPA/P100 filtered vacuum or damp wiping methods. Ensuring work area(s) and all items within the work area(s) are clean of visible asbestos dust, debris and waste. Place and seal all asbestos dust debris and waste in approved waste containers.
 - .2 Allow for inspection by Consultant to determine abatement is complete and an acceptable level of cleanliness prior to application of sealant.
 - .3 Apply sealant to all vertical and horizontal surfaces, enclosures, drop sheets and items within the enclosure. Allow sufficient time for sealant to dry.
 - .4 Wet and fold polyethylene and barriers in a manner which contains asbestos dust, debris and waste, place and seal in approved waste containers.
 - .5 Prior to leaving the work area(s) workers shall clean all asbestos dust, debris and waste from Personal Protective Clothing Using HEPA/P100 filtered vacuum or damp wipe methods prior to removing the clothing. Remove and place disposable Personal Protective Clothing in approved waste containers.
 - .6 Immediately before their removal from the work area, clean each filled waste container using HEPA/P100 filtered vacuum and place and seal in a secondary clean waste container.

4.4 EXECUTION OF TYPE 2 OPERATION (GLOVE BAG)

- .1 Set-Up
 - .1 The work area shall be separated from the rest of the workplace by walls, barricades, fencing or other suitable means.
 - .2 Surfaces directly below the work area shall be covered with drop sheets of

Polyethylene.

- .3 The glove bag shall be made of material that is impervious to asbestos and sufficiently strong to support the weight of material the bag will hold.
- .4 The glove bag shall be equipped with,
 - 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;
 - 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;
 - A tool pouch with a drain;
 - A seamless bottom and a means of sealing off the lower portion of the bag; and,
 - A high strength double throw zipper and removable straps, if the bag is to be moved during the removal operation.
- .5 Provide facilities for washing hands and face.
- .6 Allow for inspection by the Consultant to confirm that set-up is sufficient prior to the start of work.

.2 Asbestos Removal

- .1 Workers entering the work area shall don all appropriate personal protective equipment including coveralls and respiratory protection prior to entering the work area.
- .2 A glove bag shall not be used to remove insulation from a pipe, duct or similar structure if:
 - It may not be possible to maintain a proper seal for any reason including, without limitation: the condition of the insulation; or, the temperature of the pipe, duct of similar structure; and,
 - The bag could become damaged for any reason including, without limitation: the type of jacketing; or, the temperature of the pipe, duct or similar structure.
- .3 The glove bag shall be inspected for damage or defects:
 - Immediately before it is attached to the pipe, duct or other similar structure; and,
 - At regular intervals during its use.
- .4 If damage or defects are observed at any time during the use of the glove bag:
 - The use of the glove bag shall be discontinued;
 - The inner surface of the glove bag and the contents, if any, shall be thoroughly wetted with Amended Water;
 - The glove bag and the contents, if any, shall be removed and placed in a waste container, and,

- The work area shall be cleaned using a HEPA/P100 filtered vacuum before removal work is resumed.
- .5 All workers shall proceed to the washing facilities while wearing respirator and shall wash hands and face before leaving the work area.
- .3 Clean-Up
 - .1 When the removal work is complete:
 - The inner surface of the glove bag and the waste inside shall be thoroughly wetted with Amended Water and the air inside the bag shall be removed through the elasticized valve, by means of HEPA/P100 filtered vacuum;
 - The pipe, duct or similar structure shall be wiped down and a sealant applied;
 - The glove bag, with the waste inside, shall be placed in a waste container, and,
 - The work area shall be cleaned using a HEPA/P100 filtered vacuum or by damp wiping.
 - .2 Prior to leaving the work area(s) workers shall clean all asbestos dust, debris and waste from Personal Protective Clothing Using HEPA/P100 filtered vacuum or damp wipe methods prior to removing the clothing. Remove and place disposable Personal Protective Clothing in approved waste containers.
 - .3 Immediately before their removal from the work area, clean each filled waste container using HEPA/P100 filtered vacuum and place and seal in a secondary clean waste container.

4.5 EXECUTION OF TYPE 3 OPERATION

- .1 Set-Up
 - .1 Construct an enclosure using polyethylene sheeting that extends from floor to ceiling and encompasses the entire work area where asbestos containing materials will be removed or encapsulated. The enclosure shall include the following:
 - Double flap weighted air lock doors at all entrances, exits and doorways of the enclosure and rooms within the enclosure;
 - Transparent windows for inspection purposes from outside the enclosure area;
 - Sealed edges of the entire enclosure using tape or other suitable methods; and
 - Ensure all edges of enclosure are securely fixed.
 - .2 Construct a decontamination facility as close as practicable to the work area which shall include the following:
 - A room suitable for changing into protective clothing and for storing contaminated protective clothing and equipment;
 - A decontamination shower; and,
 - A room suitable for changing into street clothes and for storing clean

clothing and equipment.

- .3 Arrange configuration of the above-mentioned rooms so that (a) person(s) entering/exiting the work area must pass through each room in the correct order.
 - .4 The spread of dust from the work area shall also be prevented by:
 - Installing a ventilation system equipped with HEPA filtered exhaust to create and maintain a negative air pressure of 0.02 inches of water within the enclosed area, relative to the area outside the enclosed area;
 - Ensuring that replacement air is taken from outside the enclosed area and is free from contamination with any hazardous dust, vapour, smoke, fume, mist or gas; and,
 - At regular intervals, using a device to measure and record the difference in air pressure between the enclosed area and the area outside it.
 - .5 Allow for inspection by the Consultant to confirm that set-up is sufficient prior to the start of work.
- .2 Asbestos Removal
- .1 Workers entering the work area shall don all appropriate personal protective equipment including coveralls and respiratory protection prior to entering the work area.
 - .2 Before commencing with work and at the beginning and end of each work shift and at a minimum of at least once per day the enclosure shall be inspected for any defects or deficiencies.
 - .3 Any defects or deficiencies observed shall be repaired forthwith and no work other than such repairs shall be conducted until repair activities are completed
 - .4 Other than loose material which is pulverized, crumbled and or powdered and shall be removed by HEPA/P100 filtered vacuum, Asbestos Containing Materials to be removed or disturbed shall be thoroughly wetted with Amended Water before and during work unless wetting creates a hazard or causes damage.
 - .5 Perform removal of ACM in a manner to reduce dust creation to lowest level practicable by:
 - Dust and waste shall not be permitted to fall freely from one work level to another;
 - Use of hand tools only for the removal of ACM;
 - Careful removal of ACM;
 - Continual wetting of Asbestos Containing Materials throughout the work; and
 - Placing removed asbestos waste directly into approved waste containers.
 - .6 All workers shall proceed to the decontamination facilities before leaving the work area. Each worker shall:
 - Clean all dust and debris from Personal Protective Equipment (PPE) using HEPA/P100 filtered vacuum or damp wipe methods;

- Proceed to first decontamination room and remove and place disposable PPE, except respirator, in approved waste containers;
- Still wearing the respirator, proceed to the decontamination shower. Thoroughly wash exposed skin and hair with soap and water until clean;
- Thoroughly clean outside of respirator with soap and water;
- Remove the respirator and wash face with soap and water; and,
- After showering, proceed to clean change room, dry-off and change into street clothes, or clean coveralls before eating, smoking, drinking or otherwise leaving work area(s).

.3 Clean-Up

- .1 After completion of the removal; perform final thorough cleanup of polyethylene, barriers, tools, equipment, items, work area(s) and adjacent areas using HEPA/P100 filtered vacuum or damp wiping methods. Ensuring work area(s) and all items within the work area(s) are free of asbestos dust, debris and waste. Place and seal all asbestos dust debris and waste in approved waste containers.
- .2 Allow for inspection by Consultant to determine abatement is complete and an acceptable level of cleanliness prior to application of sealant.
- .3 Apply sealant to all vertical and horizontal surfaces, enclosures, drop sheets and items within the enclosure. Allow sufficient time for sealant to dry.
- .4 Prior to leaving the work area(s), workers shall clean all asbestos dust, debris and waste from Personal Protective Clothing using HEPA/P100 filtered vacuum or damp wipe methods prior to removing the clothing. Remove and place disposable Personal Protective Clothing in approved waste containers.
- .5 Immediately before their removal from the work area, clean each filled waste container using HEPA/P100 filtered vacuum and place and seal in a secondary clean waste container.
- .6 Allow for Final Clearance Air Testing prior to shut-down of Negative Air Units and/or tear-down of the enclosure in whole or in part.
- .7 Following confirmation by the Consultant that the work area(s) can be dismantled, wet and fold polyethylene and barriers in a manner which contains asbestos dust, debris and waste and place and seal in approved waste containers. Polyethylene sheeting, drop sheets and similar materials used for barriers shall not be reused.

END

FINISHING HARDWARE SPECIFICATION

FOR

ORCHARD PARK SECONDARY SCHOOL
WASHROOM & CHANGEROOM RENO.
200 DEWITT ROAD STONEY CREEK

ARCHITECT:



CGS | CURRAN GACESA SLOTE ARCHITECTS INC.
118 JAMES STREET NORTH, SUITE 301.
HAMILTON, ONT. L8R 2K7
PH# 905.297.0863
FAX# 905.297.0864

CONTRACTOR:

SUPPLIER:



GROUP 87
ARCHITECTURAL HARDWARE INC.
UNIT #1 – 3245 HARVESTER RD,
BURLINGTON, ON. L7N 3T7
PH# 905.639.4676
FAX# 905.639.7561
E-MAIL: craig@group87.ca
WEB: www.group87.ca

CONSULTANT: CRAIG S. WILSON AHC

COORDINATOR: DERRILL A. WILSON

DATE: January 8, 2025

REVISION: January 15, 2025



DEVELOPED FROM ARCHITECTURAL DRAWING DATED: 3 |2024.12.10| Issued for Coordination

Abbreviations (Categorized)

FRAMES: ALUMINUM

Frame Hands

Abbreviation	Definition
LHR	Left Hand Reverse
LHRA	Left Hand Reverse Active
RHR	Right Hand Reverse

FRAMES: HOLLOW METAL

Frame Hands

Abbreviation	Definition
RH	Right Hand

HARDWARE

Door Type

Abbreviation	Definition
ALD	ALUMINUM DOOR
HMD	HOLLOW METAL DOOR

Fire Ratings

Abbreviation	Definition
NON-RTD	NON RATED

Frame Type

Abbreviation	Definition
ALF	ALUMINUM FRAME
HMF	HOLLOW METAL FRAME

Handing

Abbreviation	Definition
D/A	Double Acting
LH	Left Hand
LHA	Left Hand Active
LHI	Left Hand InActive
LHR	Left Hand Reverse
LHRA	Left Hand Reverse Active
LHRI	Left Hand Reverse InActive
RH	Right Hand
RHA	Right Hand Active
RHI	Right Hand InActive
RHR	Right Hand Reverse
RHRA	Right Hand Reverse Active
RHRI	Right Hand Reverse InActive

Hardware Finishes

Abbreviation	Definition
26D	SATIN CHROMIUM PLATED
32D	SATIN STAINLESS STEEL, 300 SERIES
626	SATIN CHROMIUM PLATED OVER NICKEL
627	SATIN ALUMINUM, CLEAR COATED
628	SATIN ALUMINUM, CLEAR ANODIZED

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Abbreviations (Categorized)

HARDWARE

Hardware Finishes

Abbreviation	Definition
630	SATIN STAINLESS STEEL
652	SATIN CHROMIUM PLATED OVER NICKEL
689	ALUMINUM PAINTED
CL	CLEAR ANODIZED
WHI	WHITE

Hardware Mfrs

Abbreviation	Definition
CAM	CAMDEN DOOR CONTROLS
G87	GROUP 87 ARCHITECTURAL HARDWARE INC.
GLY	GLYNN-JOHNSON
HOR	HORTON, INC.
IVE	H.B. IVES
KMT	K.M. THOMAS
KNC	K.N. CROWDER MFG. INC.
LCN	LCN COMMERCIAL DIVISION
SCH	SCHLAGE LOCK COMPANY
SMH	STANDARD METAL HARDWARE MANUFACTURING
VON	VON DUPRIN

Hardware Miscellaneous

Abbreviation	Definition
CYL	CYLINDER
DR	DOOR
EO	EXIT ONLY
EX	EXISTING
JD	JAMB DEPTH
SS	STAINLESS STEEL
STK	STRIKE; THAT PART OF A LOCK OR OTHER FASTENING DEVICE WHICH RECEIVES THE BOLT WHEN PROJECTED

Hardware Remark

Abbreviation	Definition
ADO	AUTOMATIC DOOR OPERATOR
HR	HOUR (SUCH AS 1-1/2 HOUR FIRE RATING)

Heading Remark

Abbreviation	Definition
ACT	ACTIVE
DE	DOUBLE EGRESS; ALSO DESIGNATED AS "DBLE EG"D
EL	ELECTRIC; ALSO DESIGNATED AS "ELEC"
RU	ROLL-UP DOOR
SW	STANDARD WEIGHT

Modes of Operation

Abbreviation	Definition
PR	PAIR OF DOORS

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Abbreviations (Categorized)

HARDWARE

Modes of Operation

Abbreviation	Definition
SGL	SINGLE DOOR

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SPECIFICATION NOTES

1) To be bid **as per specification**.

Substitution, and/or omission, of products requires Architects/Consultants approval.

Request for Substitutions must be made a minimum of 10 days prior to Tender Close.

2) **The Hardware Supplier** must be regularly involved in supplying and expediting contract hardware for projects of this nature. The Supplier must employ a Certified **"Architectural Hardware Consultant"** [AHC] to co-ordinate and oversee scheduling, ordering and the supplying of finishing hardware.

3) All locks to be keyed to the existing system. If one does not exist, the hardware supplier will arrange a meeting with the Architect and or Owner to develop and prepare a key schedule to the owners requirements.

4) Auto Door Operator Installation [if required]:

Automatic operators are supplied and installed by the finishing hardware supplier. Rough-in, 110V to head of frame, conduit, backboxes and low voltage wire runs by electrical division. Backing and reinforcement for operator by General Contractor Work must be completed prior to the arrival of the Operator Installation Technician. Installation company must employ an AAADM certified technician.

5) ***Installation of frames** to be site confirmed by G.C. to be Plumb & True prior to commencement of door & hardware installation.

6) Standard mounting heights [unless otherwise noted]

A. Locks/Latches 40-5/16" [1023mm] to center line of strike from finished floor.

B. Deadlocks 47 1/4" [1200mm] to center line of strike from finished floor.

*Unless otherwise noted.

C. Exit Devices 40-5/16" [1023mm] to center line of strike from finished floor.

D. Door Pulls 42" [1067mm] to center line of pull from finished floor.

**Where a deadlock is located at the 40-5/16" [1023mm] location*

install the door pull immediately above the lock body/case.

E. Push Plate 45" [1143mm] to center line of Push Plate from finished floor.

F. Coat Hook 47" [1200mm] to center line of Hook from finished floor.

G. Door Viewer 43" [1100mm] to center line of Viewer from finished floor.

The above noted mounting heights are a recommended standard and may vary under special applications and conditions.

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Heading 01 (HwSet)

1 PR DOOR(S) D1000A EXTERIOR FROM VESTIBULE 1000A
2-965 x 2085 x 57 x ALD x ALF x NON-RTD

Hand Degree
LHRA 95 95

Totals	Each Assembly to have:				Act	InAct
(2) 2	EA CONTINUOUS HINGE	027XY X 2058	51MM DR.	628	IVE	1 1
(1) 1	EA REM. MULLION	KR4954	2286MM	689	VON	
(1) 1	EA ANGLE BRACKET	050092		689	VON	
(1) 1	SET MULLION STABILIZER	154		689	VON	
(2) 2	EA EXIT DEVICE	CD35A-EO 1220MM	*CYL DOG. C/W 299 STK	626	VON	1 1
(2) 2	EA EXTERIOR TRIM	386DT		626	VON	1 1
(1) 1	EA MORT. CYL. HOUSING	26-064	*MULLION	626	SCH	
(2) 2	EA MORT. CYL. HOUSING	26-094 X XQ11-948	*CYL. DOGGING	626	SCH	1 1
(3) 3	EA PERMANENT CORE	23-030 S123	'1' BITTED	626	SCH	
(2) 2	EA TJ CLOSER	4021		689	LCN	1 1
(2) 2	EA ADAPTER PLATE	4020-18G		689	LCN	1 1
(2) 2	EA OVERHEAD STOP	104S		630	GLY	1 1
(2) 2	EA SWEEP	W-24S	965MM	CL	KNC	1 1
(1) 1	EA THRESHOLD	CT-805	1930 X 10 X 1 1/2" FHSD TAP CON	627	KNC	

NO KEYED ACCESS. DOOR PULLS ONLY.

Heading 02 (HwSet)

1 PR DOOR(S) D1000B EXTERIOR FROM VESTIBULE 1000A
2-965 x 2085 x 57 x ALD x ALF x NON-RTD
Opening Remark: ACCESS CONTROLLED OPENING

Hand Degree
LHRA 95 95

Totals	Each Assembly to have:				Act	InAct
(2) 2	EA CONTINUOUS HINGE	027XY X 2058	51MM DR.	628	IVE	1 1
(1) 1	EA REM. MULLION	KR4954	2286MM	689	VON	
(1) 1	EA ANGLE BRACKET	050092		689	VON	
(1) 1	SET MULLION STABILIZER	154		689	VON	
(1) 1	EA EXIT DEVICE	CD35A-EO 1220MM	*CYL DOG. C/W 299 STK	626	VON	1
(1) 1	EA EXIT DEVICE	CD35A-NL-OP 1220MM	*CYL DOG. C/W 299 STK	626	VON	1
(1) 1	EA EXTERIOR TRIM	386DT		626	VON	1
(1) 1	EA EXTERIOR TRIM	386NL		626	VON	1
(1) 1	EA RIM CYL. HOUSING	20-079		626	SCH	1
(1) 1	EA MORT. CYL. HOUSING	26-064	*MULLION	626	SCH	
(2) 2	EA MORT. CYL. HOUSING	26-094 X XQ11-948	*CYL. DOGGING	626	SCH	1 1

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Heading 02 (HwSet) Continued.....

						Hand	Degree	
							Act	InAct
(4)	4	EA	PERMANENT CORE	23-030 S123 '1' BITTED	626	SCH		
(1)	1	EA	ELECTRIC STRIKE	6300	630	VON	1	
(1)	1	EA	TJ CLOSER	4021	689	LCN		1
(1)	1	EA	ADAPTER PLATE	4020-18G	689	LCN		1
(1)	1	EA	AUTO. OPERATOR	7900	CL	HOR	1	
(2)	2	EA	OVERHEAD STOP	104S	630	GLY	1	1
(2)	2	EA	SWEEP	W-24S 965MM	CL	KNC	1	1
(1)	1	EA	THRESHOLD	CT-805 1930 X 10 X 1 1/2" FHSD TAP CON	627	KNC		
(1)	1	EA	INTEGRATION BOX	TA2902G3 E-CR-AO		KMT		
(2)	2	EA	MOUNTING BOX SQR.	CM-43CBL		CAM	2	
(1)	1	EA	SQR. ACTUATOR	CM-45/4	32D	CAM	1	
(1)	1	EA	SQR. ACTUATOR	CM-45/4WT	32D	CAM	1	
(1)	1	EA	ROCKER SWITCH	CM-850 MOMENTARY	WHI	CAM		
(1)	1	EA	WIRE HARNESS	CON-50		VON		
(1)	1	EA	WIRE HARNESS	CON-6W		VON		
(1)	1	SET	WIRING DIAGRAMS	AS REQUIRED				
(1)	1	EA	INSTALLATION	AUTO OPERATOR		G87		
(1)	1	EA	CARD READER/AIPHONE	BY ACCESS CONTROL SUPPLIER				

OPERATOR INSTALLED ON LHR LEAF.
 AUTOMATIC OPERATOR IS SUPPLIED & INSTALLED BY THE FINISHING HARDWARE SUPPLIER.
 ROUGH-IN, 115V TO HEAD OF FRAME, CONDUIT, BACKBOXES, LOW VOLTAGE WIRE RUNS
 AND DEDICATED 15AMP CIRCUIT BY G.C./ELECTRICAL DIVISION.
 BACKING AND REINFORCEMENT FOR OPERATOR BY GENERAL CONTRACTOR.

ACCESS CONTROL SUPPLIER TO TERMINATE @ INTEGRATION BOX.
 INTEGRATION WITH ACCESS CONTROL SYSTEM BY ACCESS CONTROL SUPPLIER.

PRESENTING CREDENTIAL TO CARD READER ENABLES OPERATOR BUTTON, WHICH WHEN
 ENGAGED, WILL ACTIVATE
 THE ELECTRIC STRIKE AND ENGAGE THE OPERATOR. *TBC*
 ROCKER SWITCH FOR REMOTE RELEASE. *IF REQUIRED*

Heading 03 (HwSet)

1 PR DOOR(S) D1001A VESTIBULE 1001A FROM FOYER 1001
 2-965 x 2085 x 44 x ALD x ALF x NON-RTD

Degree
 Hand Act InAct
 LHRA 95 95

Totals Each Assembly to have:

Act InAct

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Heading 03 (HwSet) Continued.....

						Hand	Degree	
							Act	InAct
(2)	2	EA	CONTINUOUS HINGE	112XY 2058MM	628	IVE	1	1
(2)	2	EA	EXTERIOR TRIM	386DT	626	VON	1	1
(2)	2	EA	DUMMY TOUCH BAR	350 1220MM	626	VON	1	1
(2)	2	EA	TJ CLOSER	4021	689	LCN	1	1
(2)	2	EA	ADAPTER PLATE	4020-18G	689	LCN	1	1
(2)	2	EA	OVERHEAD STOP	104S	630	GLY	1	1

Heading 04 (HwSet)

1 PR DOOR(S) D1001B VESTIBULE 1001A FROM FOYER 1001
 2-965 x 2085 x 44 x ALD x ALF x NON-RTD
 Opening Remark: ADO LHR LEAF

Hand Degree
 LHR Act InAct
 95 95

Totals Each Assembly to have:

							Act	InAct
(2)	2	EA	CONTINUOUS HINGE	112XY 2058MM	628	IVE	1	1
(2)	2	EA	EXTERIOR TRIM	386DT	626	VON	1	1
(2)	2	EA	DUMMY TOUCH BAR	350 1220MM	626	VON	1	1
(1)	1	EA	TJ CLOSER	4021	689	LCN		1
(1)	1	EA	ADAPTER PLATE	4020-18G	689	LCN		1
(1)	1	EA	AUTO. OPERATOR	7900	CL	HOR	1	
(2)	2	EA	OVERHEAD STOP	104S	630	GLY	1	1
(2)	2	EA	MOUNTING BOX SQR.	CM-43CBL		CAM		
(2)	2	EA	SQR. ACTUATOR	CM-45/4	32D	CAM		
(1)	1	SET	WIRING DIAGRAMS	AS REQUIRED				
(1)	1	EA	INSTALLATION	AUTO OPERATOR		G87		

OPERATOR INSTALLED ON LHR LEAF.
 AUTOMATIC OPERATOR IS SUPPLIED & INSTALLED BY THE FINISHING HARDWARE SUPPLIER.
 ROUGH-IN, 115V TO HEAD OF FRAME, CONDUIT, BACKBOXES, LOW VOLTAGE WIRE RUNS
 AND DEDICATED 15AMP CIRCUIT BY G.C./ELECTRICAL DIVISION.
 BACKING AND REINFORCEMENT FOR OPERATOR BY GENERAL CONTRACTOR.

Heading 05 (HwSet)

1 SGL DOOR(S) D1004A CORRIDOR 1002 FROM OFFICE 1004
 1 SGL DOOR(S) D1004B CORRIDOR 1002 FROM OFFICE 1004
 965 x 2085 x 44 x ALD x ALF x NON-RTD

Hand Degree
 LHR Act InAct
 RHR 95
 95

Totals Each Assembly to have:

(2)	1	EA	CONTINUOUS HINGE	112XY 2058MM	628	IVE		
(2)	1	EA	LOCKSET	RE-USE EXISTING LOCKSET & CORE	626	SCH		

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Heading 05 (HwSet) Continued.....

							Hand	Degree Act InAct
(2)	1	EA	TJ CLOSER	4021		689	LCN	
(2)	1	EA	ADAPTER PLATE	4020-18G		689	LCN	
(2)	1	EA	OVERHEAD STOP	104S		630	GLY	

Heading 07 (HwSet)

1 SGL DOOR(S) D1059A CORRIDOR 1055 TO BARRIER FREE WSHRM 1059A
965 x 2085 x 44 x HMD x HMF x NON-RTD

Hand Degree
RH Act InAct
95

Totals Each Assembly to have:

(3)	3	EA	HINGE	5BB1 127 X 102		652	IVE	
(1)	1	EA	STOREROOM LOCK	ND96JD RHO		626	SCH	
(1)	1	EA	PERMANENT CORE	23-030 S123 '1' BITTED		626	SCH	
(1)	1	EA	ELECTRIC STRIKE	CX-ED1079D STANDARD		32D	CAM	
(1)	1	EA	AUTO. OPERATOR	7900		CL	HOR	
(1)	1	EA	KICKPLATE	K10A 203 X 927 TAPE MTD.		32D	SMH	
(1)	1	EA	CV HD WALL STOP	S120		26D	SMH	
(1)	1	EA	AURA W.R. KIT SURF.	CX-WC13XSM		32D	CAM	
(1)	1	EA	POWER SUPPLY	CX-PS13-V3			CAM	
(1)	1	EA	INSTALLATION	AUTO OPERATOR & B.F. WASHROOM SYSTEM			G87	

AUTOMATIC OPERATOR IS SUPPLIED & INSTALLED BY THE FINISHING HARDWARE SUPPLIER.
ROUGH-IN, 115V TO HEAD OF FRAME, CONDUIT, BACKBOXES, LOW VOLTAGE WIRE RUNS
AND DEDICATED 15AMP CIRCUIT BY G.C./ELECTRICAL DIVISION.
BACKING AND REINFORCEMENT FOR OPERATOR BY GENERAL CONTRACTOR.
BARRIER FREE WASHROOM SYSTEM INSTALLED BY THE FINISHING HARDWARE SUPPLIER.

Miscellaneous

Qty	UM	Description	Catalog Number	Hand	Fin	Mfgr
1	EA	CONTROL KEY	48-269			SCH

End of Schedule

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ROOM FINISH SCHEDULE

ROOM	NUMBER	FLOOR	BASE	WALLS	CEILING	REMARKS
VESTIBULE	1000A	EX	EX	PT*	GWB-3	*PATCH & REPAIR DAMAGED WALL ABOVE ENTRANCE DOORS. WALL FINISHES TO MATCH WITH EXISTING WALL TILE FINISHES.
FOYER	1001	EX	EX	EX	ACT/GWB-2*	*INSTALL GWB-2 TIGHT TO U/S OF STRUCTURE (ABOVE NEW ACT CEILING)
CORRIDOR	1002, 1010, 1043, 1091, 1093, 1106	EX	EX	EX	ACT/GWB-2*	*INSTALL GWB-2 TIGHT TO U/S OF STRUCTURE (ABOVE NEW ACT CEILING)
CORRIDOR	1014, 1019, 1093, 1053, 1055, 1060, 1062, 1082, 1087, 2001, 2002, 2012, 2026, 2029	EX	EX	EX	ACT	
OFFICE	1004	EX*	EX	EX*	EX	*PATCH & REPAIR DISTURBED FLOOR & WALL SURFACES AS REQUIRED
VESTIBULE	1059	EX**	EX*/RB	EX/PT*	GWB	*INSTALL RB, APPLY BLOCK FILLER & PAINT TO NEW CONCRETE BLOCK WALL SURFACES ONLY **STRIP & POLISH EX. TERRAZZO FLOOR FINISH
STAIRS	B1, B2, L1, L2, G1, Y1, Y2, Z1, Z2	EX	EX	EX	GWB	
WASHROOMS	1059A, 1059B	EX**	EX*/RB	EX/CT-B/PT*	GWB	*INSTALL RB, APPLY BLOCK FILLER & PAINT TO NEW CONCRETE BLOCK WALL SURFACES ONLY **STRIP & POLISH EX. TERRAZZO FLOOR FINISH
VESTIBULE	1013, 1015, 1024, 1068, 1071, 1086	EX	EX	EX	GWB	
LEGEND NOTES:						
					CEILING	
FLOOR		EX EXISTING				ACT ACOUSTIC CEILING TILE
						GWB 13mm PAINTED GYPSUM BOARD CEILING
						GWB-2 16mm TYPE 'X' UNPAINTED GYPSUM BOARD CEILING
						GWB-3 16mm TYPE 'X' PAINTED GYPSUM BOARD CEILING
BASE			RB RUBBER BASE			NOTE
WALL			PT PAINT			PAINT ALL DRYWALL BULKHEADS, SEE RCP FOR LOCATIONS. PAINT ALL HM DOORS & FRAMES IN SCOPE AREAS.
			CT-X CERAMIC TILE - TYPE			



ACCESSORIES SCHEDULE

ROOM	NUMBER	FLOOR	QUANTITY/RM
SINGLE OCCUPANCY WASHROOM	1059B	Surface Mount Soap Dispenser*	1
		Toilet Paper Dispenser*	1
		Sanitary Napkin Disposal	1
		Mirror	1
		Coat Hook (Mounted at 1200mm A.F.F. on washroom door).	1
		Wall mounted Garbage Bin	1
BARRIER FREE WASHROOM	1059A	Surface Mount Soap Dispenser*	1
		Toilet Paper Dispenser*	1
		Sanitary Napkin Disposal	1
		Grab Bar - 1 (Straight, Horizontal)	1
		Grab Bar - 2 (L-shaped)	1
		Mirror	1
		Coat Hook (Mounted at 1200mm A.F.F. on washroom door).	1
		Wall mounted Garbage Bin	1

REMARKS: * = PROVIDED BY OWNER / INSTALLED BY GENERAL CONTRACTOR