1.0 INTRODUCTION

The *CCDC Master Specification for Division 00 – Procurement and Contracting Requirement* was first published in 2018. This *CCDC Master Specification for Division 01 – General Requirements* supplements the Division 00 Master Specification. Both are based on the TEK·AIDs for Division 00 and 01 formerly published by Construction Specifications Canada (CSC). CSC formally requested that CCDC assume responsibility for the publishing and future updating of its Division 00 and 01 TEK·AID master specification. CCDC subsequently undertook to revise the CSC master specification to ensure compatibility with other CCDC publications and to reflect industry-wide consensus on current procurement and contracting best practices, with input from *Owners* and all CCDC constituent organizations.

The contribution of CSC in developing the forerunner to this CCDC publication, and in recognizing the industry-wide benefits of it becoming a CCDC publication, is gratefully acknowledged.

The standard text for both Division 00 and 01 is fully editable and is intended to be used as a tool for creating project specific procurement and contracting documents, and general requirements *Specifications*, for construction projects in Canada. Users are assumed to be procurement authorities, *Owners*, or their *Consultants*. Use of a CCDC standard form contract is also assumed.

The *CCDC Master Specification for Division 01 – General Requirements* is not necessarily comprehensive enough to address all Division 01 General Requirements that may potentially be required. Large, complex projects, or those with unique or special requirements, will no doubt require additional Div. 01 Sections or require additional provisions to be added to the master specification sections provided. It may be used with forms of contract other than those published by CCDC, and with other procurement methods, but will require more extensive editing to suit.

2. ORGANIZATION AND PRESENTATION

2.1 MasterFormat

The *CCDC Master Specifications for Division 00 and Division 01* are organized into Sections according to *MasterFormat*. *MasterFormat* is the North American standard that provides a master list of numbers and titles for organizing construction information in a standardized sequence. *MasterFormat* may be obtained at www.MasterFormat.com.

MasterFormat titles and numbers are organized into basic groupings of related construction information called divisions and sections. Each division is identified by a fixed number and title indicating the location of a primary element of the system, e.g. Division 01 – General Requirements. Within each division there are numbered sections. Each section covers one specific subject or a small group of associated subjects, e.g.
Section 01 11 00 - Summary of Work.

The inherent consistency and flexibility of this classification system allows for the organization and assembly of the written part of the *Contract Documents* in a numerical sequence that is universally recognized and understood in the North American design and construction industry.

2.1.1 Language, Terminology and Capitalization

The *CCDC Master Specification for Division 01* is written in the simple imperative grammatical mood, generally directed to the *Contractor*. Where applicable, the *CCDC Master Specification for Division 01* uses terminology consistent with defined terms in the CCDC standard forms of contract. These terms are capitalized wherever they appear.

2.1.2 Master Specification Conventions

Common master specification conventions including explanatory ***Spec Notes*** and square brackets are used to explain and identify optional text to facilitate editing, as described below.

3. EDITING

3.1 Editing - Generally

Like all master specifications, the *CCDC Master Specification for Division 01* is intended to be used selectively and edited for project specific use. First, by selecting the sections that will be applicable to a given *Project* and then editing those Sections to suit the needs of the user and the *Project*. To provide maximum editing flexibility, the master specification sections are published in MS Word format.

3.2 Spec Notes

Spec Notes are addressed to and intended to guide the user. They appear in a red text box to distinguish them from the master specification text itself. ***Spec Notes*** generally provide a brief introductory explanation of the intended use of each Section. Within the body of the Section they immediately precede the master specification article, paragraph, or sub- paragraph to which they pertain and they explain various options to assist the editing process. They also identify the need for coordination where coordination is required and provide other supplementary guidance information.

Ensure that all ***Spec Notes*** are removed as part of the editing process and do not appear in the final *Project Specification*.

3.3 Square Brackets

Square brackets appear at various locations within the text to indicate where the user must make project specific choices. Text enclosed within a single set of square brackets indicates that inclusion of that text is optional; it may be deleted or it may stand. Similarly, text enclosed within multiple sets of square brackets within the same paragraph indicates that more than one option is available; the unwanted option(s) must be deleted. Blank spaces enclosed by square brackets indicate that project specific or other optional text must be inserted at that location. Ensure that all square brackets are deleted in the editing process so that none appear in the final *Project Specification*.

All master specification text, whether or not enclosed in square brackets, can and should be edited to suit project specific requirements.

3.4 Paragraph and Page Numbering

Paragraphs and pages are numbered automatically within the word processing application. Nevertheless, check to ensure that proper sequential numbering has been maintained at each paragraph indent level following editing.

3.5 Other Editing Considerations

As part of the editing process, the header information in each master specification section should be edited to remove the edition date of the section and the “CCDC Master Specification” reference. Project specific identifiers should be substituted.

When adding new text in editing, use consistent terminology, including use of CCDC defined terms and ensure consistent capitalization. Follow good specification writing practices for all new text, including proper spelling and grammar (use the simple imperative mood). Maintain the “End of Section” convention to indicate the point where each section ends.

The Division 01 master specification contains some subject matter that is closely related to subject matter that is typically addressed in the Conditions of Contract in Division 00. The Division 01 master specification text has been carefully coordinated with the CCDC Conditions of Contract in this regard. Exercise caution when editing Division 01 sections to avoid creating duplication or conflict with the General Conditions in Division 00.
Division 01 can and should be used to add more detailed and complementary administrative requirements related to subject matter addressed in the General Conditions.

4. DISCLAIMER AND LIMITATIONS OF USE

The *CCDC Master Specification for Division 01* requires appropriate selection and editing of Sections to suit the requirements of individual users and their projects. Users are responsible for determining its suitability for a particular *Project* and for all necessary editing to suit. Not all matters and variations necessary for the procurement of construction services for a particular *Project*, on behalf of a particular user, in a particular locale, are necessarily addressed.

CCDC and its constituent organizations make no representations or warranties with respect to the accuracy or completeness of the master specification text and specifically disclaim any implied warranties of merchantability or fitness for a particular purpose and shall not be liable for any loss of profit or any incidental, consequential or other damages arising from its use.

DIVISION 01 – GENERAL REQUIREMENTS

Section Number	Section Title
01 11 00	Summary of Work
01 11 20	Contract Assignment
01 11 22	Assignable Contracts
01 14 00	Work Restrictions
01 21 00	Allowances
01 25 00	Substitution Procedures
01 26 00	Contract Modification Procedures
01 29 00	Payment Procedures
01 31 19	Project Meetings
01 32 00	Construction Progress Documentation
01 33 00	Submittal Procedures
01 35 00	Special Procedures
01 40 00	Quality Requirements
01 51 00	Temporary Utilities
01 52 00	Construction Facilities
01 56 00	Temporary Barriers and Enclosures
01 57 00	Temporary Controls
01 61 00	Common Product Requirements
01 71 00	Examination and Preparation
01 73 00	Execution
01 73 29	Cutting and Patching
01 74 00	Cleaning and Waste Management
01 77 00	Closeout Procedures
01 78 00	Closeout Submittals
01 79 00	Demonstration and Training
01 91 13	General Commissioning Requirements
01 91 26	Integrated System Testing

END OF SECTION

SPEC NOTE: This Section includes identification of the work of this Contract, work by others and work by the Owner that affects this Contract, Owner-supplied Products, as well as various other miscellaneous requirements not addressed elsewhere in the Contract Documents.

SPEC NOTE: As with all Division 01 Sections, ensure this Section is coordinated with the technical Specifications, Drawings, and the applicable General Conditions of Contract. This Section assumes use of a CCDC standard form contract and in particular CCDC 2 – 2020. If using a different CCDC contract or a non-CCDC contract, some of the provisions in this Section may be included in the General Conditions of Contract, in which case they should be deleted from this Section. Exercise caution when editing this Section to ensure that provisions of the General Conditions are not duplicated here unnecessarily and that no conflicts are created with the General Conditions.

1. DEFINITIONS AND WORK OF THE PROJECT

SPEC NOTE: Use this article when the Project involves multiple construction contracts. If work of this Contract must accommodate other future work, ensure that requirements such a structural provisions, utilities, areas of site to be kept clear, site preparation, etc. are addressed in the Drawings and Specifications.

1.1 Capitalized terms used in this Division 01 will have the meanings given to them in the General Conditions of Contract, and:

1.1.1 "**Authority Having Jurisdiction**" or "**AHJ**" means the government body responsible for the enforcement of any part of the Laws, standards or the official or agency designated by that body to exercise that function.

1.2 Work of the Project, of which Work of this Contract is a part, comprises the following:

1.2.1 Name: [ ]

1.2.2 Duration: [ ] weeks/months

1.3 Work of the Project includes the following separate contracts that have been or will be performed by others:

Contract No	Nature of works	Awarded to	Status of works
			Already complete
			Scheduled to be completed during the work of this Contract
			Comprises the Work of this Contract
			Has not been awarded

2. WORK OF THIS CONTRACT

SPEC NOTE: Use the following paragraphs to identify the Project name and location, including municipal address and Owner provided legal description if required. This paragraph is not intended to be a "scope of work".

2.1 Work of this Contract comprises the following:

[ ]

2.2 Municipal Address: [ ]

2.3 Legal Description: [ ]

3. SCHEDULE OF VALUES

3.1 The Contractor shall ensure that schedule of values submitted pursuant to GC 5.2.4 and 5.2.5

3.1.1 submitted in electronic format in the form of both [.pdf] and [.xls] files

3.1.2 the contents of the schedule shall include

3.1.2.1 Current MasterFormat divisional breakdown of the Works

3.1.2.1.1 Division 1 – General Requirements shall exclude the Contractor's Fee

3.1.2.2 Cash Allowances

3.1.2.3 Contractor's Fee

4. OUTLINE CONSTRUCTION PHASE HEALTH AND SAFETY PLAN

4.1 Submit the following information prior to the construction start off meeting:

4.1.1 Method statements on how risks from hazards identified in the pre-construction information and other hazards identified by the contractor will be addressed.

4.1.2 Details of the management structure and responsibilities.

4.1.3 Arrangements for issuing health and safety directions.

4.1.4 Procedures for informing other contractors and employees of health and safety hazards.

4.1.5 Selection procedures for ensuring competency of other contractors and designers for shop drawings.

4.1.6 Procedures for communications between the project team, other contractors and site operatives.

4.1.7 Arrangements for cooperation and coordination between subcontractors.

4.1.8 Procedures for carrying out risk assessment and for managing and controlling the risk.

4.1.9 Emergency procedures including those for fire prevention and escape.

4.1.10 Arrangements for ensuring that all accidents, illness and dangerous occurrences are recorded.

4.1.11 Arrangements for welfare facilities.

4.1.12 Procedures for ensuring that all persons on site have received relevant health and safety information and training.

4.1.13 Procedures for ensuring that all relevant persons on site have received the pre-requisite Infection Control training.

4.1.14 Arrangements for consulting with and taking the views of people on site.

4.1.15 Arrangements for preparing site rules and drawing them to the attention of those affected and ensuring their compliance.

4.1.16 Monitoring procedures to ensure compliance with site rules, selection and management procedures, health and safety standards and statutory requirements.

4.1.17 Review procedures to obtain feedback.

4.1.18 Obtains criminal record check including Subcontractors.

5. CONTRACT DRAWINGS

5.1 The contract drawings shall be the tender drawings updated for all tender addendums where applicable. Further drawings and documents may be added as deemed necessary by and at the discretion of the Owner.

6. OTHER DOCUMENTS

6.1 Other documents relating to the Contract but not included in the tender documents may be seen by appointment during normal office hours at the office of [ ]

6.2 The documents available for inspection include:

6.2.1 [Health and Safety File(s)]

6.2.2 [Existing mains and services drawings]

6.2.3 [Soils and ground water report]

6.2.3.1 [TheOwner does not warrant or accept any liability whatsoever for the accuracy of the reports. Notwithstanding this the Contractor must, before entering into a contract with the Owner, make or carry out all such enquiries and investigations as he deems necessary to check the accuracy of these reports]

6.2.4 [Site investigation report]

6.2.5 [Hazardous material report]

6.2.6 [Archaeology report]

7. DIVISION OF WORK

7.1 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.

7.2 Contractor shall provide a list with the details of all Subcontractors 'personnel and the sections or Divisions of the Work for which they will be responsible.

7.3 The list shall be provided prior to the construction start off meeting.

8. SPECIFICATIONS LANGUAGE AND STYLE

8.1 These specifications are written in the imperative mood and in streamlined form. The imperative language is directed to Contractor, unless stated otherwise.

8.2 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.

8.3 Fulfill and perform all indicated requirements whether stated imperatively or otherwise.

8.4 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".

8.5 The following terms used in the Specification shall mean:

8.5.1	Remove	Disconnect, dismantle as necessary and take out the designated products or work and associated accessories, fixings, supports, linings and bedding materials. Dispose of unwanted materials. Excludes taking out and disposing of associated pipework, wiring, ductwork or other services.
8.5.2	Fix	Unload, handle, store, place and fasten in position including all labours and use of site equipment.

8.5.3	Supply and fix	Includes all labour and site equipment for unloading, handling, storing and execution. All products to be supplied and fixed unless stated otherwise.
8.5.4	Keep for reuse	Do not damage designated products or work. Clean off bedding and jointing materials. Stack neatly, adequately protect and store until required by the Owneror for use in the Works as instructed.
8.5.5	Make good	Match existing as stated below: execute local remedial work to designated work, make secure, sound and neat, excludes redecoration and/ or replacement.
8.5.6	Replace	Supply and fix new products matching those removed. Execute work to match original new state of that removed.
8.5.7	Repair	Execute remedial work to designated products. Make secure, sound and neat. Excludes redecoration and/ or replacement.
8.5.8	Refix	Fix removed products.
8.5.9	Ease	Adjust moving parts of designated products or work to achieve free movement and good fit in open and closed positions.
8.5.10	Match existing	Provide products and work of the same appearance and features as the original, excluding ageing and weathering. Make joints between existing and new work as inconspicuous as possible.
8.5.11	System	Equipment, accessories, controls, supports and ancillary items, including installation, necessary for that section of the work to function.
8.5.12	Possession	Contractor assumes full responsibility for all aspects of the Place of Work as reflected in the drawings

8.5.13 Possession of Place of the Work: The date upon which the Contractor will assume full responsibility for the Place of the Work from all safety, security and insurances perspectives and begin construction of the Work or Section and will regularly and diligently proceed with and complete the same on or before the Ready-for-Takeover Date.

9. CONTRACT DOCUMENTS FOR CONSTRUCTION PURPOSES

9.1 Owner 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.

9.2 [Owner will also provide Contractor with three (3) hard copy sets of Contract Documents for construction purposes. Additional hard copy sets shall be at Contractor's expense for the cost of printing, handling and shipping.]

9.3 The Contractor shall not rely on scaled dimensions for the purposes of installation and manufacturing

10. DATE FOR POSSESSION OF PLACE OF THE WORK

10.1 The date for possession of Place of the Work is [ ]

11. DATE FOR POSSESSION OF PLACE OF THE WORK

11.1 Date for possession of sections:

11.1.1 Section: _____ : Date: _____ .

11.1.2 Section: _____ : Date: _____ .

11.1.3 Section: _____ : Date: _____ .

12. DEFERMENT OF POSSESSION OF PLACE OF THE WORK

12.1 The maximum period of deferment is [ ] weeks

13. DEFERMENT OF POSSESSION OF PLACE OF THE WORK

13.1 Date for possession of sections:

13.1.1 Section: _____ : maximum period is [ ] weeks.

13.1.2 Section: _____ : maximum period is [ ] weeks.

13.1.3 Section: _____ : maximum period is [ ] weeks.

14. REQUEST FOR INSPECTION

14.1 The Contractor shall provide a minimum of [10] working days notice to the [Owner][and][Consultant] of the anticipated dates of inspection on whole or parts of the Work

15.

16. DOCUMENTS AT THE SITE

16.1 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] [or] [electronic] form:

16.1.1 Current Contract Documents, including list of contract Drawings, Specifications and addenda.

16.1.2 Change Orders, Change Directives, and Supplementary Instruction.

16.1.3 Reviewed Shop Drawings, Product data and samples.

16.1.4 Field test reports and records.

16.1.5 Construction progress schedule.

16.1.6 Meeting minutes.

16.1.7 Manufacturer's current literature and certifications for all products to be used in the Works.

16.1.8 Permits, inspection certificates, and other documents required by Authorities Having Jurisdiction.

16.1.9 Current as-built drawings.

16.1.10 Material Safety Data Sheets (MSDS) for all controlled Products.

16.1.11 Waste transfer documentation

16.1.12 [Daily register of security clearance status for all construction personnel accessing the site].

16.1.13 Criminal record check

16.1.14 Daily log

16.1.15 Climate record

17. CONTRACTOR'S USE OF PREMISES

SPEC NOTE: If necessary, use Section 00 14 00 – Work Restrictions to specify details of additional restrictions on the Contractor's use of the premises.

17.1 Do not use Place of the Work for any purpose other than carrying out the Work. In the event of change, review and approve alternate routes, access routes cross reference to the application drawings

17.2 Except as otherwise specified in the above Section 11, the Contractor has unrestricted use of Place of the Work from time of Contract award until Ready-for-Takeover.

17.3 Details of Contractor's proposed site facilities location and any areas designated for the storage of building materials must be submitted to and approved in writing by the [Owner] [Consultant] before works commence. [Contractor's site organization staff must include one or more persons with appropriate knowledge and experience of mechanical and electrical engineering services to ensure compatibility between engineering and the Works generally]. Submit resumes or other documentary evidence relating to the staff concerned when requested.

17.4 Confine Construction Equipment, Temporary Work, storage of Products, waste products and debris, and all 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.

17.5 The Contractor shall provide the appropriate level of security for the Place of the Work at all times, having regard to the location and local conditions of the Place of the Work (including potential for criminal activity, weather, access points and the like)..

18. MANAGEMENT OF THE WORKS

18.1 The Contractor accepts responsibility for coordination, supervision and administration of the Works, including subcontracts.

18.2 In addition to the constant management and supervision of the Work provided by the Contractor's person in charge, all significant types of work must be under the close control of competent trade supervisors to ensure maintenance of satisfactory quality and progress. Provide maximum possible notice before changing either the person in charge or any trade supervisor.

18.3 Coordination shall mean arrange, obtain and monitor a schedule with each subcontractor, supplier, owner's FMO group, local authority and any Authority Having Jurisdiction and supply information as necessary for coordination of the work, including any required breaking into or connecting to existing services

18.4 The Contractor's person in charge, as formally identified at the start of construction, shall be responsible for and attend the Place of Work at all times when workers are within the Place of Work for purposes of supervision and to ensure all activities, as outlined in 01 11 00 Clause 5, are complied with. In the event that the identified person in charge is unable to fulfil these responsibilities then the Contractor shall immediately notify and request approval from the Health Authority representative to change the person in charge which approval shall not be unduly withheld.

19. DAILY LOG

19.1 Keep a site daily log on a day-to-day basis which shall record all persons entering the site, the purpose of their visit and, in the case of work people, the work they were engaged upon with the number of hours spent on various operations shown separately and confirmation of criminal records check

20. CLIMATIC CONDITIONS

20.1 Take accurate records and retain on site of

20.1.1 daily maximum and minimum air temperatures (including overnight)

20.1.2 delays due to adverse weather, including description of the weather, types of work affected and number of hours lost

21. OWNER-SUPPLIED PRODUCTS

SPEC NOTE: Where applicable, include the Product specifications, the Owner's purchase agreement, or both, in the Bid Documents as information (see Section 00 31 00 – Available Project Information). Where applicable, include appropriate technical specifications for Owner-supplied Products to specify, as required, Shop Drawing review by Contractor, storage and handling, warranties, assembly on site, installation requirements, and all other provisions for which the Contractor is to be responsible, as fully as for any Contractor supplied Product. Use the following paragraphs to delineate basic responsibilities between Owner and Contractor that are applicable to all Owner- supplied Products.

SPEC NOTE: Use this article if the Owner will assume responsibility to supply Products to the Contractor for installation by the Contractor and there is no assignment of the Owner's purchase agreement to the Contractor. The Owner will procure, pay for, and arrange delivery of the Owner- supplied Products. The Products may also come from the existing facility in the case of a renovation, or from the Owner's storage elsewhere.

21.1 Owner Responsibilities:

21.1.1 Order and pay for Owner-supplied Products not already in Owner's possession.

21.1.2 Arrange and pay for delivery of Owner-supplied Products Free on Board (FOB) the site, within time frames required by Contractor's progress schedule. If delivered sooner than required by Contractor's latest progress schedule submitted to Owner, arrange and pay for delivery to a temporary storage location and subsequent delivery to the site.

21.1.3 Advise Contractor in writing of the value of Owner-supplied Products for Contractor's insurance purposes.

21.1.4 Arrange and pay for delivery to Contractor of reviewed Shop Drawings, Product data, samples, [and] manufacturer's installation instructions [, and].

21.1.5 Inspect deliveries jointly with Contractor.

21.1.6 Submit claims for transportation damage.

21.1.7 Arrange for replacement of damaged, defective or missing items identified at time of delivery.

21.1.8 Arrange for manufacturer's field services.

21.1.9 Arrange for delivery of manufacturer's warranties to Contractor for inclusion in operation and maintenance manual.

21.2 Contractor Responsibilities:

21.2.1 Designate in progress schedule, time frames for delivery of Owner-supplied Products to the site

and for receipt of related submittals. If the site is not ready to receive delivery of Owner-supplied Products within the time frame indicated in the latest progress schedule submitted to Owner, arrange and pay for delivery to a temporary storage location and subsequent delivery to the site.

21.2.2 Review all required submittals and notify Consultant of any observed discrepancies or anticipated problems.

21.2.3 Ensure that course of construction insurance is adequate to cover Owner-supplied Products.

21.2.4 Receive and unload Owner-supplied Products at the [site] or [another location ie loading bay].

21.2.5 Inspect deliveries jointly with Owner. Record and notify Owner and Consultant of shortages and visibly damaged or defective materials.

21.2.6 Handle Owner-supplied Products at site, including uncrating and storage. Dispose of waste materials and debris.

21.2.7 Take appropriate precautions to protect Owner-supplied Products from loss or damage.

21.2.8 Repair or replace items damaged on site.

21.2.9 Assemble, install, connect, adjust, and finish Owner-supplied Products as specified.

21.2.10 Arrange for inspections required by Authorities Having Jurisdiction as specified.

21.2.11 Arrange for or perform testing as specified.

21.2.12 Workmanship warranty for installation.

21.3 Schedule of Owner-supplied Products:

SPEC NOTE: Provide a description of all Owner-supplied Products here. If the value of Owner-supplied Products is known, specify values here also, thus fulfilling the Owner's obligations under 1.9.1.3 above.

21.3.1 [ ].

21.3.2 [ ].

21.3.3 [ ].

END OF SECTION

SPEC NOTE: Include this Section ONLY in a contract that the Owner intends to subsequently assign to another contractor. For example, if an elevator contract is pre-bid several months before bids are called for the general (or prime) contract, and the elevator contract is subsequently to be assigned to the general (or prime) contractor when the general contractor is known, include this Section in the Bid Documents for the elevator contract only.

SPEC NOTE: This Section assumes use of a CCDC standard form of contract containing an assignment General Condition that permits the Owner to assign this Contract with the Contractor's written consent.

SPEC NOTE: Include Section 01 11 22 – Assignable Contracts in the contract that will receive the assignment of this Contract, for example, in the prime contract that will receive the assignment of the elevator contract.

SPEC NOTE: An assignment agreement signed by all three parties, that is by this Contractor, by the Contractor receiving the assignment of this Contract, and by the Owner, will be required to make the assignment legally effective. The assignment agreement will also provide the Contractor's "written consent" to the assignment that is required by the General Conditions for this Contract. The Owner should obtain legal advice in drafting the assignment agreement, an unsigned copy of which should be included in the both contracts, that is in this Contract to be assigned and in the contract that will receive the assignment. The assignment agreement is not provided as part of the CCDC Master Specification but it should be included in Division 00 as Section 00 73 26 – Assignment Agreement, in both contracts.

1.1 SUMMARY OF CONTRACTUAL RELATIONSHIPS

1.1.1 This Section specifies administrative provisions related to the exercise of Owner's right to assign the Contract to another contractor ("prime contractor").

1.1.2 Upon award of the Contract, Contractor shall execute an agreement with Owner for performance of the Contract.

1.1.3 [At a later date, Owner will enter into] [Owner has entered into] an agreement with prime contractor for performance of prime contract, the terms of which provide for the assignment of the Contract to prime contractor.

1.1.4 Owner intends to exercise its right under the Contract to assign the Contract to prime contractor, with Contractor's written consent by means of an assignment agreement in the form provided in Section 00 73 26 – Assignment Agreement.

1.1.5 Upon assignment of the Contract, Contractor shall become a subcontractor to prime contractor as set out in the assignment agreement.

1.2 PRIME CONTRACT AND PRIME CONTRACTOR

1.2.1 Name of Prime Contract: [ ]

1.2.2 Name of Prime Contractor: [to be determined upon award of the prime contract]

1.3 ASSIGNMENT OF CONTRACT

1.3.1 Project schedule calls for the prime contract to be awarded by [date]. Schedule is subject to change.

1.3.2 Contractor will be named as a "designated Subcontractor" and the Contract will be called an "assignable contract" in the contract documents for the prime contract.

1.3.3 The cost of the Contract will be included in the prime contract under a cash allowance. Prime contractor will, by the terms of the contract documents for the prime contract, be required to

accept an assignment of, and assume complete responsibility for, the Contract.

1.3.4 As soon after award of the prime contract as Owner considers practicable, Owner will assign the Contract to the prime contractor.

1.3.5 The assignment will be made legally effective by means of an assignment agreement, to be signed by prime contractor, Contractor, and Owner.

1.3.6 Owner will give Contractor at least [number][in words] Working Days' notice in advance of the effective date of the assignment.

1.3.7 Upon assignment, all monies payable to Contractor as of the date of the assignment and all other Owner's obligations under the Contract shall become obligations of prime contractor, subject to the terms of the assignment agreement.

1.3.8 [Ready-for-Takeover] of the Contract, if not attained before the assignment, will be delayed so as to be attained concurrently with the date of [Ready-for-Takeover] of the prime contract. Time of release of holdback for the Work of the Contract, commencement of warranty for the Work of the Contract, and other conditions of the Contract may therefore be affected and determined by the construction schedule for the prime contract, subject to the terms of the assignment agreement.

END OF SECTION

SPEC NOTE: Include this Section ONLY if this Contract will receive one or more contracts to be assigned to the Contractor for this Contract. For example, if an elevator contract is pre-bid several months before bids are called for the general (or prime) contract, and the elevator contract is subsequently to be assigned to the general (or prime) contractor when that contractor is known, include this Section in the Bid Documents for prime contract only.

SPEC NOTE: This Section assumes that Section 01 11 20 – Contract Assignment was included in the contract(s) that will be assigned to this Contract. For example, Section 01 11 20 should have been included in the Bid Documents for the elevator contract that is to be assigned to the Contractor for this Contract.

1. SUMMARY OF CONTRACTUAL RELATIONSHIPS

1.1 This Section specifies administrative provisions related to Owner's assignment of one or more other contracts (the "assignable contract(s)") to the Contract.

SPEC NOTE: An assignment agreement signed by all three parties that is by this Contractor who is receiving the assignment, by the contractor whose contract is being assigned, and by the Owner, will be required to make the assignment legally effective. The assignment agreement will also confirm this Contractor's written consent to the assignment. The Owner should obtain legal advice in drafting the assignment agreement, an unsigned copy of which should be included in the both contracts, that is in the contract to be assigned and in this Contract that will receive the assignment. The assignment agreement is not provided as part of the CCDC Master Specification but it should be included in Division 00 as Section 00 73 26 – Assignment Agreement, in both contracts.

1.2 Owner has entered into one or more assignable contracts with one or more other entities ("designated subcontractors or suppliers") for performance of Work or supply of Products for the Project.

1.3 Owner intends to exercise its right under each assignable contract to assign such contract to Contractor by means of an assignment agreement in the form provided in Section 00 73 26 – Assignment Agreement.

1.4 Upon the assignment of each assignable contract, each designated subcontractor or supplier shall become a Subcontractor or Supplier to Contractor as set out in the assignment agreement.

2. ASSIGNABLE CONTRACTS AND DESIGNATED SUBCONTRACTORS/SUPPLIERS

SPEC NOTE: Identify in the following paragraphs the contract, the designated subcontractor or supplier, and the contact information for each contract that will be assigned to the Contractor.

2.1 Assignable contract : [name] with contract no. [ ]

2.1.1 Designated Subcontractor/Supplier:
Subcontractor/supplier Name: [name]
Address details: [address 1]
[address 2]

2.1.2 Contact details
Contact name: [ ]
Telephone No.: [ ]
Email address: [ ]

2.2 Assignable contract : [name] with contract no. [ ]

2.2.1 Designated Subcontractor/Supplier:
Subcontractor/supplier Name: [name]

	Address details:	[address 1] [address 2]
2.2.2	Contact details	
	Contact name:	[ ]
	Telephone No.:	[ ]
	Email address:	[ ]

3. ASSIGNMENT

3.1 As soon after award of the Contract as Owner considers practicable, Owner will assign each assignable contract to Contractor.

3.2 Each assignment will be made legally effective by means of an assignment agreement, to be signed by Contractor, the designated subcontractor or supplier, and Owner.

3.3 Owner will give Contractor at least [5] [ ] Working Days' notice in advance of the effective date of the assignment.

3.4 Upon assignment, all monies payable to the assigned Subcontractor or Supplier as of the date of the assignment, and all other Owner's obligations under the assignable contract, shall become obligations of Contractor, subject to the terms of the assignment agreement.

4. CONTRACT DOCUMENTS

SPEC NOTE: Ensure that the contract documents for each assignable contract are disclosed to the Bidders for this Contract, by including them as available project information in Division 00.

4.1 Contract documents for each assignable contract are provided as information under the Contract. Refer to Section 00 31 00 – Available Project Information.

4.2 Upon assignment, the contract documents for each assignable contract shall become Contract Documents under the Contract.

5. CONTRACT TIME AND SCHEDULING

5.1 Refer to the contract documents for each assignable contract for contract time provisions for each assignable contract.

5.2 Coordinate scheduling with each designated subcontractor or supplier and incorporate each assignable contract into the construction schedule for the Contract, so as to achieve [Ready-for-Takeover], including the work of each assignable contract, within the Contract Time for the Contract.

6. CONTRACT PRICE AND COSTS

SPEC NOTE: Ensure that Section 01 21 00 – Allowances includes a cash allowance for each assignable contract, in the amount anticipated to be payable by the Contractor after the effective date of the assignment to the designated subcontractor or supplier.

6.1 Include the cost of each assignable contract as a cash allowance in the Contract Price for the Contract, as specified in Section 01 21 00 - Allowances.

END OF SECTION

SPEC NOTE: Use this Section, where applicable, to specify restrictions that will affect the Contractor's construction operations and use of the premises, including required work sequencing, restrictions resulting from full or partial occupancy of the premises by the Owner, Owner/Contractor responsibilities after partial Owner occupancy, restricted hours of work, noisy work restrictions, maintaining life safety systems, and similar such requirements. Where applicable, add additional articles to address other Owner and Project specific restrictions on the Contractor's work force at the work site, such as restrictions related to smoking, eating, dress, loud music, etc.

SPEC NOTE: Exercise caution when editing this Section to ensure that no conflicts are created with the General Conditions of Contract.

SPEC NOTE: Elaborate on specified requirements and show on Drawings extent of limits on use of premises in as much detail as may be required.

1. RESTRICTIONS ON USE OF PREMISES

1.1 Limit use of premises [for Work,] [for storage,] [and] [for access,] to allow;

1.1.1 Owner occupancy.

1.1.2 Partial Owner occupancy.

1.1.3 Work by other contractors.

1.1.4 Public usage.

1.1.5 [ ].

1.2 Coordinate use of premises under direction of [Owner] [Consultant].

2. ADJACENT BUILDING USES

2.1 The following adjacent or nearby uses or activities have been identified:

2.1.1 [ ]

2.1.2 [ ]

3. WORK SEQUENCE

3.1 The Contractor shall ensure that he is fully aware of and makes full allowance for the sequences and methods, etc., it is necessary to adopt for carrying out works of this scope, type and nature and in this location and within the timescales required, as no subsequent claim on the grounds of insufficient knowledge will be entertained. The Consultantis available for full discussions in this respect.

SPEC NOTE: Consider the following paragraphs when a specific sequence is required for the Work of this Contract. Edit as appropriate.

3.2 Schedule and construct Work in stages to accommodate Owner's [continued] [intermittent] use of premises during construction.

SPEC NOTE: Use the following paragraph only for work to which the public has access. Edit as appropriate.

3.3 Schedule and construct Work in stages to provide for continuous public usage. Do not close off public usage of facilities until use of one stage of Work will provide alternate usage.

3.4 Required stages:

3.4.1 [Refer to staging diagrams].

3.4.2 [ ].

SPEC NOTE: Select one of the following paragraphs as applicable.

4. OWNER OCCUPANCY

4.1 Owner will occupy premises during entire construction period.

4.2 Cooperate with Owner in scheduling operations to minimize disruptions and to facilitate Owner usage.

[OR]

5. PARTIAL OWNER OCCUPANCY

5.1 Schedule designated portions of Work for Owner's use prior to [Ready-for-Takeover] [Substantial Performance of the Work].

SPEC NOTE: List designated areas and any mandatory completions dates. Coordinate with designations on Drawings.

5.1.1 Designated Areas:

5.1.1.1 [ ], completed by [ ].

5.1.1.2 [ ], completed by [ ].

5.1.1.3 [ ], completed by [ ].

5.2 Owner will occupy designated areas for purpose of [storage of furnishings and equipment] [installation of equipment] [ ].

SPEC NOTE: Consider who will be responsible upon partial Owner occupancy for operation and maintenance of HVAC, electrical, and other systems, fire protection, utilities, security, insurance, work site safety, and other such matters.

5.3 Upon occupancy of designated areas, Owner will provide or be responsible for:

5.3.1 [ ].

5.3.2 [ ].

5.3.3 [ ].

5.3.4 [ ].

5.4 Upon occupancy of designated areas, Contractor will provide or be responsible for:

5.4.1 [ ].

5.4.2 [ ].

5.4.3 [ ].

5.4.4 [ ].

6. RESTRICTED HOURS OF WORK IN OCCUPIED FACILITIES

SPEC NOTE: Edit as required to suit Owner and Project specific requirements.

6.1 Work may not be performed [after] [during] Owner’s normal business hours which are [Monday to Friday]

[ ] from [8:00] [ ] to [05:00] [ ].

6.2 Request permission from the [Owner] [Consultant] by submitting details of dates, times, types and locations of work to be done at least [3] days prior to commencing this work. Do not commence work until permission has been granted.

6.3 Allow for hours of work restrictions in construction progress schedule.

7. EXPLOSIVES

7.1 The use of explosives is not permitted

8. NOISE CONSENT

8.1 Consent granted by the authority having jurisdiction relating to the Works may be implemented providing the following conditions are met:

8.1.1 The request for consent is endorsed by the Owner prior to submission to the authority having jurisdiction.

8.1.2 The provisions outlined in the Contract Documents shall remain in full force and effect and, in the event of a conflicting provisions, the Contract shall prevail.

8.1.3 [ ]

9. NOISE AND VIBRATION WORK RESTRICTIONS IN OCCUPIED FACILITIES

9.1 Schedule excessively noisy work to avoid disturbance to building occupants by performing excessive noise generating work outside of Owner's business hours.

9.2 Contractor is responsible for installation of vibration monitors to verify compliance with minimum vibration threshold

9.3 Noise levels from the shall not exceed [ ]dB(A) when measured from [ ]

9.4 Fit compressors, percussion tools and vehicles with effective silencers of a type recommended by manufacturers of the compressors, tools or vehicles.

9.5 Do not use

9.5.1 Pneumatic drills and other noisy appliances without the Owners consent during the hours of [ ] and [ ]

9.5.2 Radios or other audio equipment or permit employees to use in ways or at times that may cause nuisance

9.5.3 Use of power actuated devices.

10. PESTICIDES

10.1 The use of pesticides is not permitted

11. NUISANCE

11.1 The Contractor shall prevent nuisance from smoke, waste, vermin and other causes.

11.2 The Contractor shall prevent hazardous build-up of surface water on site, in excavations and to surrounding areas and roads.

12. ASBESTOS CONTAINING MATERIALS

12.1 The Contractor shall immediately report any suspected materials discovered during execution of the Works that are not reflected in the [ ] Report included in the tender documents.

12.2 The Contractor shall not disturb the suspected materials discovered pursuant to Section 12.1

12.3 The Contractor must comply with methods for safe removal or encapsulation of the materials as directed by hazmat consultant.

13. SMOKING/VAPING ON AND ADJACENT TO THE PREMISES

13.1 In accordance with the Owner's Smoke-Free Policy, smoking/vaping on Owner's premises is not permitted.

13.2 Smoking/Vaping is not permitted within one (1) residential/commercial block of Owner's premises unless on/in a Local Authority designated smoking area (where applicable)

14. BURNING ON SITE

14.1 The burning of any materials on site is not permitted without Owner's advance consent.

15. FIRE PREVENTION

15.1 The Contractor shall prevent personal injury or death, and damage to the Works or other property from fire.

16. MOISTURE

16.1 The Contractor shall prevent water/sewer ingress or wetness/dampness where this may cause damage to the Works and/or adjacent premises.

16.2 In the event of moisture occurring, the Contractor shall immediately dry out the Works by controlling humidity through the application of heat to prevent:

16.2.1 Blistering and failure of adhesion

16.2.2 Damage due to trapped mould inducing moisture

16.2.3 Excessive movement

17. INFECTED MATERIALS

17.1 The Contractor shall, where instructed, remove materials affected by fungal/insect attack from the Works in order to minimize the risk of infecting other parts of the Works and adjacent premises.

18. ELECTROMAGNETIC INTERFERENCE

18.1 The Contractor shall follow the shutdown protocol and prevent excessive electromagnetic disturbance to apparatus and medical equipment outside the site.

19. LASER EQUIPMENT

19.1 The Contract shall install, use and store construction laser equipment in accordance with the relevant regulations and the manufacturer's instructions.

19.2 The contractor shall ensure that any laser beam is not set at eye level and is terminated at the end of its useful path

19.3 The Contract shall not use laser equipment without the Consultant's approval and subject to the submission of an acceptable method statement on its safe use

20. MAINTAINING LIFE SAFETY SYSTEMS IN OCCUPIED FACILITIES

20.1 The Contractor shall maintain operational life safety systems and public access to exits in occupied areas during all stages of the Work.

20.2 The Contractor shall determine nature and exact locations of existing fire and smoke sensors prior to the commencement of the Work. Avoid direct or indirect jarring while working in adjacent areas and exercise caution to avoid triggering these devices.

20.3 The Contractor shall 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.

SPEC NOTE: For occupied facilities, add additional articles as required to address maintaining building services, site or building access restrictions including security screening, parking restrictions, use of existing elevators and washrooms, and other Project specific restrictions. Coordinate with other Sections addressing temporary facilities, access roads, parking areas, traffic regulations, etc.

21. EXISTING BUILDING SERVICES

21.1 Details of existing services (which may include gas, water, steam, electricity, telecommunications, drains (foul and surface water), ducts, tubes, tunnels and the like) shown on drawings included in the contract documentation are indicative and are provided for information purposes only.

21.2 The Contractor shall, before starting work, check and mark positions of all existing services.

21.3 Obtain relevant details from service authorities, statutory undertakers or other owners. In the event relevant details are not available undertake a scan of the area using a method that provides the relevant information to ensure safe working conditions.

21.4 Identify existing services using markers and signboards that provide relevant information regarding type, width/depth or headroom.

21.5 Work adjacent to existing services shall be undertaken in compliance with service authority/statutory undertaker's recommendations by adequately protecting and preventing damage to the services.

21.6 The Contractor shall not tamper or interfere with the operation of any existing services.

21.7 If damage results from execution of the Work then the Contractor shall:

21.7.1 Notify the Owner and appropriate statutory authority or other owner

21.7.2 Make arrangements for the damage to be remedied without delay to the satisfaction of the statutory authority or other owner

21.8 Replace marker tapes or protective covers, if disturbed during execution of the Works, to the service authority's/statutory authority's recommendations.

21.9 [No material, tool and equipment shall be transported through corridors] or [Material, tool and equipment shall be transported through designated areas]

END OF SECTION

SPEC NOTE: Use this Section to specify cash allowances and contingency allowances. Both are sums of money that the Contractor is required to carry in the Contract Price, but when specified under a CCDC standard form contract, there are significant differences between them:

- A cash allowance is for something known to definitely be required but which cannot be specified with adequate detail to permit accurate pricing by the Contractor at the time of the bid call, or which otherwise needs to be deferred. However the cost of the item can be estimated and specified as a cash allowance amount in the contract. When more information subsequently becomes available to permit the item to be more accurately priced, the Owner approves expenditure of the cash allowance. A cash allowance excludes any amounts for the Contractor's overhead and profit related to the item. The Contractor must carry the overhead and profit separately in the Contract Price.

SPEC NOTE: This Section assumes use of a CCDC standard form contract and unmodified Part 4 Allowances. Part 4 Allowances includes important provisions related to the administration of cash allowances and contingency allowances. This Section provides additional details and requirements related to allowances that are specific to the Project and to facilitate administration of this Contract. Exercise caution when editing this Section to ensure that provisions of the General Conditions of Contract are not duplicated here unnecessarily and that no conflicts are created with the General Conditions of Contract.

1. CASH ALLOWANCES FOR SUPPLY ONLY OF PRODUCTS

1.1 Amount of each cash allowance includes:

1.1.1 Cost of Products as invoiced by the Supplier, including delivery and applicable taxes but excluding Value Added Taxes.

1.2 Amount of each cash allowance does not include costs of the following items, which costs shall be included in the Contract Price and not in the cash allowance:

1.2.1 Unloading, handling and storage on site.

SPEC NOTE: Use this article to specify cash allowances where the allowance amount includes the cost of supply and delivery of the Product only, as invoiced by the Supplier. Installation and other related costs, including overhead and profit for the cash allowance, are included separately in the Contract Price.

1.2.2 Installation and all other related costs.

1.2.3 Overheads and profits related to the cash allowance.

SPEC NOTE: Specify the amount of the cash allowance and describe what it is intended to be used for. Reference the technical Specification Section in which the installation of the Product and other related requirements are specified (the cost of which is NOT included in the allowance amount).
Ensure that the technical Specification Section includes a reference back to this Section for the amount of the cash allowance. Do not specify the amount of the cash allowance more than once in more than one location. If more than one cash allowance for supply only of Products is required, repeat the following as necessary.

1.3 Allow the stipulated sum of $[ ] for the supply of:

1.3.1 [ ].

1.3.2 Refer to Section [ ] – [ ] for installation and other related requirements.

2. CASH ALLOWANCES FOR SUPPLY AND INSTALLATION OF PRODUCTS

SPEC NOTE: Use this article to specify cash allowances where the allowance amount includes the cost of the supply and delivery of the Product, its installation, and other related costs. The Contractor's overhead and profit for the cash allowance is included separately in the Contract Price.

2.1 Amount of each cash allowance includes:

2.1.1 All costs to provide the specified Products, including supply, installation, and related costs, excluding Value Added Taxes.

2.1.2 Subcontractor's and sub-Subcontractor's overheads and profits related to the cash allowance.

2.2 Amount of each cash allowance does not include Contractor's overhead and profit, and other related costs, which shall be included in the Contract Price and not in the cash allowance.

SPEC NOTE: Specify the amount of the cash allowance and describe what it is intended to be used for. Do not specify the amount of the cash allowance more than once in more than one location. If more than one cash allowance for supply and installation of Products is required, repeat the following as necessary.

2.3 Allow the stipulated sum of $[ ] for the supply and installation of [ ].

2.4 When actual value exceeds Cash Allowance value, Subcontractor and Sub-Subcontractor's overhead and profit shall be the allowable % stipulated in the Supplementary Conditions to CCDC 2 2020 GC 6.1.3.1.

3. CASH ALLOWANCES FOR SERVICES

SPEC NOTE: Use this article to specify cash allowances where the allowance amount includes the cost of services only, for example, inspection and testing services to be paid for by the Contractor. The Contractor's overhead and profit for the cash allowance is included separately in the Contract Price.

3.1 Amount of each cash allowance includes:

3.1.1 All costs related to the services, excluding Value Added Taxes.

3.1.2 Subcontractor's and sub-Subcontractor's overheads and profits related to the cash allowance.

3.2 Amount of each cash allowance does not include Contractor's overhead and profit, and other related costs, which shall be included in the Contract Price and not in the cash allowance.

SPEC NOTE: Specify the amount of the cash allowance and describe the services for which it is intended. Do not specify the amount of the cash allowance more than once in more than one location. If more than one cash allowance for services is required, repeat the following as necessary.

3.3 When actual value exceeds Cash Allowance value, Subcontractor and Sub-Subcontractor's overhead and profit shall be the allowable % stipulated in the Supplementary Conditions to CCDC 2 2020 GC 6.1.3.1.

3.4 Allow the stipulated sum of $[ ] for [ ] services.

4. CASH ALLOWANCES FOR ASSIGNABLE CONTRACTS

SPEC NOTE: Use this article only if one or more assignable contracts are to be assigned to this Contract, as specified in Section 01 11 22 – Assignable Contracts.

4.1 Owner has entered into assignable contracts, which will be assigned to this Contractor as specified in Section 01 11 22 – Assignable Contracts.

4.2 Amount of each cash allowance includes the amount payable by Contractor to the designated Subcontractor after assignment of the assignable contract, excluding Value Added Taxes.

4.3 Amount of each allowance does not include the Contractor's overhead and profit, and other related costs, which costs shall be included in the Contract Price and not in the cash allowance.

SPEC NOTE: Specify the amount of the cash allowance and identify the assignable contract for which it is intended. Do not specify the amount of the cash allowance more than once in more than one location. If more than one cash allowance for assignable contracts is required, repeat the following as necessary.

4.4 When actual value exceeds Cash Allowance value, Subcontractor and Sub-Subcontractor's overhead and profit shall be the allowable % stipulated in the Supplementary Conditions to CCDC 2 2020 GC 6.1.3.1.

4.5 Allow the stipulated sum of $[ ] for the assignment of [].

5. EXPENDITURE OF CASH ALLOWANCES

SPEC NOTE: If a cash allowance for assignable contracts is the ONLY type of allowance specified, deleted this article.

5.1 Owner, through Consultant, will provide Contractor with documentation required to permit pricing of a cash allowance item.

5.2 Owner, through Consultant, may request Contractor to identify potential Suppliers or Subcontractors, as applicable, and to obtain at least three competitive prices for each cash allowance item.

5.3 Owner, through Consultant, may request the Contractor to disclose originals of all bids, quotations, and other price related information received from potential Suppliers or Subcontractors.

5.4 Owner, through Consultant, will determine by whom and for what amount each cash allowance item will be performed. Obtain Owner's prior written approval in the form of a Change Order before entering into a subcontract, amending an existing subcontract, or performing own forces work included in a cash allowance. Upon issuance of the Change Order, the Contractor's responsibilities for a cash allowance item shall be the same as for other work of the Contract.

END OF SECTION

SPEC NOTE: Use this Section to specify procedures relevant to the submission, review and acceptance of proposed substitutions after contract award. If substitutions will also be considered during the bid period, add appropriate content to Section 00 21 13 – Instructions to Bidders regarding substitution procedures during the bid period. Applicable parts of this Section may be referenced in the Instructions to Bidders.

1. DEFINITION

In this Section "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.

2. SUBSTITUTION PROCEDURES

2.1 Substitutions to the manufacturers or vendors listed in Appendix [ ] (Acceptable Manufacturer and Vendors List) are not permitted without prior written acceptance from the Owner.

2.2 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.

2.3 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 acceptance in writing. Do not order or install any Substitution without a Supplemental Instruction or Change Order.

2.4 The Owner [and] [Consultant] will consider a proposal for substitution when the following conditions are satisfied. If the following conditions are not satisfied, the Owner [and] [Consultant] will return the proposal without action, except to record non-compliance with these requirements

2.4.1 Submission includes all of the information specified in this Section under Submission Requirements For Proposed Substitutions

2.4.2 The proposed substitution should not adversely affect the construction schedule.

2.4.3 The proposed substitution meets contractual obligations per consultant design and any coordinated components of the work, performance, building code and regulatory requirements.

2.4.4

2.4.5 The proposed substitution provides specified warranty.

2.4.6 If substitution involves more than one (1) contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

2.4.7 The proposed substitution does not affect future expansion and functional clearances.

2.4.8 If the proposed substitution requires changes to the Work, such change will not result in additional costs or extension of time.

2.4.9 If the proposed substitution requires review or redesign services associated with re-approval by the governmental authority, such change will not result in additional costs or extension of time.

2.4.10 Maintenance and service parts and labour of the proposed substitution will be locally available for proposed substitution.

2.4.11 Function appearance, and quality of proposed substitution are equivalent or superior to specified

item.

2.4.12 Manufacturer of proposed substitute product has capabilities comparable to the specified manufacturer, and

2.4.13 Provides a benefit to Owner.

2.5 If Contractor fails to order a specified Product or order a Product by a specified manufacturer in adequate time to meet Contractor's construction schedule, Owner [and] [Consultant] will not consider that a valid reason to accept a Substitution.

2.6 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 – Contract Modification Procedures.

2.7 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.

2.8 The [Owner] [Consultant] will notify the Contractor in writing of decision to approve or reject each substitution request. The [Owner] [Consultant] may, in its discretion:

2.8.1 Respond to indicate that the proposed substitution is acceptable;

2.8.2 Respond to indicate that the proposed substitution is acceptable subject to the Contractor's compliance with any conditions identified by the Owner;

2.8.3 Respond to indicate that the Owner does not consider the proposed substitution to be acceptable;

2.8.4 Respond to request clarification, further information or additional material; or

2.9 Substitution proposals will not be considered when they are indicated or implied on Submittals, without separate written request, or when acceptance will require revision to the Contract Documents. The Owner's [Consultant's] review of Substitution Proposal submittals does not constitute acceptance of substitutions.

2.10 Substitutions, if accepted by the Owner, will be undertaken by the Contractor at the Contractor's sole cost and expense.

3. SUBMISSION REQUIREMENTS FOR PROPOSED SUBSTITUTIONS

3.1 Include with each proposed Substitution the following information:

3.1.1 Identification of the Substitution, including product name and manufacturer's name, address, telephone numbers, and web site.

3.1.2 Provide a letter indicating the reason for proposing the Substitution and the expected **decrease** to the Contract Price and Project Schedule.

3.1.3 Manufacturer's Product literature for the Substitution, including product data sheets, material descriptions, drawings, compliance with applicable codes and reference standards, samples, performance and test data.

3.1.4 Investigate and document compatibility of proposed substitution with related equipment, materials and systems including environmental considerations. Engage a qualified testing agency to perform compatibility tests where documentation is not available.

3.1.5 A summarized comparison of the physical properties and performance characteristics of the specified Product and the Substitution, with any significant variations clearly highlighted.

3.1.6 Company specializing in manufacturing the proposed substitute equipment shall not have less than

three (3) years documented experience.

3.1.7 A copy of the manufacturer's warranty

3.1.8 Details of five (5) similar installations for projects completed at least 2 years prior to the date of submission where the Substitution has been used.

3.1.9 Executed Vendor/Manufacturer Sign-Off form (see Appendix [ ])

3.1.10 [If applicable, estimated life cycle cost savings resulting from the Substitution.]

3.1.11 [ ]

END OF SECTION

SPEC NOTE: Use this this Section to specify administrative procedures related to modifying the contract by means of Change Orders, Change Directives, and Supplemental Instructions, which are all defined terms in CCDC standard form contracts.

SPEC NOTE: This Section assumes use of a CCDC standard form contract and unmodified Part 6 Changes in the Work. Part 6 Changes in the Work includes important provisions regarding modifications. This Section provides additional details and requirements specific to the Project and to facilitate administration of this Contract. Exercise caution when editing this Section to ensure that provisions of the General Conditions of Contract are not duplicated here unnecessarily and that no conflicts are created with the General Conditions.

1. SCHEDULE OF LABOUR RATES

SPEC NOTE: The purpose of this requirement is to provide, at the outset of the contract, an agreed upon basis for valuing the labour component of all Change Orders, so as to eliminate the need to negotiate labour rates on each individual Change Order. It may be unnecessary for contracts where relatively few Change Orders with a labour component are anticipated. It is likely also unnecessary where a unit price or cost plus form of contract is used. Delete this article if not required.

1.1 Prior to the first application for payment, submit for the Consultant's review a schedule of labour rates for all trades and classifications of trades, such as journeymen, apprentices, and foremen that will be employed in the Work. Provide a breakdown of payroll burden component of labour rates.

1.2 Labour rates shall reflect the salaries, wages, and benefits paid to personnel in the direct employ of the Contractor, Subcontractors, and sub-Subcontractors, stated as hourly rates, that will be used when:

1.2.1 preparing price quotations for Change Orders, and

1.2.2 determining the cost of work attributable to Change Directives.

1.2.3 Labour rates stated in the schedule of labour rates shall be consistent with rates that will actually be paid, and payroll burden costs that will actually be incurred, in the normal performance of the Work, during regular working hours. Labour rates shall not include any additional overhead and profit component.

1.2.4 Where collective agreements apply, the labour rates shall not exceed those established by collective agreement.

1.2.5 Obtain the Owner's written acceptance of the schedule of labour rates before submitting the first Change Order quotation.

1.2.6 Accepted schedule of labour rates will be used solely for evaluating Change Order quotations and cost of performing work attributable to Change Directives.

1.2.7 The Contractor may request amendments to the accepted schedule of labour rates if changes in the labour rates that will actually be paid, or payroll burden cost that will actually be incurred, in the normal performance of the Work can be demonstrated. Obtain the Owner's written acceptance of such changes.

2. SCHEDULE OF EQUIPMENT RATES

SPEC NOTE: The purpose of this requirement is to provide, at the outset of the contract, an agreed upon basis for valuing the equipment cost component of all Change Orders, so as to eliminate the need to negotiate equipment rates on each individual Change Order. It may be unnecessary for contracts where relatively few Change Orders with a significant equipment cost component are anticipated. It is likely also unnecessary where a unit price or cost plus form of contract is used. Delete this article if not required.

2.1 Prior to the first application for payment, submit for the Consultant's review a schedule of equipment rates for Contractor owned Construction Equipment.

2.2 Equipment rates shall reflect the rates that will be used when:

2.2.1 preparing price quotations for Change Orders, and

2.2.2 determining the cost of work attributable to Change Directives.

2.2.3 Equipment rates stated in the schedule shall be consistent with local equipment rental market rates and shall not include any additional overhead and profit component.

2.2.4 Obtain the Owner's written acceptance of the schedule of equipment rates before submitting the first Change Order quotation.

2.2.5 Accepted schedule of equipment rates will be used solely for evaluating Change Order quotations and cost of performing work attributable to Change Directives.

2.2.6 The Contractor may request amendments to the accepted schedule of equipment rates if changes in local equipment rental market rates can be demonstrated. Obtain the Owner's written acceptance of such changes.

3. VALUATION OF CHANGES BASED ON AGREED UNIT PRICES

SPEC NOTE: Include this article only if it is anticipated that unit prices may be requested, after contract award, for the purpose of valuing changes. The benefit of agreeing on unit prices at the outset of the Contract is that it should reduce the need to individually negotiate acceptable rates and prices for each proposed change in the Work.

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

3.2 The Contractor shall submit such unit prices promptly upon request.

3.3 The unit prices shall be valid for a specified duration.

SPEC NOTE: The following sentence assumes that allowable percentage fees for overhead and profit are specified in this Section. See article 1.6. If article 1.6 is deleted, consider modifying this sentence to require the unit prices to include overhead and profit.

3.4 The unit prices shall exclude all fees for overhead and profit [and shall be subject to the percentage fees specified in this Section under Fees for Overhead and Profit – Change Orders].

3.5 The Consultant will evaluate the Contractor's quoted unit prices and, if accepted by the Owner in writing, the agreed unit prices shall be used to value subsequent proposed changes in the Work wherever they are applicable.

4. METHOD OF CONTRACT PRICE ADJUSTMENT - CHANGE ORDERS

SPEC NOTE: If CCDC 2 or CCDC 18 with a stipulated price is being used, select the following paragraph.

4.1 Unless otherwise agreed, the adjustment of the Contract Price on account of a proposed change in the Work shall be based on a quotation for a fixed price increase or decrease to the Contract Price regardless of the Contractor's actual expenditures and savings.

SPEC NOTE: Include the following paragraph only if the stipulated price contract also includes unit prices for parts of the Work, e.g. if Section 00 41 45 – Bid Form – Combined Stipulated and Unit Price was used.

4.2 If unit prices included in the stipulated price contract are applicable to the proposed change, the adjustment of the Contract Price shall be based on those unit prices, to the extent they apply. [If the actual quantities to which the unit prices apply vary from the estimated quantities by more than [ ]%, the unit prices shall be subject to negotiation.]

[OR]

SPEC NOTE: If CCDC 4 or CCDC 18 with Unit Prices is being used, select the following paragraph, which deals only with changes in the Work of a given Unit Price item, as described in the Drawings, Specifications or Schedule of Prices. Changes in quantity and unit price measurement should be addressed separately in Section 01 22 00 – Unit Prices (not included in CCDC Master Specification for Division 01).

4.3 Unless otherwise agreed, the adjustment of Unit Prices affected by a proposed change in the Work shall be based on a quotation for an increase or decrease to existing Unit Prices, or new Unit Prices, as applicable, regardless of the Contractor's actual expenditures and savings.

[OR]

SPEC NOTE: If CCDC 3 – Cost Plus Contract is being used, select the following paragraph.

4.4 If necessary and unless otherwise agreed, the adjustment of the Guaranteed Maximum Price (GMP) or the Target Contract Price on account of a proposed change in the Work shall be based on a quotation for an increase or decrease to the GMP or Target Contract Price. The increase or decrease shall include an adjustment to the Contractor's fixed fee, if any, as agreed by the Owner and the Contractor.

5. CHANGE ORDER PROCEDURES

5.1 Upon issuance by the Consultant to the Contractor of a proposed change in the Work, and unless otherwise requested in the proposed change or unless otherwise agreed:

5.1.1 Submit to the Consultant a fixed price quotation for the proposed change in the Work within [5] [ ] days after receipt of the proposed change in the Work.

5.1.2 If requested in the proposed change, provide a detailed breakdown of the price quotation including the following to the extent applicable, with appropriate supporting documentation:

5.1.2.1 Estimated labour costs, including hours and applicable hourly rates based on the accepted schedule of labour rates.

5.1.2.2 Estimated Product costs, including Supplier quotations, estimated quantities and unit

prices.

5.1.2.3 Estimated Construction Equipment costs.

5.1.2.4 Enumeration of all other estimated costs included in the price quotation.

5.1.2.5 Estimated credit amounts for labour and Products not required on account of the proposed change.

SPEC NOTE: Include following sentence only if percentage fees for overhead and profit are specified in this Section. See immediately following article.

5.1.2.6 [Fees, not exceeding the applicable percentages for overhead and profit as specified in this Section.]

5.1.2.7 Where applicable, Subcontractor quotations, also including a detailed breakdown of all of the above.

5.2 Include in the quotation the increase or decrease to the Contract Time, if any, for the proposed change, stated in number of days.

5.3 Include in the quotation the number of days for which the quotation is valid.

5.4 The quotation will be evaluated by the Consultant and the Owner and, if accepted by the Owner, be documented in the form of a signed Change Order.

6. FEES FOR OVERHEAD AND PROFIT – CHANGE ORDERS

SPEC NOTE: It is recommended that fees for overhead and profit included in Contractor quotations for Change Orders be established contractually by including this article and inserting appropriate percentages where required.

Refer to Supplementary Conditions to CCDC 2 2020 GC 6.1.3

7. METHOD OF CONTRACT PRICE ADJUSTMENT - CHANGE DIRECTIVES

7.1 Unless the Owner and the Contractor reach an earlier agreement on the adjustment to the Contract Price by means of a Change Order that cancels the Change Directive, the adjustment in the Contract Price for change carried out by way of a Change Directive shall be determined as specified in the General Conditions of Contract after the change in the Work is completed.

8. CHANGE DIRECTIVE PROCEDURES

8.1 If a Change Directive is issued for a change in the Work for which a proposed change was previously issued, but no Change Order has yet been signed, the Change Directive shall cancel the proposed change and any Contractor quotations related to that change in the Work.

8.2 When proceeding with a change in the Work under a Change Directive, keep accurate records of daily time sheets for labour and Construction Equipment, and invoices for Product and Construction Equipment costs. Submit such records to the [Owner] [and] [Consultant] [daily] [weekly], until the Change Order superseding the Change Directive is issued. All records must

8.2.1 Reference the Change Directive under which the work is authorized

8.2.2 Must be signed by the Contractor's person in charge as evidence that the names of the workers, the time daily spent by each and the equipment and products employed are correct.

8.3 Change Directive shall be submitted 10 Working Days before the completion of the Change Directive work.

9. FEES FOR OVERHEAD AND PROFIT – CHANGE DIRECTIVES

SPEC NOTE: Fees for overhead and profit on Change Directives are specified in this article separately from those allowable on Change Orders as specified in article 1.6. This is because the Contractor's fee for Change Directives must be specified in the Contract Documents, as referenced in GC 6.3 of the CCDC 2 General Conditions of Contract, whereas specifying fees for Change Orders is recommended but not essential. Specifying them separately also allows greater precision of language and greater clarity. If both articles are included, as recommended, the same percentages should be specified for both, for simplicity and ease of contract administration.

9.1 Refer to Supplementary Conditions to CCDC 2 2020 GC 6.1.3

10. SUPPLEMENTAL INSTRUCTION

10.1 The Consultant may issue Supplemental Instruction to provide clarifications to the Contract Documents, provide additional information, or make minor variations in the Work not involving adjustment in the Contract Price or Contract Time.

10.2 If the Contractor considers a Supplemental Instruction to require an adjustment in Contract Price or Contract Time, the Contractor shall promptly notify the Consultant and the Owner in writing within 5 Working Days and shall not proceed with any work related to the Supplemental Instruction pending receipt of a Change Order, a Change Directive, or a Notice in Writing of a dispute and instructions to proceed, in accordance with the Contract.

11. EXTENSIONS OF TIME

11.1 Together with a notice of delay required under GC 6.5, the Contractor will include details on any other concurrent delays.

11.2 The notice of concurrent causes should provide:

11.2.1 relevant particulars of the expected effects, if appropriate, related to the concurrent causes;

11.2.2 an estimate of the extent, if any, of the expected delay in the completion of the Work beyond the Ready-for-Takeover date; and

11.2.3 all other relevant information required by the Owner acting reasonably.

END OF SECTION

SPEC NOTE: Use this Section to expand on the payment provisions provided in the General Conditions of Contract.

SPEC NOTE: This Section assumes use of a CCDC standard form of contract and unmodified Part 5 Payment. Part 5 Payment includes important contractual provisions. This Section provides additional details and requirements related to payment that are specific to the Project and to facilitate administration of this Contract. Exercise caution when editing this Section to ensure that provisions of the General Conditions of Contract are not duplicated here unnecessarily and that no conflicts are created with the General Conditions.

1. DATES OF APPLICATION FOR PAYMENT

1.1 The Contractor will submit an application for payment on the 28th day in each month or the nearest Working Day in that month.

1.2 The Contractor should submit the draft application for initial review by the Consultant a minimum of 3 working days prior to the established dates above.

2. SCHEDULE OF VALUES

SPEC NOTE: Include this article only for stipulated price contracts, that is CCDC 2 or CCDC 18 with stipulated price option. It may also be applicable to a unit price contact, that is CCDC 4, which may include lump sum items of work, in which case edit this article to suit.

2.1 Within [10] [15] working days following contract award, submit for Consultant's review an initial schedule of values. Modify the initial schedule of values if and as requested by Consultant. Obtain Consultant's written acceptance of the initial schedule of values prior to the first application for payment.

2.2 Together with the first and all subsequent applications for payment, submit updated versions of the schedule of values to indicate the values, to the date of application for payment, of work performed and Products delivered to Place of the Work.

SPEC NOTE: Detailed requirements for the schedule of values may be specified in 1.1.3 below by simply referencing either CCDC 24 or a format to be provided by the Consultant or Owner.
Alternatively, detailed requirements may be specified without reference to any particular format, by using the more detailed text in 1.1.4 and following, edited as desired.

2.3 Provide the schedule of values in an electronic spreadsheet format based on [the format provided and content described in latest edition of CCDC 24 – A Guide to Model Forms and Support Documents] [a format provided by [Consultant] [Owner]].

[OR]

2.4 Provide the schedule of values in an electronic spreadsheet format that provides for inclusion of the following information:

2.4.1 Identifying information including title and location of the Work, name of Contractor, number and date of application for payment, and period covered by the application for payment.

SPEC NOTE: Select one of the following three paragraphs to specify the desired approach.

2.4.2 A work breakdown structure based on [Contractor, Subcontractor and sub- Subcontractor work] [Specification sections] [and material and labour] breakdown. [Include separate line items for

closeout procedures including closeout submittals, demonstration and training, start-up and testing, and commissioning [collectively valued at minimum [ ]% of Contract Price].]

[OR]

2.4.3 A work breakdown structure provided by [Consultant] [Owner].

[OR]

2.4.4 A work breakdown structure that is sufficiently detailed and comprehensive to facilitate Consultant's evaluation of applications for payment at an appropriate level of detail.

2.4.5 Provisions for approved Change Orders [allowances,] [unit price work] [and] [assignable contracts] so that the breakdown amounts indicated in the schedule of values aggregate to the current total Contract Price. Also provide for indicating the estimated value of Change Directives within the schedule of values, separately from the current total Contract Price.

2.4.6 For each item in the work breakdown structure, provide as a minimum the following information, under headings as indicated:

2.4.6.1 Breakdown Amount: A dollar amount, including an appropriate pro rata portion of Contactor's overhead and profit.

2.4.6.2 Performed to Date: The value of Work performed and Products delivered to Place of the Work up to the date of the application for payment, stated as a percentage of the Contract Price and in dollars.

2.4.6.3 Previously Performed: The value of Work performed and Products delivered to the Place of the Work for which payment has been previously certified, stated in dollars.

2.4.6.4 Current Period: The value of Work performed and Products delivered to Place of the Work for which Contractor is currently applying for payment, stated in dollars.

2.4.6.5 Balance to Complete: The value of Work not yet performed and Products not yet delivered to Place of the Work, stated in dollars.

3. CASH FLOW PROJECTION

3.1 Prior to commence the Work submit, for Consultant's review, a forecast of approximate gross monthly progress payments at the date of each monthly application for payment throughout the duration of the Contract Time based on the schedule for the Work.

3.2 Submit revised cash flow forecasts [when required due to significant changes in rate of progress of the Work or significant changes in the Contract Price] [monthly] [when requested by Consultant].

4. PAYMENT FOR PRODUCTS NOT INCORPORATED INTO THE WORK

4.1 At the time of each application for payment, supply details of those Products which are claimed for payment but not yet incorporated into the Work.

4.2 If requested, provide to the satisfaction of the Owner evidence of unencumbered title to such Products.

5. PAYMENT FOR PRODUCTS STORED OFF SITE

SPEC NOTE: This article does not entitle the Contractor to payment for Products stored off site, only that the Owner may consider such payment in extraordinary circumstances, subject to certain conditions being met by mutual agreement. Extraordinary circumstances may include lack of site space, essential to take delivery of Products well before they are needed, and other factors beyond the Contractor's control. If such circumstances are anticipated, consider specifying the conditions for making such payments, e.g. Consultant/Owner approval of and ready access to a secure storage location, insurance, assurance of legal ownership after payment, etc.

5.1 Owner may, at Owner's sole discretion, make payments for Products delivered to and stored at a location other than Place of the Work, subject to:

5.1.1 Submit reasonable evidence that the title in items stored off site to be included in an application for payment is vested in the Contractor.

5.1.2 Include for products purchased from a supplier

5.1.2.1 A copy of the contract of sale

5.1.2.2 A written statement from the supplier that any conditions of the sale relating to the passing of property have been fulfilled and the products are not subject to any encumbrance or charge.

5.1.3 Include for products purchased from a supplier by a subcontractor or manufactured or assembled by ant subcontractor

5.1.3.1 Copies of the subcontract with the subcontractor and a written statement from the subcontractor that any conditions relating to the passing of property have been fulfilled.

6. RELEASE OF HOLDBACK

SPEC NOTE: Use this article to specify detailed procedures for release of holdback. Depending on the applicable lien legislation, which varies in each province and territory, holdback can potentially be released upon completion of subcontracts, annually, on a phased basis (identify phases here if applicable) or after Substantial Performance of the Work. Where the applicable lien legislation allows options with respect to release of holdback, select and specify the desired option(s) here.

6.1 [ ].

6.2 [ ].

END OF SECTION

SPEC NOTE: Use this Section to specify requirements for project meeting. If there is a need to expand the content of this section to address other project management and coordination matters, change the section number and name to Section 01 31 00 – Project Management and Coordination.

1. CONSTRUCTION START-UP MEETING

1.1 Promptly after Contract award, [Consultant will] [Contractor shall] establish the time and location of a construction start-up meeting to review and discuss administrative procedures and responsibilities. [Consultant will] [Contractor shall] notify [Contractor] [Consultant] at least [5] [_] Working Days before the meeting.

1.2 Senior representatives of Owner, Consultant, [subconsultants,] and Contractor, including Contractor's project manager and site superintendent, [and major Subcontractors,] shall be in attendance.

1.3 [Consultant's] [Contractor's] representative will chair the meeting and record and distribute the minutes.

SPEC NOTE: Edit the following paragraph to suit project requirements. The recommended agenda items generally follow, in order, the subject matter specified in Div. 01 of the Specifications.

1.4 Agenda will include following:

1.4.1 Appointment of official representatives of Owner, Contractor, Subcontractors, Consultant, and sub-consultants.

1.4.2 Project communications.

1.4.3 Contract Documents for construction purposes.

1.4.4 Documents at the site.

1.4.5 Contractor's use of premises.

1.4.6 Owner-supplied Products.

1.4.7 [Assignable contracts.]

1.4.8 Work restrictions.

1.4.9 [Cash allowances.]

1.4.10 [Substitution procedures.]

1.4.11 Contract modification procedures.

1.4.12 Payment procedures, including monthly progress claim submissions

1.4.13 Construction progress meetings.

1.4.14 Contractor's Progress Reports

1.4.15 Construction progress schedule, including long lead time items.

1.4.16 Submittals schedule and procedures.

1.4.17 [Special procedures.]

1.4.18 Quality requirements, including testing and inspection procedures.

1.4.19 Contractor's mobilization.

1.4.20 Temporary utilities.

1.4.21 Existing utility services.

1.4.22 Construction facilities.

1.4.23 Temporary barriers and enclosures.

1.4.24 Temporary controls.

1.4.25 Field engineering and layout of work.

1.4.26 Site safety.

1.4.27 Site security.

1.4.28 Cleaning and waste management.

1.4.29 Closeout procedures and submittals.

1.4.30 [Commissioning].

1.4.31 Contractor's daily dairy log.

1.4.32 Inclement weather conditions (heavy rain protection of the Site).

1.4.33 Other items.

2. CONSTRUCTION PROGRESS MEETINGS

2.1 Schedule regular [weekly] [bi-weekly] [monthly] construction progress meetings for the duration of the Work. [Contractor shall] [Consultant will] prepare meeting agendas, chair the meetings, and record and distribute the minutes.

2.2 Arrange for and provide physical space for meetings.

2.3 [Contractor shall] [Consultant will] record in the meeting minutes significant decisions and identify action items and action dates by attendees or the parties they represent.

2.4 [Contractor shall] [Consultant will] distribute copies of minutes within [three] [ ] Working Days after each meeting to meeting attendees and any affected parties who may not be in attendance.

2.5 Ensure that Subcontractors attend as and when appropriate to the progress of the Work.

2.6 Agenda for each meeting shall include the following, as a minimum:

2.6.1 [Approval of minutes of previous meeting.]

2.6.2 Contractor's report regarding

2.6.2.1 Work progress since previous meeting.

2.6.2.2 Field observations, including any problems, difficulties, or concerns.

2.6.2.3 Construction progress schedule.

2.6.2.4 Monthly progress claims.

2.6.2.5 Submittals schedule.

2.6.2.6 Proposed changes in the Work.

2.6.2.7 Requests for information.

2.6.2.8 Labour and Equipment Returns reflecting

2.6.2.8.1 Number and description of all tradesmen, labourers and other persons employed on or in connection with the Works, including those employed by

subcontractors

2.6.2.8.2 Number, type and capacity of all mechanical and power-operated equipment employed in constructing the Works

2.6.2.9 Site safety issues.

2.6.2.9.1 If requested, provide copies of site attendance records within 24 hours.

2.6.3 Consultant's Field Reports

2.6.4 Stakeholder issues

2.6.4.1 FMO

2.6.4.2 Clinical

2.6.5 Contractor's daily diary log

2.6.6 [Stat on inclement weather conditions (heavy rain protection of the site)]

2.6.7 Other business.

3. CONTRACTOR'S SITE MEETINGS

3.1 Hold meetings with appropriate subcontractors and suppliers shortly before main progress meetings to facilitate coordination and accurate reporting of progress.

END OF SECTION

SPEC NOTE: This Section assumes use of a CCDC standard form of contract and unmodified Construction Schedule provisions in Part 3 Execution of the Work. The General Conditions of Contract include important provisions related to the construction schedule. This Section provides additional details and requirements specific to the Project and to facilitate administration of this Contract.
Exercise caution when editing this Section to ensure that provisions of the General Conditions of Contract are not duplicated here unnecessarily and that not conflicts are created with the General Conditions.

1. SUMMARY

1.1 This Section specifies Contractor's responsibilities for preparation and submission of schedules and other documentation related to tracking construction progress.

1.2 The purpose of submitting progress schedules is to:

1.2.1 inform Owner and Consultant of actual progress versus planned progress, and

1.2.2 provide assurance that scheduling issues are being proactively identified and addressed in a timely manner, and that planned progress is being maintained as closely as possible.

2. CONSTRUCTION PROGRESS SCHEDULE

2.1 Format and Content:

SPEC NOTE: If the Contractor is required to use particular scheduling software, specify in the following paragraphs.

2.1.1 Prepare schedule in the form of a Critical Path Method (CPM) Gantt chart using software that is approved as compatible with Owner's software.

2.1.2 Provide a work breakdown structure identifying

2.1.2.1 each activity with earliest and latest start and finish dates

2.1.2.2 all critical activities

2.1.2.3 work packages

2.1.2.4 major milestones

2.1.2.5 long delivery Products

2.1.2.6 shop drawings submission dates

2.1.2.7 Details and durations for planning (minimum [ ] weeks) and execution of each shutdown to existing services as required for breaking into or connection to existing services or other closure activities related to the works

2.1.2.8 submission of operations and maintenance manual

2.1.2.9 submission of completed asset management information

2.1.2.10 inspection, commissioning and testing activities

2.1.2.11 demonstration and training activities

2.1.2.12 work resulting from instructions issued in regard to the expenditure of Cash Allowances

2.1.2.13 work related to assigned contracts

2.1.2.14 [preparation and review of mock-ups,]

2.1.2.15 [Owner decisions for cash allowances,]

2.1.2.16 [delivery of Owner supplied Products,]

2.1.2.17 [Owner performed work,]

and similar items, at a sufficient level of detail to effectively manage construction progress.

2.1.3 Where and to the extent that the schedule implications for work which is not so defined are impossible to assess, the Contractor should exclude it and confirm this via an accompanying list when submitting the schedule

2.1.4 Indicate milestone date[s] for [Ready-for-Takeover] [and] [Substantial Performance of the Work].

2.2 Submission:

2.3 Submit initial schedule to Owner and Consultant within 15 Working Days after Contract award.

SPEC NOTE: The storage and retrieval of electronic information is dependent on the availability and sophistications of software. Software platforms, languages, formats, and versions are constantly changing. Determine the Owner's needs and edit the following paragraph accordingly.

2.3.1 Submit schedule via [e-mail] [project web site] [__] as [.pdf] [_____] files.

2.4 Consultant will review format and content of initial schedule and request necessary changes, if any, within [5] [10] [ ] Working Days after receipt.

2.5 If changes are required, resubmit finalized initial schedule within [5] [10] [] Working Days after return of review copy.

SPEC NOTE: Edit the following paragraph to specify additional levels of details in the schedule if and as required.

2.6 Submit updated progress schedule [weekly] [bi-weekly] [monthly] [ ] to [Owner and] Consultant, indicating

2.6.1 actual and projected start and finish dates

2.6.2 critical path

2.6.3 report date line

2.6.4 progress on each activity

2.6.5 impact of each approved Change Order

2.6.6 baseline comparison to current progress

2.6.7 [activity relationships]

2.6.8 [float,]

2.6.9 [3D scan before close up].

SPEC NOTE: Consider including the following paragraph where deemed essential for large, complex, projects only, as it could represent a significant additional cost on small projects.

2.7 [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.]

2.8 Submission of the schedule, either initial or subsequent updates, will not relieve the Contractor of the

responsibility to advice of the need for further drawings or details or instructions in accordance with the Contract.

3. SUBMITTALS SCHEDULE

3.1 Format and Content:

3.1.1 Prepare schedule identifying all required Shop Drawing, Product data, and sample submissions in, [including samples required for testing] [and] [including those for Owner supplied Products].

3.1.2 Prepare schedule in electronic format.

3.1.3 Provide a separate line for each required submittal, organized by Specifications section names and numbers, and further broken down by individual Products and systems as required.

3.1.4 For each required submittal, show planned [earliest date for initial submittal] [earliest date for return of reviewed submittal by Consultant] [and] [latest date for return of reviewed submittal without causing delay].

3.1.5 Allow time in schedule for resubmission of submittals, should resubmission be necessary.

3.2 Submission:

3.2.1 Submit initial schedule to Consultant within 15 Working Days after Contract award.

3.2.2 Submit schedule via [e-mail] [project web site] [ ] as [.pdf] [ ] files.

3.2.3 Consultant will review format and content of initial schedule and request necessary changes, if any, within [5] [10] [ ] Working Days after receipt.

3.2.4 If changes are required, resubmit finalized schedule within [5] [10] [ ] Working Days after return of review copy.

3.2.5 Submit updated submittals schedule [monthly][ ] to [Owner and] Consultant..

4. SCHEDULE MANAGEMENT

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

4.2 At each regular progress meeting, review and discuss current construction progress and submittals schedules with Consultant [and Owner].

4.3 If any circumstances arise which may affect the progress of the Works, including activities that are behind schedule then submit proposals or take other action as appropriate to minimize any delay and regain schedule slippage (lost time) in key areas on or near the critical path.

4.4 Activities considered behind schedule are those with start or completion dates later than the dates shown on the baseline schedule.

5. PROGRESS SCHEDULE AND RECORDS

5.1 Render to the Consultant a weekly report as to the number of workmen in all trades employed on the Works including those of all Subcontractors, Suppliers, etc.

5.2 Any other records the Contractor takes which will be used to aid his submissions under the terms of the Contract shall contain the date and the number of the site instruction, Change Order or Change Directive against which the work is recorded. All such records, of whatever nature, if they are to be accepted as true records for any purposes under the terms of the Contract, shall be issued on a regular basis to the Consultant in accordance with the Contract terms.

5.3 Give adequate notice to the Consultant of intention to take records of anything which will not be permanently exposed in the Works or which can only be checked by attendance at site during the actual work operation. Such notice shall also be given to the Consultant in order that they can carry out their duties in respect of any work which is to be permanently covered up.

5.4 Accept sole responsibility for any losses should failure to give adequate notice preclude the Consultant from taking proper records or checking the Contractor's records.

5.5 The Contractor's site supervisor shall keep a site instruction book on site which contains all sites instructions and all matters raised with the Consultant in anyway vary the works. .

6. RECORDING ACTUAL SITE CONDITIONS ON RECORD DRAWINGS

SPEC NOTE: Specify whether the Contractor is expected to maintain as-build drawings in hard copy or electronic form by selecting one of the first two paragraphs below. Alternatively, revise the text to give the Contractor the option. If the Contractor will also be responsible for preparing the record drawings in electronic form (as specified in Section 01 78 00 – Closeout Submittals) give the Contractor the option of preparing the as-built drawings in electronic form.

6.1 Obtain a hard copy set of construction Drawings for the purpose of creating record drawings. Record information and maintain as-built drawings in clean, dry and legible condition.

[OR]

6.2 Obtain from Consultant an electronic copy of the construction Drawings for the purpose of creating as-built drawings. Record information in electronic form, clearly identifying as-built deviations from the originally obtained construction Drawings.

6.3 Clearly label each drawing as “AS-BUILT DRAWING”. Record information concurrently with construction progress. Do not conceal Work until required information is recorded.

6.4 Record actual construction including:

6.4.1 Details of all grid lines, setting-out stations, benchmarks and profiles

6.4.2 Measured depths of elements of foundation in relation to finish first floor datum.

6.4.3 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

6.4.4 Measured locations of pipes, ducts, conduits, outlets, fixtures, access panels, and appurtenances, referenced to visible and accessible features of construction.

6.4.5 Schedules of plant, equipment, valves, panels etc. in accordance with the Facilities Maintenance Software (otherwise known as [Maximo] [Yardi] [Archibus] [ ]) together with cross referencing to the record drawings, shop drawings and relevant technical submittals.

6.4.6 Changes made by Change Orders and Supplemental Instruction.

6.4.7 References to Shop Drawings, where Shop Drawings show more detail.

6.5 Do not use as-built drawings for construction purposes.

7. PROGRESS PHOTOGRAPHS

SPEC NOTE: Consider Owner’s requirements for progress photographs. The following requirements for digital photos assume that if the Owner requires hard copies, the Owner will arrange and pay for those hard copies to be made from the digital files.

7.1 Arrange for periodic digital photography to document and provide a photographic record of the progress of the Work.

7.2 [Arrange for final photographs to be taken by a professional photographer.]

7.3 Identify each photograph by project name and date taken.

7.4 Submit photographs in [.jpg] [.bmp] [.tif] [] format files in [fine] [standard] resolution [via e-mail] [via project web site] [monthly] [weekly] [at completion of [excavation] [foundation]] [framing and services before concealment] [ ] [building].

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

8. PROGRESS VIDEO

SPEC NOTE: The following may be appropriate for major or special projects. If other forms of progress video are required, e.g. videos of particular installation sequences, specify applicable requirements similar to those for progress photographs.

8.1 Provide internet-capable camera and an active web site, allowing off-site viewing of Place of the Work 24/7. Submit web site address and security access codes to Owner and Consultant.

END OF SECTION

SPEC NOTE: Use this Section to specify general requirements for Contractor submission of Shop Drawings, Product data, and samples, the most commonly required submittals for most Projects. Where necessary, this Section may also be used to specify other types of submittals, but should not be used to specify Closeout Submittals, which are specified in Section 01 78 00 – Closeout Submittals.

SPEC NOTE: This Section assumes use of a CCDC standard form contract and in particular CCDC 2 – 2020. If using a different CCDC contract or a non-CCDC contract, some of the provisions in this Section may be included in the General Conditions of Contract, in which case they should be deleted from this Section. The General Conditions of Contract include important provisions related to Shop Drawings. This Section provides additional details and requirements that are specific to the Project to facilitate administration of the Contract. Exercise caution when editing this Section to ensure that provisions of the General Conditions of Contract are not duplicated here unnecessarily and that no conflicts are created with the General Conditions.

1. ADMINISTRATIVE

1.1 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 the Drawings and Specifications.

1.2 Where required by authorities having jurisdiction, provide submittals to such authorities for review and approval.

1.3 Do not proceed with Work affected by a submittal until review is complete.

1.4 Present Shop Drawings, Product data, and samples in [SI metric] [imperial] units. Where items or information is not produced in [SI Metric] [imperial] units, converted values are acceptable.

1.5 Review submittals, provide verified 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.

1.6 Verify field measurements and that affected adjacent work is coordinated.

1.7 Submittals not meeting specified requirements will be returned with comments.

1.8 Reproduction of construction Drawings to serve as background for Shop Drawings is [not] permitted. [If construction Drawings are used for this purpose, remove references to Consultant.]

1.9 Do not propose Substitutions or deviations from Contract Documents via Shop Drawing, Product data and sample submittals.

2. SHOP DRAWINGS AND PRODUCT DATA

2.1 Indicate Products, methods of construction, and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of the Work.

2.2 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.

2.3 Accompany submittals with a transmittal information including:

2.3.1 Date.

2.3.2 Project title and number.

2.3.3 Contractor's name and address.

2.3.4 Identification of each submittal item and quantity.

2.3.5 Other pertinent data.

2.4 Shop Drawing submittals shall include:

2.4.1 Date and revision dates.

2.4.2 Project title and number.

2.4.3 Name and address of:

2.4.3.1 Subcontractor.

2.4.3.2 Supplier.

2.4.3.3 Manufacturer.

2.4.3.4 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.

2.4.4 Details of appropriate portions of the Work as applicable:

2.4.4.1 Fabrication.

2.4.4.2 Layout, showing dimensions, including identified field dimensions, and clearances.

2.4.4.3 Setting out details

2.4.4.3.1 Details of methods and equipment to be used in setting out the Works

2.4.4.3.2 Check and record the results on a copy of drawings and immediately notify the Consultant of any discrepancies to obtain instructions before proceeding

2.4.4.4 Erection details.

2.4.4.5 Capacities.

2.4.4.6 Performance characteristics.

2.4.4.7 Standards.

2.4.4.8 Operating weight.

2.4.4.9 Wiring diagrams.

2.4.4.10 Single line and schematic diagrams.

2.4.4.11 Relationships to other parts of the Work.

2.4.5 Product data submittals shall include material safety data sheets (MSDS) for all controlled Products.

SPEC NOTE: The following paragraphs offer two forms of Shop Drawing submittal: hard copy or electronic. Multiple hard copies require ‘exact’ duplicate marking of each copy, which is time consuming. Electronic copies require marking only once, with potentially unlimited copies after review.

SPEC NOTE: Electronic information formats are constantly changing. Determine the Owner’s/Consultant’s needs and expand the following paragraphs as required if the Contractor is to provide information using particular formats or methods. PDF is common and appropriate.

2.4.6 Submit [[6] [ ] hard copies] [electronic copy] of Shop Drawings where specified in the technical Specifications.

2.4.7 Submit [[6] [ ] hard copies] [electronic copy] of Product data sheets or brochures where specified in the technical Specifications.

2.4.8 Where a submittal includes information not applicable to the Work, clearly identify applicable information and strike out non-applicable information.

2.4.9 Supplement standard information to include details applicable to Project.

SPEC NOTE: Coordinate the following sentence with Section 01 32 00 – Construction Progress Documentation. Include reference to submittal schedule only if specified in Section 01 32 00.

2.5 Allow [ ] Working Days for Consultant's review of each submittal [and incorporate in submittals schedule specified in Section 01 32 00 – Construction Progress Documentation.] Allow additional [ ] Working Days where sub-Consultant [or commissioning agent] review is required.

2.6 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.

2.7 If upon Consultant's review significant errors or omissions are discovered, a so noted copy will be returned for correction and resubmission. Do not commence fabrication or installation.

2.8 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 the 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.

2.9 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.

3. SAMPLES

3.1 Submit samples for Consultant's review in [duplicate] [triplicate] where specified in the technical Specifications. Label samples as to origin, Project name, and intended use.

3.2 Deliver samples prepaid to Consultant's [business address] [site office].

3.3 Notify Consultant in writing of any deviations in samples from requirements of Contract Documents.

3.4 Where a required colour, pattern or texture has not been specified, submit full range of available Products meeting other specified requirements.

3.5 Consultant selection from samples is not intended to change the Contract Price or Contract Time. If a selection would affect the Contract Price or Contract Time, notify Consultant in writing prior to proceeding with the Work.

3.6 Resubmit samples as required by Consultant to comply with Contract Documents.

3.7 Reviewed and accepted samples will establish the standard against which installed Work will be reviewed.

3.8 Do not confirm orders or use the product until approval of the sample has been obtained

3.9 Retain all approved samples in good, clean condition on site and remove when no longer required.

3.10 Where approval related to the stated characteristics of the sample then do not conceal, or proceed with affected work until compliance with requirements is confirmed.

END OF SECTION

SPEC NOTE: Use this Section to specify, where applicable, "special" procedures that are Owner or Project specific. Since the content of this Section will be completely unique to each individual Project, this Section is included in the CCDC Master Specification as a placeholder only. No standard master specification text is provided. Use this Section to specify applicable administrative and procedural requirements for special or unique project situations including, for example:

- Relocations, renovations, alterations, historic restoration and preservation, etc.
- Environmental requirements for hazardous material abatement, contaminated sites, etc.
- Facility specific requirements for airports, detention centres, healthcare facilities, industrial and process facilities, and other special facility types.
- Owner and regulatory health and safety requirements.
- Owner's requirements for conduct of workers.
- Environmental procedures.
- Indoor air quality procedures.
- Security procedures.
- Sustainability certification program requirements.
- Fair wages and local or aboriginal labour requirements.

SPEC NOTE: Refer to MasterFormat for additional subject matter that belongs in this Section and that should NOT be specified as supplementary or special conditions to the contract in Division 00.

1. [ ]

1.1 [ ].

1.2 [ ].

1.3 [ ].

2. [ ]

2.1 [ ].

2.2 [ ].

2.3 [ ].

END OF SECTION

SPEC NOTE: Use this Section to specify administrative requirements related to specified reference standards and administrative requirements related to inspection, testing, mock-ups, and similar quality control and quality assurance requirements.

SPEC NOTE: This Section assumes use of a CCDC standard form contract and unmodified Review and Inspection of the Work provisions in Part 2 Administration of the Contract. The General Conditions of Contract include important contractual provisions related to review and inspection of the Work. This Section provides additional details and requirements specific to the Project and to facilitate administration of this Contract. Exercise caution when editing this Section to ensure that provisions of the General Conditions of Contract are not duplicated here unnecessarily and that no conflicts are created with the General Conditions.

1. REFERENCE STANDARDS

1.1 "Reference standards" means consensus standards, trade association standards, guides, and other publications expressly referenced in Contract Documents.

1.2 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 code or other regulatory requirement, the regulatory referenced edition or version shall apply.

1.3 Reference standards establish minimum requirements. If Contract Documents call for requirements that differ from a referenced standard, the more stringent requirements shall govern.

1.4 If compliance with two or more reference standards is specified and the standards establish different or conflicting requirements, comply with the most stringent requirement. Refer uncertainties to Consultant for clarification.

1.5 The substitution of a standard may be proposed complying with a grade or category within a national standard of an international standard recognized in Canada. Submit notification of all such proposals and provide verification when requested and, where documents are in a foreign language, provide certified translations into both official languages of Canada.

1.6 References to published documents are to the editions, including amendments and revisions, at the time of bid closing.

SPEC NOTE: List all reference standard writing organizations referenced in the Specifications.

1.7 Within the Specifications, reference may be made to the following standards writing, testing, or certification organizations by their acronyms or initialisms:

SPEC NOTE: Edit the following list to add and delete names, so that all reference standard writing organizations referenced in the technical Specifications are listed. The list provided does not necessarily include all industry and trade associations that publish standards or have quality testing or certification programs. In particular, it does not include those operating only at the provincial level.

1.7.1 AA - Aluminum Association

1.7.2 ACI - American Concrete Institute

1.7.3 AISC - American Institute of Steel Construction

1.7.4 ANSI - American National Standards Institute

1.7.5 ASME - American Society of Mechanical Engineers

1.7.6 ASTM - American Society for Testing and Materials

1.7.7 AWMAC - Architectural Woodwork Manufacturers Association of Canada

1.7.8 AWPA - American Wire Producers Association

1.7.9 CaGBC - Canadian Green Building Council

1.7.10 CGSB - Canadian General Standards Board

1.7.11 CISC - Canadian Institute of Steel Construction

1.7.12 CPCI - Canadian Prestressed Concrete Institute

1.7.13 CSA - Canadian Standards Association

1.7.14 CSSBI - Canadian Sheet Steel Building Institute

1.7.15 CWB – Canadian Welding Bureau

1.7.16 ICEA - Insulated Cable Engineers Association

1.7.17 IEEE - Institute of Electrical and Electronics Engineers

1.7.18 IGMAC – Insulating Glass Manufacturers Association of Canada

1.7.19 LEED - Leadership in Energy and Environmental Design

1.7.20 MPP – Master Painters Institute

1.7.21 MSS - Manufacturers Standardization Society of the Valve and Fittings Industry

1.7.22 NAAMM - National Association of Architectural Metal Manufacturers

1.7.23 NEMA - National Electrical Manufacturers Association

1.7.24 NFPA - National Fire Protection Association

1.7.25 NHLA - National Hardwood Lumber Association

1.7.26 NLGA - National Lumber Grades Authority

1.7.27 SSPC – The Society for Protective Coatings

1.7.28 TTMAC - Terrazzo, Tile and Marble Association of Canada

1.7.29 ULC - Underwriters' Laboratories of Canada

2. INDEPENDENT INSPECTION AND TESTING AGENCIES

2.1 Except as otherwise specified, Owner will retain and pay for independent inspection and testing agencies to inspect, test, or perform other quality control reviews of parts of the Work.

2.2 Retain and pay for inspection and testing that is for Contractor's own quality control or is required by regulatory requirements.

SPEC NOTE: Delete following clause if not applicable.

2.3 [Section 01 21 00 – Allowances specifies a cash allowance for independent inspection and testing services to be retained and paid for by Contractor. Cash allowance excludes any inspection and testing that is for Contractor's own quality control or is required by regulatory requirements.]

2.4 Employment of inspection and testing agencies by Contractor and/or Owner does not relieve Contractor from responsibility to perform the Work in accordance with Contract Documents.

2.5 Allow and arrange for inspection and testing agencies to have access to the Work, including access to off site manufacturing and fabrication plants.

2.6 For inspection and testing required by Contract Documents or by Authorities Having Jurisdiction, provide

Consultant and inspection and testing agencies with timely notification in advance of required inspection and testing.

2.7 Submit test samples required for testing [in accordance with submittals schedule specified in Section 01 32 00 – Construction Progress Documentation].

2.8 Provide labour, Construction Equipment and temporary facilities to obtain and handle test samples on site.

3. INSPECTION AND TESTING AGENCY REPORTS

3.1 For inspection and testing required by Contract Documents or by regulatory requirements, and performed by Contractor retained inspection and testing agencies, submit to Consultant [and Owner] copies of reports. Submit within [ ] Working days after completion of inspection and testing.

3.2 For inspection and testing performed by Owner retained inspection and testing agencies, copies of inspection and testing agency reports will be provided to Contractor.

4. MOCK-UPS

4.1 Prepare mock-ups of Work as specified in the technical Specifications. If a mock-up location is not indicated in the Drawings or Specifications, locate where directed by Consultant.

4.2 Modify mock-up as required until Consultant approval is obtained.

4.3 Approved mock-ups establish an acceptable standard for the Work.

4.4 Protect mock-ups from damage until the Work they represent is complete.

4.5 Unless otherwise specified in the technical Specifications, approved mock-ups forming part of the Work may remain as part of the Work.

4.6 Remove mock-ups only when the Work they represent is complete or when otherwise directed by Consultant.

END OF SECTION

SPEC NOTE: Use this Section to specify temporary utilities necessary to complete the Work but not incorporated into final or permanent Work.

1. TEMPORARY UTILITIES - GENERAL

1.1 Provide temporary utilities as specified and as otherwise necessary to perform the Work expeditiously.

1.2 Remove temporary utilities after use.

2. TEMPORARY WATER SUPPLY

SPEC NOTE: Select one of the following paragraphs.

2.1 Arrange and pay for a temporary supply of clean uncontaminated water required during construction.

2.2 Do not use the supply until evidence of suitability is provided by Contractor's own testing agency in accordance with [ ] standards.

[OR]

2.3 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.] [Reimburse Owner's utility costs based on metered usage. Install a sub-meter for this purpose at Contractor's cost.]

2.4 Arrange and pay for necessary water supply connections and disconnections.

2.5 The Owner will not be responsible for the consequences of failure or restriction in supply.

3. TEMPORARY HEATING, VENTILATION AND COOLING.

3.1 Arrange and pay for temporary heating, ventilation and cooling required during construction.

3.2 [Contractor may connect to and use Owner's existing supply of [natural gas] [propane] for temporary use during construction, subject to existing available volume and pressure. [Usage at no cost to Contractor.] [Reimburse Owner's utility costs based on metered usage. Install a sub-meter for this purpose at Contractor's cost.]]

3.3 Vent construction heaters in enclosed spaces to the outside or use flameless type of construction heaters.

3.4 Provide temporary heat for the Work as required to:

3.4.1 Facilitate progress of Work.

3.4.2 Protect the Work against dampness, cold and extreme heat.

3.4.3 Prevent moisture condensation on surfaces, freezing, or other damage to finishes or stored Products.

3.4.4 Maintain specified minimum ambient temperatures and humidity levels for storage, installation and curing of Products.

3.4.5 After building is enclosed, maintain interior temperature of minimum [10][ ] degrees C.

3.5 Provide temporary ventilation for the Work as required to:

3.5.1 Prevent accumulations 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.

3.5.2 [Ensure that hazardous, noxious, or volatile substances do not migrate to Owner occupied spaces.]

3.5.3 Ventilate temporary sanitary facilities.

SPEC NOTE: Select either the following paragraph or the subsequent paragraph and its sub-paragraphs.

3.6 Do not use permanent building heating and ventilation systems during construction.

[OR]

3.7 New permanent building heating and ventilation systems may be used during construction, at Contractor's sole risk option. If used during construction:

3.7.1 [Owner will] [Contractor shall] pay utility costs resulting from the use of permanent systems.

3.7.2 Operate systems in a non-wasteful and energy efficient manner. Be responsible for any system damage.

3.7.3 Just prior to [Ready-for-Takeover] [Substantial Performance of the Work], [replace filters,] [replace [ ],] [clean [ ] and [,] and perform other required maintenance to ensure systems are in as near as new condition as possible.

3.7.4 Ensure that systems manufacturers' warranties do not commence until the date of [Ready-for-Takeover] [Substantial Performance of the Work] or, if manufacturers' warranties do commence earlier when systems are put into use, arrange for necessary extension of manufacturers' warranties or provide equivalent coverage under Contractor's warranty.

4. TEMPORARY ELECTRICAL POWER AND LIGHTING

SPEC NOTE: Select one of the following paragraphs.

4.1 Arrange and pay for temporary power and lighting required during construction.

[OR]

4.2 Connect to and use Owner's existing electrical supply for temporary use during construction. [Usage at no cost to Contractor.] [Reimburse Owner's utility costs based on metered usage. Install a sub-meter for this purpose at Contractor's cost].

SPEC NOTE: When allowing Contractor to use existing power supply, confirm sufficient capacity to accommodate power requirements for anticipated construction work. Give consideration to limiting excessive use of power by Contractor for space heating, etc.

4.3 Existing maximum power supply of [230 V,] [kVA,] [phase,] [Hz,] [amps,] is available for temporary use during construction.

4.4 Arrange and pay for necessary connections and disconnections of temporary power and lighting in accordance with regulatory requirements.

4.5 The Owner will not be responsible for the consequences of failure or restriction in supply.

SPEC NOTE: Select either the following paragraph or the subsequent paragraph and its sub-paragraphs.

4.6 Do not use permanent building [power] [and] [lighting] systems during construction.

[OR]

4.7 New permanent building [power] [and] [lighting] systems may be used during construction, at Contractor's option. If used during construction:

4.7.1 [Owner will] [Contractor shall] pay utility costs resulting from the use of permanent systems.

4.7.2 Operate systems in a non-wasteful and energy efficient manner. Be responsible for any system damage.

4.7.3 [Just prior to [Ready-for-Takeover] [Substantial Performance of the Work], replace lamps which have been used for more than [ ] months.]

4.7.4 Ensure that 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 provide equivalent coverage under Contractor's warranty.

4.8 Provide temporary lighting for finishing work and inspection, the intensity and direction of which closely resembles that delivered by the permanent installation.

5. EXISTING BUILDING HEATING, VENTILATION, POWER, AND LIGHTING

SPEC NOTE: For work in an existing building, edit or delete preceding articles and include this article.

5.1 Existing building heating, ventilation, power, and lighting may be used during construction [except during hours or days when the building is not operational].

5.2 The Owner will not be responsible for the consequences of failure or restriction in supply.

5.3 [Coordinate and make arrangements with the building operator [and pay any costs required] for provision of these services during hours or days when the building is not operational].

6. THERMOMETERS

6.1 Provide onsite and maintain in accurate condition a maximum and minimum thermometer for measuring atmospheric shade temperature, in an approved location.

7. PERSONAL PROTECTIVE EQUIPMENT

7.1 Provide for the sole use of those acting on behalf of the Owner, in sizes to be specified:

- [5] no. Safety helmets that are neither damaged nor time expired and meet CSA Z94.1-15 Type 1 (Class G for electrical hazards and Class C for all others).
- [5] no. High visibility waistcoats to CSA Z96-15 Type 1 Class 1.
- [5] pairs Safety boots with steel insole and toecap to CSA Z195.14 Grade 1.
- [5] no. Disposable respirators to CSA Z94.4-18.
- [5] no. Safety glasses to CSA Z94.3-15 Class 1 (spectacles) or Class 2 (googles).
- [5] no. Hearing protection to Z94.2-14
- [5] no. Hand protection to ANSI/ISEA 105-2106 as appropriate.

8. SURVEYING EQUIPMENT

8.1 Provide surveying equipment on site and maintain in accurate condition.

END OF SECTION

SPEC NOTE: Use this Section to specify temporary construction facilities not incorporated into the final or permanent Work, including subject matter such as construction aids, site offices and sheds, parking, vehicular access, and project identification signage. Add additional articles as required to address any other special requirements for construction facilities.

1. CONSTRUCTION FACILITIES - GENERAL

1.1 Provide temporary construction facilities as necessary for performance of the Work and in compliance with applicable regulatory requirements.

1.2 Site mobilization and staging area shall be confirmed and approved with site FMO/project team.

1.3 [See APPENDIX for available on site area] or [There will no area available for storage]

1.4 Maintain temporary construction facilities in good condition for the duration of the Work.

1.5 Remove temporary construction facilities from Place of the Work when no longer required and make good to existing area.

2. CONSTRUCTION PARKING

SPEC NOTE: Consult with Owner regarding provisions of on-site parking for construction personnel.

2.1 Parking will [NOT] be permitted at Place of the Work [at locations indicated on Drawings] [for up to [ ] vehicles] [provided it does not disrupt continuing operation of the facility].

[OR]

2.2 Areas immediately surrounding the Site should be kept clear of all Contractor's, Sub-contractors' and Suppliers' vehicles at all times unless agreed otherwise with the Owner/ CA.

2.3 The Contractor will be solely responsible for making arrangements with, inter alia, authority having jurisdiction, , adjoining owners and occupiers, etc, for all matters including parking of vehicles and deliveries to the Work outside of regular working hours if necessary, and shall pay all charges in connection therewith.

3. VEHICULAR ACCESS

3.1 The Contractor shall ensure proper safety protocols and flag person(s) for access by Owner's staff and visitors if and when near the Place of the Work.

3.2 Build and maintain temporary access roads as required or where indicated on Drawings.

3.3 Access and egress for executing the Works shall be assessed and determined by the Contractor. Access roads must not be obstructed either in whole or in part at any time. The Contractor shall control traffic to all roads, hard standings and footpaths adjacent to the Site and all are to be kept clean and in good repair at all times. If the Contractor fails to keep the adjoining roads, hard standings and footpaths clean at all times, the Owner may employ others to keep such areas clean, and the cost thereof, including the cost of the Owner's management time will be deducted from any monies due to the Contractor. Contractor shall determine and provide for, at its own cost, access and egress to and from the Place of the Work, having regard to requirements of the Owner and authorities having jurisdiction.

4. [SITE OFFICES]

4.1 Provide a temperature controlled and ventilated office, with suitable lighting, of sufficient size to accommodate site meetings.

4.2 The meeting room must be part of the Contractor's own site offices.

4.3 The meeting room must be furnished with

4.3.1 Table large enough to seat [12] as well as accommodate laying down drawings.

4.3.2 Chairs for a minimum of [12] people

SPEC NOTE: Use the following paragraphs for projects only where a Consultant's site office is required.

4.4 [Consultant's site office]:

4.4.1 Provide and obtain approval for suitable lockable temporary accommodation that can either be separate from or part of the Contractor's site office and provides facilities that have:

4.4.1.1 Minimum floor area of [10] square meters

4.4.1.2 At least [1] [one] operable window and a lockable door.

4.4.1.3 Suitable temperature control, ventilation, power and lighting.

4.4.1.4 Equip office with table and chairs to accommodate at least [12] meeting attendees, [one] [3] drawer filing cabinet, [one] plan rack.]

4.4.1.5 Provide [land line telephone] [internet access] [public access wi-fi] [fax machine and paper] [photocopier] [ ].

4.4.1.6 Provide [weekly] [bi-weekly] [monthly] cleaning service.

5. [SANITARY FACILITIES]

5.1 Provide sanitary facilities for workers.

5.2 [When permanent water and drain connections are completed, provide temporary water closets and urinals complete with temporary enclosures, inside building.]

5.3 Do not use permanent washroom facilities during construction.

5.4 Keep sanitary facilities clean and fully stocked with the necessary supplies.

6. [ACCOMMODATION/ LAND NOT INCLUDED IN THE SITE]

6.1 The accommodation/land that may be used for the duration of the Contract is identified as follows: [ ]

6.2 This accommodation/land may be used without charge provided that:

6.2.1 It is used solely for the purposes of carrying out the Works.

6.2.2 The use to which it is put does not involve undue risk of damage.

6.2.3 Any temporary adaptations are approved by or on behalf of the Employer before being carried out.

6.2.4 It is vacated on completion of the Works or determination of the Contract.

6.2.5 When vacated, its condition is at least equivalent to its condition must be equivalent to the original state, prior to use of space by Contractor at start of the Contract.

6.3 The accommodation/land has the services listed below and it remains the contractor's responsibility to assess requirements relative to that offered and to allow for installing services not offered should the contractor elect to use this accommodation/land. The available services are as follows:

6.3.1 Site security is the responsibility of Contractor.

7. FIRE PROTECTION

7.1 Prevent personal injury or death, and damage to the Place of the Work and surrounding/adjacent

areas/property.

7.2 Provide and maintain temporary fire protection systems and equipment during construction.

8. USE OF NEW ELEVATORS

SPEC NOTE: Select either the following paragraph or the subsequent paragraph and its sub-paragraphs.

8.1 Do not use permanent elevators for construction purposes.

[OR]

8.2 Permanent elevators may be used by construction personnel and for transporting Products, at Contractor's option. If used during construction:

8.2.1 Provide protective coverings for finish surfaces of cars and entrances.

8.2.2 Just prior to [Ready-for-Takeover] [Substantial Performance of the Work], perform required maintenance to ensure elevators are in new condition.

8.2.3 Elevators are not to be used in a manner are not per the design intent.

8.3 Ensure that elevator manufacturer's warranty does not commence until the date of [Ready-for-Takeover] [Substantial Performance of the Work] or, if manufacturer's warranty does commence earlier when elevators are put into use, arrange for necessary extension of manufacturer's warranty or provide equivalent coverage under Contractor's warranty.

9. USE OF EXISTING ELEVATORS

SPEC NOTE: Use this article for work in an existing building with elevators. Specify additional usage restrictions as required.

9.1 [No] [Designated] elevators may be used by construction personnel and for transporting Products. Co-ordinate use with [ ].

9.2 Provide protective coverings for finish surfaces of cars and entrances. Assume responsibility for and make good any damage to existing elevators caused by construction personnel.

9.3 Elevators are not to be used in a manner as per the design intent.

10. PROJECT IDENTIFICATION SIGNS

SPEC NOTE: If no project identification sign is required, delete this article. If signage is required, a detail drawing may be added to this Section, or on the Drawings, illustrating required graphics and text including logos, fonts, colours, etc.).

10.1 Provide [one] [two] [ ] Project identification sign[s] [with graphics and text as shown on [attached detail drawing] [the Drawings].] [Graphics and text shall indicate name of Project, name [and logo] of Owner, [Consultant], [subconsultants], Contractor, [and major Subcontractors].] [Graphics and text [will be provided by [Consultant] [Owner] promptly after Contract award.]

10.2 Project identification sign[s] shall be [ ] m x [ ] m, of wood frame and plywood construction with graphics produced by a professional sign company.

10.3 Submit Shop Drawing for Project identification sign graphics and text.

10.4 Erect sign[s] within [three] [ ] weeks of Contract award in location[s] directed or approved by [Owner] [Consultant].

10.5 No other signs or advertisements, other than safety, warning, or directional signs, are permitted without Consultant's prior approval.

END OF SECTION

SPEC NOTE: Use this Section to specify requirements for temporary protection of the public and existing building occupants during construction, by means of barriers and enclosures that are not incorporated into the final or permanent work. Edit to delete inapplicable requirements and expand to include additional requirements as necessary to suit the nature of the Work and of the site.

1. BARRIERS AND ENCLOSURES - GENERAL

1.1 Provide temporary barriers and enclosures necessary to protect the public [and building occupants] and to secure Place of the Work during performance of the Work.

1.2 Comply with applicable regulatory requirements.

1.3 Maintain temporary barriers and enclosures in good condition for the duration of the Work.

1.4 Remove temporary barriers and enclosures from Place of the Work when no longer required.

2. FENCING

2.1 Erect temporary security and safety site fencing of type and height determined by Contractor, subject to applicable regulatory requirements.

[OR]

2.2 Erect temporary security and safety site fencing, minimum [m] high, using [chain link fencing] [snow fencing] [self-supporting wire fence sections] enclosing entire site.

2.3 Maintain site fencing in good repair until removed.

2.4 Provide lockable access gates as required to facilitate construction access.

2.5 [Owner reserves the right to install graphic screen signage on Contractor's fencing.]

3. [EXTERIOR HOARDING]

SPEC NOTE: Use this article in lieu of 1.2 Fencing for projects located in dense urban areas or where otherwise required for public safety and security.

3.1 Erect temporary exterior site hoarding to comply with applicable regulatory requirements [and as follows:]

3.1.1 Use lumber framing and, minimum [13] [ ] mm thick exterior grade plywood.

3.1.2 Paint public side of hoarding [in colour selected by Consultant] with one coat primer and one coat exterior paint. Maintain public side of hoarding clean and in good repair until removed.

3.1.3 Provide lockable access gates for Construction Equipment and lockable pedestrian doors as required to facilitate construction access.

3.1.4 Erect and maintain pedestrian walkways including roof and side covers, complete with pedestrian signage and electrical lighting.

4. WEATHER ENCLOSURES

4.1 Provide weather tight enclosures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.

4.2 Provide weather enclosures to protect floor areas where walls are not finished and to enclose work areas that require temporary heating.

4.3 Design weather enclosures to withstand wind pressure and snow loading requirements.

5. INFECTION CONTROL / DUST TIGHT [SCREENS] [PARTITIONS]

5.1 Provide dust tight [polyethylene screens] [insulated] [wood stud and plywood] [steel stud and gypsum board] [partitions] to localize interior building areas from dust [and noise] generating activities all in accordance with CSA Z317.13 as outlined in the Infection Control Annex A (ICRA) form included tender documents.

5.2 Erect, maintain, and relocate [screens] [partitions] as required to facilitate construction operations and Owner's operational requirements.

6. FIRE ROUTES

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

7. PROTECTION OF BUILDING FINISHES

7.1 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

SPEC NOTE: Use this Section to specify temporary controls required during construction that are not incorporated into the final or permanent work. Edit to delete inapplicable requirements and expand to include additional requirements as necessary to suit the nature of the Work and of the site. For some projects, significant additional environmental controls may be required on account of applicable federal, provincial, or municipal regulatory requirements.

1. TEMPORARY CONTROLS - GENERAL

1.1 Provide temporary controls as necessary for performance of the Work and in compliance with applicable regulatory requirements.

1.2 Maintain temporary controls in good condition for the duration of the Work.

1.3 Remove temporary controls and Construction Equipment used to provide temporary controls from Place of the Work when no longer required.

2. PLANT PROTECTION

2.1 Retained Trees

2.1.1 Protect trees and other plant material designated to remain on site [and on adjacent properties] where indicated on Drawings.

2.1.2 Protect trees and shrubs susceptible to damage during construction by encasing with protective wood framework from grade to height of [one] [two] [metre[s]].

2.1.3 Replace , at Contractor's cost, with trees of similar type and age any and all mature trees uprooted, destroyed or damaged by the Contractor beyond reasonable chance of survival in their original shape .

2.1.4 For trees designated to remain, protect roots inside dripline from disturbance or damage during excavation and grading by not:

2.1.4.1 Dumping spoil or rubbish, excavating or disturbing topsoil, parking vehicles or plant, storing materials or placing temporary accommodation within an area which is the larger of the branch spread of the tree or an area with a radius of half the tree's height, measured from the trunk.

2.1.4.2 Severing roots exceeding 25 mm in diameter. If unintentionally severed give notice and seek advice.

2.1.4.3 Changing the level of ground within an area 3 m beyond branch spread.

2.2 Existing topsoil/subsoil

2.2.1 The Contractor shall prevent over compaction or stripping of existing topsoil, subsoil and vegetation in those areas which may be damaged by construction traffic, parking of vehicles, temporary site accommodation or storage of materials and which will require reinstatement prior to completion of the Works

2.2.2 Before starting work, the contractor shall submit proposals for protective measures

3. DUST AND PARTICULATE CONTROL

3.1 Implement and maintain dust and particulate control measures in accordance with applicable regulatory requirements.

3.2 Execute Work by methods that minimize dust from construction operations and spreading of dust on site or to adjacent properties.

3.3 Provide temporary enclosures to prevent extraneous materials resulting from sandblasting or similar operations from contaminating air beyond immediate work area.

3.4 Where construction work is proximal to fresh air building intake vents, coordinate with owner/team on mitigation measure on noxious odours, dust & fumes arising from the construction site.

3.5 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

3.6 Use appropriate covers on trucks hauling fine, dusty, or loose materials.

3.7 Provide dust control for all materials to and from the Work.

3.8 Others

4. DEWATERING

4.1 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 run-off, as required to keep them stable, dry, and protected from damage due to flooding.

4.2 Maintain standby equipment necessary to ensure continuous operation of dewatering system.

4.3 Do not pump water containing suspended materials or other harmful substances into waterways, sewers or surface drainage systems. Treat or dispose of such water in accordance with applicable regulatory requirements

5. SITE DRAINAGE

5.1 Maintain grades to ensure proper site drainage.

5.2 Prevent surface water runoff from leaving the site [except as otherwise provided by waste water management plan].

5.3 Prevent precipitation from infiltrating or from directly running off stockpiled [waste] materials. Cover stockpiled [waste] materials with an impermeable liner during periods of work stoppage including at end of each Working Day.

5.4 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.

5.5 Control surface drainage by ensuring that gutters are kept open and water is not directed across or over pavements or sidewalks, except through pipes or properly constructed troughs. Ensure that runoff from unfinished areas is intercepted and diverted to suitable outlets.

6. EROSION AND SEDIMENT CONTROL

6.1 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, and repair damage caused by soil erosion and sedimentation.

6.2 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.

6.3 Do not disturb existing embankments or embankment protection.

6.4 Periodically inspect erosion and sediment control measures to detect evidence of erosion and sedimentation. Promptly take corrective measures when necessary.

6.5 If soil and debris from site accumulate in ditches or other low areas, remove accumulation and restore area to original condition.

7. POLLUTION CONTROL

7.1 Take measures to prevent contamination of soil, water, atmosphere, and existing infrastructure through uncontrolled discharge of noxious or toxic substances and other pollutants, potentially causing environmental or infrastructure damage.

7.2 Be prepared, by maintaining appropriate materials, equipment, and trained personnel on site, to intercept, clean up, and dispose of spills or releases that may occur. Promptly report spills and releases that may occur to:

7.2.1 authority having jurisdiction,

7.2.2 person causing or having control of pollution source, if known, and

7.2.3 Owner and Consultant.

7.2.4 Contact manufacturer of pollutant, if known and applicable, to obtain material safety data sheets (MSDS) and ascertain hazards involved and precautions and measures required in cleanup or mitigating actions.

7.3 Take immediate action to contain and mitigate harmful effects of the spill or release.

END OF SECTION

SPEC NOTE: Use this Section to specify requirements that are common to most or all Product requirements specified in technical Specification Sections, thus negating the need to repeat these types of requirements in technical Sections.

1. GENERAL

1.1 Provide Products that are new (i.e. not damaged or defective), and suitable for purpose intended, subject to specified requirements. Contractor may propose, and Owner may consider and accept in the Owner's sole discretion, proposals for recycled Products.

1.2 If requested by Consultant, furnish evidence as to type, source and quality of Products provided.

1.3 Unless otherwise specified, maintain uniformity in quality and appearance of manufacture for like items throughout.

1.4 [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.]

2. PRODUCT OPTIONS

2.1 Subject to the provisions of Section 01 25 00 –Substitution Procedures:

2.1.1 Wherever a Product or manufacturer is specified by a single proprietary name, provide the named Product only.

2.1.2 Wherever more than one Product or manufacturer is specified by proprietary name for a single application, provide any one of the named Products.

2.2 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.

2.3 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.

3. PRODUCT AVAILABILITY AND DELIVERY TIMES

3.1 Promptly upon Contract award and periodically during construction, review and confirm Product availability during the Project and delivery times. Order Products in sufficient time and quality to meet the construction progress schedule and the Contract Time.

3.2 If a specified Product is no longer available, promptly notify Consultant. Consultant will take action as required.

3.3 If delivery delays are foreseeable, for any reason, promptly notify Consultant.

3.4 If a delivery delay is beyond *Contractor*'s control, *Consultant* will provide direction.

3.5 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.

4. STORAGE, HANDLING, AND PROTECTION

4.1 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.

4.2 Comply with manufacturer's instructions for storage, handling and protection.

4.3 Store packaged or bundled Products in original and undamaged condition with manufacturer's seals and labels intact. Do not remove from packaging or bundling until required in Work.

4.4 Comply with the requirements of the workplace hazardous materials information system (WHMIS) regarding use, handling, storage, and disposal of hazardous materials, including requirements for labeling and the provision of material safety data sheets (MSDS).

4.5 Store Products subject to damage from weather in weatherproof enclosures.

4.6 Store sheet Products on flat, solid, supports and keep clear of ground. Slope to shed moisture.

4.7 Remove and replace damaged Product.

5. EXECUTION

5.1 Fix, apply, install or lay Products securely, accurately, plumb, neatly and in alignment.

5.2 Do not use different colour batches where they can be seen together.

5.3 Check on-site dimensions [prior to installation of Products].

5.4 Finished work shall not be defective, e.g. not damaged, disfigured, dirty, faulty, or out of tolerance.

5.5 When locating and fixing products, adjust joints open to view so they are even and regular.

6. COMPLIANCE

6.1 Retain on site evidence that the product supplied complies with the proprietary specifications

6.2 Submit evidence of compliance with performance specifications of either the Consultant or manufacturer, including test reports indicating:

6.2.1 Properties tested.

6.2.2 Pass/ fail criteria.

6.2.3 Test methods and procedures.

6.2.4 Test results.

6.2.5 Identity of testing agency.

6.2.6 Test dates and times.

6.2.7 Identities of witnesses.

6.2.8 Analysis of results.

END OF SECTION

SPEC NOTE: Use this Section to specify requirements for survey, utility locate, and other preparatory work before commencement of construction. Also use this Section to specify examination and preparation requirements that are common to most or all technical Specifications Sections, thus negating the need to repeat these types of requirements in technical Sections.

1. SURVEYOR QUALIFICATIONS

1.1 Engage a registered land surveyor, licensed to practice in Place of the Work.

2. SUBMITTALS

2.1 Submit name and address of registered land surveyor performing survey work.

2.2 Submit to [Owner] [and] [Consultant] the survey of the Work prepared and issued by a registered land surveyor [on completion of the building footings and foundations] [as required by Authorities Having Jurisdiction] [ ] and on completion of the Work.

3. SURVEY REFERENCE POINTS

3.1 Locate and confirm permanent reference points prior to starting site work. Preserve and protect permanent reference points on site during construction.

3.2 Do not change or relocate reference points without prior written notice to Consultant.

3.3 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 survey.

4. SURVEY REQUIREMENTS

4.1 Establish sufficient permanent benchmarks on site, referenced to established benchmarks by survey control points.

4.2 Confirm that existing survey reference points are in accordance with Owner's survey and property limits.

4.3 Establish initial lines and levels for building layout.

4.4 Maintain a complete, accurate log of control and survey work as it progresses. Record locations with horizontal and vertical data in project record documents.

5. EXISTING UTILITIES AND STRUCTURES

5.1 Before commencing excavation other earthwork, drilling, cutting or demolition of existing structures, establish or confirm location and extent of all existing underground, buried or hidden utilities and structures in work area.

5.2 Promptly notify Consultant if underground utilities, structures, or their locations differ from those indicated in Contract Documents or in available project information.

5.3 Consultant will provide appropriate direction.

5.4 Record locations of maintained, re-routed and abandoned utility lines.

6. CONDITIONS SURVEY

6.1 Prior to commencement of the Works the Contractor is to carry out a condition survey in conjunction with the [Owner] [and] [Consultant] of the Site, including, inter alia, footpaths / roads / fences and trees etc. which are to be retained during the Works, and issue a report to the [Owner] [and] [Consultant], 2 hard copies and a further copy on CD Rom format of the report which records the condition of such. The Report is to include record photographs. The Contractor must provide the [Owner] [and] [Consultant] with a

minimum of 5 working days notice of his intention to carry out this survey.

7. VERIFICATION OF EXISTING CONDITIONS

7.1 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 the 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 the existing conditions.

7.2 Verify that 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.

7.3 Ensure that substrate surfaces are clean, dimensionally stable, cured and free of contaminants.

7.4 Notify Consultant in writing of unacceptable conditions.

END OF SECTION

SPEC NOTE: Use this Section to specify requirements that are common to most or all technical Specifications sections, thus negating the need to repeat these types of requirements in technical Sections.

1. SUMMARY

1.1 Except where otherwise specified in technical Specifications or otherwise indicated on Drawings, comply with requirements of this Section.

2.

3. MANUFACTURER'S INSTRUCTIONS

3.1 Install, erect, or apply Products in strict accordance with manufacturer's instructions.

3.2 Notify Consultant, in writing, of conflicts between Contract Documents and manufacturer's instructions where, in Contractor's opinion, conformance with Contract Documents instead of the manufacturer's instructions may be detrimental to the Work or may jeopardize the manufacturer's warranty.

3.3 Do not rely on labels or enclosures provided with Products. Obtain written instructions directly from manufacturers.

3.4 Provide manufacturer's representatives with access to the Work at all times. Render assistance and facilities for such access so that manufacturer's representatives may properly perform their responsibilities.

4. CONCEALMENT

4.1 Conceal pipes, ducts, and wiring in floors, walls and ceilings in finished areas:

4.1.1 after review by Consultant and authority having jurisdiction, and

4.1.2 where locations differ from those shown on Drawings, after recording actual locations on Record Drawings.

4.2 Provide incidental furring or other enclosures as required.

4.3 Notify Consultant in writing of interferences before installation.

5. FASTENINGS - GENERAL

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

5.2 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.

5.3 Use non-corrosive fasteners and anchors for securing exterior work [and in spaces where high humidity levels are anticipated].

5.4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage.

5.5 Keep exposed fastenings to a minimum, space evenly and install neatly.

5.6 Do not use fastenings or fastening methods that may cause spalling or cracking of material to which anchorage is made.

6. FASTENINGS - EQUIPMENT

6.1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.

6.2 Bolts shall not project more than one diameter beyond nuts.

7. FIRE RATED ASSEMBLIES

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

8. LOCATION OF FIXTURES, OUTLETS AND DEVICES

8.1 Consider location of fixtures, outlets, and devices indicated on Drawings as approximate.

8.2 Locate fixtures, outlets, and devices to provide minimum interference, maximum usable space, and as required to meet safety, access, maintenance, acoustic, and regulatory, including barrier free, requirements.

8.3 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.

9. PROTECTION OF COMPLETED WORK AND WORK IN PROGRESS

9.1 Adequately protect parts of the Work completed and in progress from any kind of damage.

9.2 Promptly remove, replace, clean, or repair, as directed by Consultant, work damaged as a result of inadequate protection.

9.3 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.

10. METHOD / SEQUENCE OF WORK

10.1 Include the following specific limitations in the schedule

10.1.1 [ ]

10.1.2 [ ]

11. SCAFFOLDING

11.1 Make standing scaffolding available to subcontractors at all times.

12. DEFECTS IN EXISTING WORK

12.1 Immediately give notice when undocumented defects are discovered. Do not proceed with executing the affected related work until a response is received

12.2 Do not execute work which may either hinder access to defective products or work or be rendered abortive by the remedial work

13. REMEDIAL WORK

13.1 Agree the extent and location of all remedial work before commencement

13.2 Notify Consultant of, and perform remedial work required to, repair or replace defective or unacceptable work.

13.3 Carry out remedial work in ways that minimize the extent of the work

13.4 Ensure that properly qualified workers perform remedial work.

13.5 Coordinate adjacent affected work as required.

END OF SECTION

SPEC NOTE: Use this Section to specify requirements for incidental cutting, fitting, and patching required to complete the Work and make its many parts fit together properly.

1. REQUEST FOR CUTTING, PATCHING AND REMEDIAL WORK

1.1 Submit written request in advance of cutting, coring, or alteration which affects or is likely to affect:

1.1.1 Structural integrity of any element of the Work.

1.1.2 Integrity of weather-exposed or moisture-resistant elements.

1.1.3 Efficiency, maintenance, or safety of any operational element.

1.1.4 Visual qualities of sight-exposed elements.

1.1.5 Work of Owner or other contractors.

1.1.6 Warranty of Products affected.

1.1.7 Noise and/or vibration.

1.2 Include in request:

1.2.1 Identification of Project.

1.2.2 Location and description of affected work, including drawings or sketches as required.

1.2.3 Statement on necessity for cutting or alteration.

1.2.4 Description of proposed work, and Products to be used.

1.2.5 Alternatives to cutting and patching.

1.2.6 Effect on work of Owner or other contractors.

1.2.7 Written permission of affected other contractors.

1.2.8 Date and time work will be executed.

2. PRODUCTS

2.1 Unless otherwise specified, when replacing existing or previously installed Products in the course of cutting and patching work, use replacement Products of the same character and quality as those being replaced.

2.2 If an existing or previously installed Product must be replaced with a different Product, submit request for substitution in accordance with Section 01 25 00 - Substitution Procedures.

3. PREPARATION

3.1 Inspect existing conditions in accordance with Section 01 71 00 - Examination and Preparation.

3.2 Provide supports to ensure structural integrity of surroundings; provide devices and methods to protect other portions of the Work from damage.

3.3 Provide protection from elements for areas that may be exposed by uncovering work.

4. EXISTING UTILITIES

4.1 When breaking into or connecting to existing services' utilities, execute the Work at times directed by local governing authorities, with a minimum of disturbance to the Work, pedestrian and vehicular traffic, and ongoing Owner operations.

[OR]

4.2 .Where the Work involves breaking into or connecting to existing services, give notice to the [authority having jurisdiction] [Owner] [Consultant] at least [48] [ ] [hours] [days] prior to the necessary interruption of mechanical or electrical services. The notice must be accompanied by Owner approved detailed work plan that addresses the safety of all stakeholders both implementing and affected by the break into or connection to existing services

4.3 Maintain excavations free of water.

4.4 Keep duration of interruptions to a minimum.

4.5 Carry out interruptions after regular working hours of occupants, preferably on weekends, unless Owner's prior written approval is obtained.

4.6 Protect and maintain existing active services. Record location of services, including depth, on as-built drawings.

4.7 Construct or erect barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures as required to protect pedestrian and vehicular traffic.

5. CUTTING, PATCHING, AND REMEDIAL WORK

5.1 Coordinate and perform the Work to ensure that cutting and patching work is kept to a minimum.

5.2 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.

5.3 Provide openings in non-structural elements of the Work for penetrations of mechanical and electrical work.

5.4 Perform cutting by methods to avoid damage to other work

5.5 Provide proper surfaces to receive patching, remedial work, and finishing.

5.6 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.

5.7 Do not use pneumatic or impact tools without Consultant's prior approval.

5.8 Ensure that cutting, patching, and remedial work does not jeopardize manufacturers' warranties.

5.9 Refinish surfaces to match adjacent finishes. For continuous surfaces refinish to nearest intersection. For an assembly, refinish entire unit.

5.10 Fit work to pipes, sleeves, ducts, conduit, and other penetrations through surfaces with suitable allowance for deflection, expansion, contraction, acoustic isolation, and firestopping.

5.11 Maintain fire ratings of fire rated assemblies where cutting, patching, or remedial work is performed. Completely seal voids or penetrations of assembly with firestopping material to full depth or with suitably rated devices.

END OF SECTION

SPEC NOTE: Use this Section to specify requirements for progressive and final cleaning of the Work and waste management and disposal.

1. REGULATORY REQUIREMENTS

1.1 Comply with applicable regulatory requirements when disposing of waste materials.

1.2 Obtain permits from Authorities Having Jurisdiction and pay disposal fees where required for disposal of waste materials and recyclables.

2. GENERAL CLEANING REQUIREMENTS

2.1 Provide adequate ventilation during use of volatile or noxious substances. [Do not rely on building ventilation systems for this purpose.]

2.2 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

2.3 Prevent cross-contamination during the cleaning process.

2.4 Notify the Consultant of the need for cleaning caused by Owner or other contractors.

3. PROGRESSIVE CLEANING AND WASTE MANAGEMENT

3.1 Maintain the Work in a tidy and safe condition, free from accumulation of waste materials and construction debris.

3.2 Provide appropriate, clearly marked, containers for collection of waste materials and recyclables. [Locate containers [ ] [where indicated on Drawings].]

3.3 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.

3.4 Remove waste materials and recyclables from Place of the Work [daily] [weekly] [at regular intervals].

3.5 Clean interior building areas prior to start of finish work and maintain free of dust and other contaminants during finishing operations.

3.6 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly finished surfaces nor contaminate building systems.

SPEC NOTE: Include the following sentence only where the Contractor will have care, custody and control of a site with adjacent public sidewalks.

3.7 [Clear snow and ice from public sidewalks as required to comply with applicable municipal regulatory requirements.]

4. FINAL CLEANING

4.1 Before final cleaning, arrange a meeting at Place of the Work to determine the acceptable standard of cleaning. Ensure that [Owner,] Consultant, Contractor [and cleaning company] are in attendance.

4.2 Remove from Place of the Work surplus Products, waste materials, recyclables, Temporary Work, and Construction Equipment not required to perform any remaining work.

4.3 Provide professional cleaning by a qualified, established cleaning company.

4.4 Lock or otherwise restrict access to each room or area after completing final cleaning in that area.

4.5 Re-clean as necessary areas that have been accessed by Contractor’s workers prior to

4.6 Owner occupancy.

4.7 Remove stains, spots, marks, and dirt from finished surfaces, electrical and mechanical fixtures, furniture fitments, walls, floors [and] [ ].

4.8 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, [ ] and all other finished surfaces, including mechanical and electrical fixtures. Replace broken, scratched or otherwise damaged glass.

4.9 Remove dust from lighting reflectors, lenses, lamps, bulbs, and other lighting surfaces.

4.10 Vacuum clean and dust exposed wall, floor, and ceiling surfaces, behind grilles, louvres and screens, [above suspended ceiling tiles] [ ].

4.11 Clean mechanical, electrical, and other equipment. Replace filters for mechanical equipment if equipment is used during construction.

4.12 Remove waste material and debris from crawlspaces and other accessible concealed spaces.

4.13 Remove stains, spots, marks, and dirt from exterior facades.

4.14 Clean exterior and interior window glass and frames.

4.15 Clean and sweep roofs, [clear roof drains,] [clean gutters and downspouts,] [sunken wells,] [ ].

4.16 [Sweep clean] [power wash] [remove snow and ice from] exterior [sidewalks,] [steps,] [driveways,] [roads,] [parking lots,] and other paved surfaces.

4.17 Use leaf blowers to clean landscaped surfaces.

5. WASTE MANAGEMENT AND DISPOSAL

SPEC NOTE: If the project involves removal of hazardous materials or designated substances such as asbestos, lead paint, PCBs, etc., this article is inadequate. Specify additional requirements in this section or in other sections.

5.1 Dispose of waste materials and recyclables at appropriate municipal landfills and recycling facilities in accordance with applicable regulatory requirements.

5.2 Do not burn or bury waste materials at Place of the Work.

5.3 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.

5.4 Cover or wet down dry waste materials to prevent blowing dust and debris.

END OF SECTION

SPEC NOTE: Use this Section to specify administrative processes associated with the attainment of closeout milestones at the completion of the Work.

SPEC NOTE: This Section assumes use of CCDC 2 – 2020 standard form contract and unmodified closeout related provisions in that contract. This Section provides additional details and requirements that are specific to the Project and to facilitate administration of this Contract. This Section is not intended to be used with CCDC contracts that do not address Ready-for-Takeover and contain General Conditions that address procedures related to Substantial Performance of the Work instead. In order to use this Section with other CCDC contracts and to avoid duplication or conflict with the Conditions of Contract and the applicable lien legislation, either the other CCDC contracts would need to be significantly modified by means of Supplementary Conditions to align with CCDC 2 – 2020 or alternatively this Section would need to be significantly modified.

1. READY-FOR-TAKEOVER

1.1 The prerequisites to attaining Ready-for-Takeover of the Work are described in the General Conditions of the Contract.

2. INSPECTION AND REVIEW BEFORE READY-FOR-TAKEOVER

SPEC NOTE: This article specifies the contractual prerequisites for attaining the Ready-for-Takeover milestone identified in CCDC 2 – 2020.

SPEC NOTE: This article specifies the inspection and review procedure for attaining the Ready-for-Takeover milestone identified in CCDC 2 – 2020.

SPEC NOTE: Exercise caution when editing this Section to ensure that provisions of the General Conditions of Contract are not duplicated here unnecessarily and that no conflicts are created with the General Conditions.

2.1 Contractor's Inspection: Before applying for the Consultant's review to establish Ready- for-Takeover of the Work:

2.1.1 Ensure that the specified prerequisites to Ready-for-Takeover of the Work are completed.

2.1.2 Conduct an inspection of the Work to identify defective, deficient, or incomplete work.

2.1.3 Prepare a comprehensive and detailed list of items to be completed or corrected.

2.1.4 Provide an anticipated schedule and costs for items to be completed or corrected.

SPEC NOTE: Select one of the following two paragraphs depending of whether the Consultant wishes to review the Work independently or jointly with the Contractor. In both cases there should be only one deficiency list and the Contractor should be responsible for maintaining it.

2.2 Consultant's Review: Upon receipt of the Contractor's application for review, together with the Contractor's list of items to be completed or corrected, the Consultant will review the Work. The Consultant will advise the Contractor whether or not the Work is Ready-for-Takeover and will provide the Contractor with a list of items, if any, to be added to the Contractor's list of items to be completed or corrected. Provide the Consultant with a copy of the Contractor's revised list.

[OR]

2.3 Consultant's Review: Upon receipt of the Contractor's application for review, together with the Contractor's list of items to be completed or corrected, the Consultant and the Contractor shall arrange a mutually satisfactory agreed date and time to jointly review the Work. The Consultant will advise the Contractor whether or not the Work is Ready-for- Takeover. Add additional items, if any, to the Contractor's list of items to be completed or corrected. Provide the Consultant with a copy of the revised

list.

2.4 Maintain the list of items to be completed or corrected and promptly correct or complete defective, deficient and incomplete work. The 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 the Contractor's list of items to be completed or corrected.

2.5 When the Consultant determines that the Work is Ready-for-Takeover, the Consultant will notify the Contractor and the Owner in writing to that effect.

3. PREREQUISITES TO FINAL PAYMENT

3.1 After Ready-for-Takeover of the Work and before submitting an application for final payment in accordance with the General Conditions of Contract:

3.1.1 Correct or complete all remaining defective, deficient, and incomplete work.

3.1.2 Remove from the Place of the Work all remaining surplus Products, Construction Equipment, and Temporary Work.

3.1.3 Perform final cleaning and waste removal necessitated by the Contractor's work performed after Ready-for-Takeover, as specified in Section 01 74 00 – Cleaning and Waste Management.

4. PARTIAL USER OCCUPANCY

SPEC NOTE: Include this article if partial user occupancy is specified in Section 01 14 00 – Work Restrictions.

4.1 If partial Owner occupancy of a part of the Work is required before the date of Ready-for- Takeover of the entire Work of the Contract, the provisions of this Section shall apply, to the extent applicable, to that part of the Work that the Owner intends to occupy.

5. SUBSTANTIAL PERFORMANCE OF THE WORK

SPEC NOTE: In the past, CCDC contracts have in effect combined the Owner's takeover with substantial performance of the Work, or similar such milestone provided for in the applicable lien legislation. The purpose of this milestone in the lien legislation is primarily to trigger release of the statutory lien holdback. However, lien legislation differs in each province and territory. Hence the prerequisites to, and the procedures for, attaining substantial performance also differ and they cannot be overridden by the contract. CCDC 2 – 2020 therefore no longer defines substantial performance of the Work nor includes any provisions dealing with the process for attaining substantial performance of the Work. It only addresses payment of the lien holdback, which comes after substantial performance of the Work, or similar milestone. CCDC 2 – 2020 assumes that this is an independent milestone that is not necessarily related to the Owner's takeover. Substantial performance of the Work for lien legislation purposes could potentially be certified before, at the same time as, or after, Ready-for-Takeover.

5.1 The prerequisites to, and the procedures for, attaining substantial performance of the Work, or similar

SPEC NOTE: The following paragraph simply refers to the applicable lien legislation for the process of attaining substantial performance of the Work or similar milestone.

such milestone as provided for in the lien legislation applicable to the Place of the Work, shall be:

5.1.1 independent of those for attaining Ready-for-Takeover of the Work, and

5.1.2 in accordance with the lien legislation applicable to the Place of the Work.

6. MAINTENANCE SERVICE

6.1 Provide a comprehensive maintenance service for the following items of plant and equipment including all planned preventative maintenance, as set out within the maintenance schedule and replacement of all

consumable items for review by the Consultant and Owner's FMO team.

6.1.1 [ ].

6.2 The comprehensive maintenance service will take place during the last month of the warranty period.

END OF SECTION

SPEC NOTE: This Section specifies procedures for closeout submittals, including supply of spare parts and maintenance materials at or near completion of construction. Section 01 33 00 - Submittal Procedures specifies submittals during construction.

SPEC NOTE: Additional requirements may be needed if the Owner decides to implement a voluntary sustainability certification program. Such additional submittal requirements should be addressed in a separate Div. 01 section (not included in the CCDC Master Specification for Div. 01).

1. OPERATION AND MAINTENANCE MANUAL

1.1 Prepare a comprehensive operation and maintenance manual, in the language[s] of the Contract, using personnel qualified and experienced for this task.

1.2 Submit an initial draft of the operation and maintenance manual for Consultant's review a minimum of [ ] weeks prior to the date scheduled for [Ready-for-Takeover] [Substantial Performance]. If required by Consultant's review comments, revise manual contents and resubmit for Consultant's review. If required, repeat this process until Consultant accepts the draft manual in writing.

1.3 Submit final version to Owner in [hard copy] [and] [electronic] format. [Provide [ ] [four] hard copies.]

2. OPERATION AND MAINTENANCE MANUAL FORMAT

2.1 Organize data in the form of an instructional manual.

2.2 Binders: vinyl, hard covered, three D-rings, loose leaf, 216 x 279 mm, with spine and face pockets.

2.3 When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder on spine.

2.4 Cover: Identify each binder with typed or printed title "Operation and Maintenance Manual", name of Project or facility, and subject matter of contents.

2.5 Arrange content [by systems,] [process flow,] under Section numbers and sequence of Table of Contents.

2.6 Provide tabbed fly leaf for each separate Product or system, with typed description of

2.7 Product and major component parts of equipment.

2.8 Text: Manufacturer's printed data, or typewritten data.

2.9 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

SPEC NOTE: The storage and retrieval of electronic information is dependent on the availability and sophistication of software. Software platforms, languages, formats and versions are constantly changing. Determine the Owner's needs and edit the following paragraph when requiring the Contractor to provide the information electronically.

2.10 Provide electronic copy of manual in searchable PDF format.

2.11 Provide electronic copy of Shop Drawings in manual as [1:1] [ ] scaled CAD files in [.dxf] [.dwg] [ ] format on [CD-ROM] [DVD-ROM] [USB flash drive] [electronic media acceptable to Owner].

3. OPERATION AND MAINTENANCE MANUAL – GENERAL CONTENT

3.1 Table of contents for each volume.

3.2 Introductory information including:

3.2.1 Date of manual submission.

3.2.2 Complete contact information for Consultant, subconsultants, other consultants, and

3.2.3 Contractor, with names of responsible parties.

3.2.4 Schedule of Products and systems indexed to content of volume.

3.2.5 For each Product or system, include complete contact information for Subcontractors, Suppliers and manufacturers, including local sources for supplies and replacement parts.

3.2.6 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.

3.2.7 Reviewed Shop Drawings.

SPEC NOTE: Edit the following paragraph to incorporate relevant certificates issued by the authorities having jurisdiction, as required by safety code legislation and occupational health and safety requirements.

3.2.8 Permits, certificates, letters of assurance and other relevant documents issued by or required by Authorities Having Jurisdiction.

3.2.9 Warranties.

3.2.10 Operating and maintenance procedures, incorporating manufacturer's operating and maintenance instructions, in a logical sequence.

3.2.11 [Training materials as specified in Section 01 79 00 - Demonstration and Training].

4. OPERATION AND MAINTENANCE MANUAL - EQUIPMENT AND SYSTEMS CONTENT

SPEC NOTE: Ensure that this article is reviewed by mechanical, electrical, and other specialty equipment and systems specifiers to avoid duplication or conflict with other divisions of the Specifications. If necessary, delete and specify in other technical sections with a reference to this Section.

4.1 Each Item of Equipment and Each 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.

4.2 Panel Board Circuit Directories: provide electrical service characteristics, controls, and communications.

4.3 Include installed colour coded wiring diagrams.

4.4 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.

4.5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

4.6 Provide servicing and lubrication schedule, and list of lubricants required.

4.7 Include manufacturer's printed operation and maintenance instructions.

4.8 Include sequence of operation by controls manufacturer.

4.9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

4.10 Provide installed control diagrams by controls manufacturer.

4.11 Provide Contractor's coordination drawings, with installed colour coded piping diagrams.

4.12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control

diagrams.

4.13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

4.14 Include testing and balancing reports.

4.15 Include additional content as specified in technical Specifications sections.

5. OPERATION AND MAINTENANCE MANUAL - PRODUCTS AND FINISHES CONTENT

5.1 Include Product data, with catalogue number, options selected, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured Products.

5.2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

5.3 Include an outline of requirements for routine and special inspections and for regular maintenance to ensure that on-going performance of the building envelope will meet the initial building envelope criteria.

5.4 Include additional content as specified in technical Specifications sections.

6. OPERATION AND MAINTENANCE MANUAL - WARRANTIES CONTENT

6.1 Separate each warranty with index tab sheets keyed to Table of Contents listing.

6.2 List each warrantor with complete contact information.

6.3 Obtain or retain copies, register with manufacturer and

6.4 Verify that documents are in proper form and contain full information. Ensure that warranties are for the correct duration and are in Owner's name.

6.5 Hand over on or before the Ready-for-Takeover Date as stated in the Contract.

6.6 [Include maintenance bond(s)].

7. CONTRACTOR'S RECORD DRAWINGS

SPEC NOTE: If the Contractor is required to maintain as-built drawings as specified in Section 01 32 00, include this article regardless of who is responsible for producing the project record drawings.

7.1 Submit final as-built drawings in the form specified in Section 01 32 00 – Construction Progress Documentation to [Owner] [Consultant].

8. PROJECT RECORD DRAWINGS

SPEC NOTE: Most commonly the Consultant will be responsible for transferring as-built information from the as-built drawings maintained by the Contractor to the permanent project record drawings, in which case this article should be deleted. Include this article only if the Owner had determined that the Contractor, and not the Consultant, will be responsible for creating the project record drawings.

8.1 Transfer all information marked up on the as-built drawings during the progress of the Work (otherwise referred to as "red-line" drawings) to a master set of record drawing files provided by Consultant, in [ ] electronic format.

8.2 Mark revised drawings as "RECORD DRAWINGS".

8.3 Submit completed record drawings in [hard copy] [and] [electronic] form to [Owner] [Consultant]. Provide [four] [ ] hard copy sets.

9. SPARE PARTS, MAINTENANCE MATERIALS, AND SPECIAL TOOLS

9.1 Supply spare parts, maintenance materials, special tools and portable indicating instruments necessary for the operation and maintenance of all services, plant and equipment in quantities specified in technical Specifications sections.

9.2 Ensure spare parts and maintenance materials are new, not damaged nor defective, and of same quality, manufacturer, and batch or production run as installed Products.

9.3 All spare parts shall be marked and numbered referencing the service, plant and equipment listed in the Operations and Maintenance Manual.

9.4 Provide tags for sets (minimum 2) of special tools and portable indicating instruments identifying their function and associated Product.

9.5 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.

9.6 Provide and inventory listing, organized by Specification section, cataloguing all items with manufacturer's current prices (including packaging and delivery to site) to [Owner] [Consultant]. Include Consultant reviewed inventory listing in operation and maintenance manual.

10. BUILDING INFORMATION MODEL (BIM) AND COMPUTER AIDED FACILITY MANAGEMENT (CAFM)

SPEC NOTE: If BIM is used for the project, and the Owner wishes to utilize the BIM as the basis for CAFM, specify the detailed particulars of the Contractor's submittal obligations at closeout. It may be appropriate to refer to the BIM Contract Appendix published by the Institute for BIM in Canada (IBC) in this regard.

10.1 [ ].

10.2 [ ].

END OF SECTION

SPEC NOTE: Use this Section to specify requirements for systems manufacturers, Suppliers and installers to demonstrate Products, equipment and systems to Owner's personnel.

1. SUMMARY

1.1 Demonstrate and provide training to Owner's personnel on operation and maintenance of [equipment] [building envelope] [and] [systems] prior to the date scheduled for [Ready-for- Takeover of the Work] [Substantial Performance of the Work].

1.2 Training includes explaining and demonstrating to the Owner's maintenance staff the purpose, function and operation of the installations including items and procedures listed in the Operational and Maintenance Manual.

1.3 Owner will provide list of personnel to receive training and will coordinate their attendance at agreed upon times.

1.4 Coordinate and schedule demonstration and training provided by Subcontractors and Suppliers.

2. SUBMITTALS

2.1 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 Specifications.

2.2 Consultant and Owner will review submittal and advise Contractor of any necessary revisions.

2.3 Submit report(s) within [5] [ ] Working Days after completion of demonstration and training:

2.3.1 identifying time and date of each demonstration and training session,

2.3.2 summarizing the demonstration and training performed, and

2.3.3 including a list of attendees

2.3.4 formal acknowledgement from attendees that training is complete

2.4 [Submit video record of demonstration and training together with report.]

3. PREREQUISITES TO DEMONSTRATION AND TRAINING

3.1 Testing, adjusting, and balancing has been performed in accordance with Contract Documents.

3.2 Equipment and systems are fully operational.

3.3 Copy of completed operation and maintenance manual is available for use in demonstration and training.

3.4 Conditions for demonstration and training comply with requirements specified in technical Specifications.

4. DEMONSTRATION AND TRAINING

4.1 Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, [ ] and maintenance of each item of equipment and system.

4.2 Review operation and maintenance manual in detail to explain all aspects of operation and maintenance.

4.3 Prepare and insert additional information in operation and maintenance manual if required.

END OF SECTION

SPEC NOTE: Use this Section to specify Contractor, commissioning agency, Consultant, and Owner responsibilities related to commissioning. This Section assumes that either the Owner or the Contractor will retain and pay for the services of a third party commissioning agency to do the commissioning.
Select either option in article 1.1. In cases where both the Owner and the Contractor may retain separate commissioning agencies for particular types of commissioning, specify their respective responsibilities in more detail. Specify more detailed system or Product specific requirements for Contractor performed testing, adjusting, and balancing and other commissioning related requirements in the applicable technical Specifications Sections.

1. COMMISSIONING AGENCY

1.1 Owner will retain and pay for an independent commissioning agency to provide commissioning services for the Project.

[AND/OR]

1.2 Contractor shall retain and pay for a commissioning agency to provide commissioning services for the Project.

2. CONTRACTOR RESPONSIBILITIES

2.1 Prepare each system ready for commissioning. Verify systems installation is complete and in operation.

2.2 Coordinate commissioning with and/or assist commissioning agency(s).

2.3 Submit relevant drawings and preliminary performance data to enable the building user's staff to familiarize themselves with the installation.

2.4 Perform and document verification, performance testing, adjusting, and balancing operations.

2.5 Cooperate with commissioning agency and provide access to equipment and systems.

2.6 Provide personnel and operate systems at designated times, and under conditions required for proper commissioning.

2.7 Make instruments available to commissioning agency to facilitate spot checks during commissioning.

2.8 Participate in commissioning meetings.

2.9 Complete commissioning forms as requested by commissioning agency.

2.10 Correct deficiencies identified in commissioning process.

2.11 Incorporate commissioning data into operation and maintenance manual.

2.12 Ensure that commissioning agency participates in demonstration and training as specified in Section 01 79 00 – Demonstration and Training.

2.13 [Provide instruments necessary for commissioning.]

3. COMMISSIONING AGENCY RESPONSIBILITIES

3.1 The commissioning agency [will] [shall]:

3.1.1 Prepare a commissioning plan, including systems to be commissioned, forms, checklists and responsibilities of commissioning team members.

3.1.2 Implement the commissioning plan and lead the commissioning team through start-up, verification, performance testing, training, and document preparation.

3.1.3 Convene, chair, prepare and distribute minutes of commissioning meetings.

3.1.4 Supervise commissioning activities and witness inspections and tests.

3.1.5 Make periodic site visits for the purpose of selective checking of accuracy of commissioning form submissions, witness testing, and review of mock-ups.

3.1.6 Review content of operations and maintenance manual.

3.1.7 [Provide instruments necessary for commissioning.]

4. CONSULTANT RESPONSIBILITIES

4.1 Consultant will:

4.1.1 Participate in commissioning meetings.

4.1.2 Review verification and performance test results and direct Contractor to correct defects or deficiencies in the Work.

4.1.3 Initiate Change Orders or Change Directives identified as necessary by the commissioning process.

4.1.4 Review final commissioning report.

5. OWNER RESPONSIBILITIES

5.1 Owner will:

5.1.1 Assign operations and maintenance personnel to participate in meetings, and witnessing of demonstration, and training.

5.1.2 Designate a person to acknowledge receipt of reports.

6. SCHEDULE OF EQUIPMENT AND SYSTEMS TO BE COMMISSIONED

SPEC NOTE: Use this article to provide a comprehensive list of all equipment and systems to be commissioned. Ensure that individual technical Specification Sections include more detailed commissioning related requirements, as necessary.

6.1 Division [ ] – [ ]

6.1.1 [ ]

6.1.2 [ ]

6.1.3 [ ]

6.2 Division [ ] – [ ]

6.2.1 [ ]

6.2.2 [ ]

6.2.3 [ ]

6.3 Division [ ] – [ ]

6.3.1 [ ]

6.3.2 [ ]

6.3.3 [ ]

END OF SECTION

1. GENERAL NOTES

1.1 Refer to Appendix A: Integrated Systems Testing Matrix at the end of this specification section.

1.2 This specification section describes the methodology for verifying and documenting that all interconnections between systems are installed and operating in conformance with their design criteria;

1.3 Contractor will ensure that when the Contractor is connecting or making modifications, or is causing a Subcontractor to connect or make modifications to existing systems, that the Contractor will manage, coordinate and schedule such work with the Owner.

1.4 For integrated systems testing to begin, the Contractor shall ensure that individual systems are functioning and installed in accordance with their design criteria or referenced standards;

1.5 All aspects of power distribution system shall be confirmed on-site including;

1.5.1 load transfer

1.5.2 bypass operation

1.5.3 key interlocks

1.5.4 load shedding

1.5.5 power metering

1.5.6 SCADA systems

1.5.7 BAS interface

1.5.8 energy performance monitoring

1.5.9 This specification defines the following:

1.5.9.1 Integrated Systems Testing Team (ISTT);

1.5.9.2 Integrated Systems Testing Process;

1.5.9.3 Integrated Systems Testing Requirements;

1.5.9.4 Integrated Systems Testing Documentation;

1.5.9.5 Verification (by the CxA) of Integrated Systems Testing;

1.5.9.6 Deferred Integrated Systems Testing.

2. DEFINITIONS

In this Section 01 91 26 the following capitalized terms have the meaning ascribed to them:

2.1 Acceptance Testing: the evaluation of a system to ensure that the installation is in accordance with its design criteria and the relevant Standards;

2.2 Component: individual devices, forming part of equipment, sub-systems, systems or interconnected systems;

2.3 Control Unit: a component that provides the control and logic processing of a fire alarm system;

2.4 Design Criteria: documents prescribed by a design professional for a system to meet the requirements of the Owner and applicable codes and standards;

2.5 Design Professional: a person, firm or corporation, qualified in accordance with federal, provincial, territorial, or other applicable regulations responsible for the design;

2.6 Input/Output Correlation: the relationship between two or more systems which has a defined cause

(input) and a resultant effect (output) as specified in the system's design documentation;

2.7 Inspection: a visual examination to determine that the device or system will apparently perform in accordance with its intended function;

2.8 Interconnection: the link between two or more integrated fire protection and life safety systems which has an associated input/output correlation. The link between two or more integrated fire protection and life safety systems may or may not be a physical connection;

2.9 Integrated System: a combination of two or more systems, which may or may not be physically connected with one another, but that are designed to operate together to achieve an overall functional objective;

2.10 Integrated Systems Testing Team (ISTT): is the designated team that plans, performs and documents the integrated systems testing according to the Integrated Systems Testing Plan.

2.11 Integrated Systems Testing Plan: a written project-specific document prepared by the CxA with input from the ISTT and the design team outlining the required tests and necessary functional results of the integrated systems testing;

2.12 Integrated Systems Testing Report; a written project-specific document prepared by the CxA documenting the results of the testing activities undertaken in accordance with the Integrated Systems Testing Plan;

2.13 Installing Contractor: a person, firm, corporation, or organization responsible for the installation of a system in accordance with the contract documents;

2.14 Supplier: a person, firm, corporation, or organization responsible for the supply of equipment or systems in accordance with the contract documents or similar contract documents (in the case of owner-supplied equipment or systems);

3. REFERENCES

3.1 CSA Z8001-13 - Commissioning of Health Care Facilities

4. RELATED SECTIONS

4.1 [Section 00 01 10 Appendix F Commissioning Plan]

4.2 [Section 01 91 13 – General Commissioning Requirements]

4.3 [Section 01 91 14 – Mechanical Commissioning Requirements]

4.4 [Section 01 91 15 – Electrical Commissioning Requirements]

4.5 [Section 23 08 00 Commissioning of HVAC Systems]

4.6 [Section 26 05 10 – Electrical Systems Commissioning]

5. INTEGRATED SYSTEMS TESTING TEAM (ISTT)

5.1 The Integrated Systems Testing Team (ISTT) is the team who, together, plans and performs and documents the integrated systems testing according to the Integrated Systems Testing Plan. The ISTT members are to be identified in the integrated system testing Plan. These members will include designers, installers and suppliers of each system that interacts with at least one other system.

5.2 The ISTT members shall be knowledgeable and experienced in the design, installation, and operation of the system or systems being integrated for which they are responsible. NOTE: Federal, provincial, territorial or other applicable regulations may exist for the licensing and/or certification of individuals as confirmation of their knowledge and experience.

5.3 Specific-system ISTT members shall have knowledge and understanding of:

5.3.1 The codes and standards that regulate the design of building systems;

5.3.2 How individual and integrated systems are designed to operate during normal operating conditions and emergency conditions; and

5.3.3 Methods for validating the intended functionality of integrated systems.

5.4 Specific-system ISTT members shall have all licenses and certifications if required by:

5.4.1 Federal, provincial, territorial or other applicable regulations; and/or

5.4.2 Contract

5.5 Specific-system ISTT members shall have experience on at least 2 healthcare projects of similar size, scope and nature.

5.6 Key ISTT members are:

5.6.1 Contractor

5.6.1.1 Contractor will assist in coordination of all parties involved with the installation and supply of the individual systems to be commissioned.

5.6.1.2 Contractor is responsible for the on-site coordination of all installation parties (including Subcontractors) and suppliers and is ultimately responsible for the delivery of fully functional and integrated systems (documented as such).

5.6.1.3 Contractor will work together with the Owner's consultants and the Commissioning Authority (CxA) in the development of the integrated testing plan and its execution;

5.6.2 Owner's commissioning representative (aka Commissioning Authority (CxA))

5.6.2.1 As defined in the latest project commissioning plan

5.6.3 Design Professionals

5.6.3.1 As defined in the latest project commissioning plan

6. INTEGRATED SYSTEMS TESTING PROCESS

6.1 General

6.1.1 This section applies to the testing of new installations of integrated systems;

6.1.2 This section shall also be applied, as appropriate to existing integrated systems;

6.1.3 The design criteria for the integration of various systems is the responsibility of the design professional(s). The design professional(s) shall document together with the CxA, the intended integration systems performance for each system for which they hold design responsibility;

6.1.4 Any deficiencies found during integrated systems testing shall be documented and forwarded – via the CxA - to the Contractor or to specific trade contractor or supplier or to the appropriate design professional(s) for resolution.

6.1.5 Once the integrated systems are fully operational and documented as such, the integrated systems shall be demonstration to the design professionals and then to the owner in accordance with appropriate elements of Subsection 1.7 ("Integrated Systems Testing Requirements");

6.2 Integrated Systems Testing Planning Phase

6.2.1 During this planning phase of integrated systems testing, documentation detailing each interconnection between systems is made available to the CxA (sent from appropriate member of the ISTT). This documentation shall be sufficient for the CxA to prepare the Integrated Systems Testing Plan. Such documentation shall include, but not be limited to the following, as applicable:

6.2.1.1 Building floor plan(s);

6.2.1.2 Systems design documentation (drawings and specifications), including:

6.2.1.2.1 Sequencing descriptions (showing coordination between mechanical and electrical systems); and

6.2.1.2.2 Mechanical and electrical riser diagrams.

6.2.1.2.3 Manufacturer's operating and testing instructions, as requested by the CxA; and

6.2.1.2.4 Documentation of any alternative solutions and/or deviations from the requirements of Codes and Standards.

6.2.2 The Integrated Systems Testing Plan shall outline the following:

6.2.2.1 The functional objectives of system integrations;

6.2.2.2 The sequence of operations of integrated systems which:

6.2.2.2.1 Describe operation under normal operating conditions,

6.2.2.2.2 Describe operation under fire conditions and other non-normal conditions.

6.2.2.2.3 Test protocol and procedures for integrated systems;

6.2.2.2.4 A procedure for notifying building occupants of integrated systems testing; and

6.2.2.2.5 Alternate measures, such as notifications and safety protocols, for ensuring occupant safety during integrated systems testing.

6.2.2.3 Test procedures provided in the Integrated Systems Testing Plan shall consider the safety of personnel and the safe operation of the systems;

6.2.2.4 Where a building is intended to be occupied in phases, the Integrated Systems Testing Plan shall:

6.2.2.4.1 Be developed for the entire building, with consideration for the integrated tests which will be required for each occupancy phase identified within the overall Integrated Systems Testing Plan; and

6.2.2.4.2 Ensure that the integrated systems within each area to be occupied are tested for proper integrated operation.

6.2.2.5 Where a building is occupied in phases, and an integrated system is complete and undergoes integrated systems testing, the system integrations are not required to be retested for subsequent integrated systems tests provided ongoing construction does not impact previously tested system integrations;

6.2.2.6 Prior to implementation of the Integrated Systems Testing Plan, the CxA shall provide the Integrated Systems Testing Plan to the design professional(s) and the owner for review and acceptance;

6.2.2.7 Following acceptance of the Integrated Systems Testing Plan by the design professional(s) and the owner and prior to implementation of the Integrated Systems Testing Plan, where required, Contractor shall provide the Integrated Systems Testing Plan to the authority having jurisdiction for review;

6.2.2.8 Where the design professional(s) make changes to integrated systems that impact the

Integrated Systems Testing Plan, revisions to the Integrated Systems Testing Plan shall be submitted to the design professional(s) and the CxA and, where required, the authority having jurisdiction for review.

6.2.3 Integrated Systems Testing Implementation Phase

6.2.3.1 During this phase of a project, and prior to implementing the Integrated Systems Testing Plan, the following documentation shall be provided to the CxA, as required:

6.2.3.1.1 Written confirmation from design professional(s) that they have conducted individual system acceptance testing and that the systems, or parts thereof, have been installed in accordance with the design and are ready for integrated systems testing;

6.2.3.1.2 Written confirmation from the installing contractor(s) that the systems, or parts thereof, have been installed in accordance with the design and are ready for integrated systems testing;

6.2.3.1.3 Documentation from the verifying party(s) confirming that the fire protection and life safety systems have been installed in accordance with the design. Documentation that may be requested from the verifying parties may include, but not be limited to, the following, as applicable:

a. Fire alarm system verification report;

b. Standpipe system contractor's material and test certificate for aboveground piping;

c. Sprinkler system contractor's material and test certificate for aboveground piping;

d. Fixed fire suppression systems approval test report;

e. Emergency pressurization system testing, adjusting, and balancing report;

f. Smoke exhaust system testing, adjusting, and balancing report; and Contractor's material and test certificate for underground piping.

6.2.3.1.4 Confirmation of inspection by the local authority responsible for enforcing CSA C22.1, Canadian Electrical Code, Part I, Safety Standard for Electrical Installations;

6.2.3.1.5 Confirmation of inspection by the local authority responsible for enforcing ASME A17.1/CSA B44, Safety Code for Elevators and Escalators;

6.2.3.1.6 Confirmation of implementation of occupant notification procedures; and

6.2.3.1.7 Confirmation of implementation of alternate measures for ensuring occupant safety.

6.2.3.2 Where required, the Contractor shall provide sufficient notification to the Authority Having Jurisdiction of the implementation of the Integrated Systems Testing Plan to allow them to witness the integrated systems testing;

6.2.3.3 The design professional(s), installing contractor(s), and verifying party(s) shall participate in the test protocol and procedures, as required by the Integrated Systems Testing Plan;

6.2.3.4 Failure of any integrated systems tests shall result in the correction and re-testing of the affected integrated systems;

6.2.3.5 System shall be returned to their functional operating condition upon completion of integrated systems testing;

6.2.3.6 Upon successful completion of the integrated systems tests, documentation as required in Section 1.8, Integrated Systems Testing Documentation, shall be:

6.2.3.6.1 Provided to the building owner, design professionals and the CxA;

6.2.3.6.2 Provided to the authority having jurisdiction, where required; and

6.2.3.6.3 Maintained on site as specified in the National Fire Code of Canada.

7. INTEGRATED SYSTEMS TESTING REQUIREMENTS

7.1 General

7.1.1 This section describes the requirements for the testing of integrated systems;

7.1.2 These tests shall be incorporated into the Integrated Systems Testing Plan, based on the specific configuration and condition of the integrated systems;

7.1.3 The tests described in this section, shall be considered the minimum level of required testing. Additional testing may be required by the CxA or the Design Professionals to demonstrate the proper operation of the integrated systems;

7.1.4 The tests described in this section, shall include a functional operation of the device or system, except that testing by simulation shall be permitted where:

7.1.4.1 Non-restorable devices or systems are required to be activated to demonstrate an integrated function; or

7.1.4.2 Tests may result in harm to persons, or damage to a device, system, or building.

7.1.4.3 Where the CxA has been provided with specific documented evidence that an integrated systems test was performed during acceptance testing, such documentation may be considered acceptable to comply with the intent of this specification at the discretion of the CxA, and where required, in consultation with the Design Professionals and/or the authority having jurisdiction;

7.1.4.4 Where test requirements for integrated systems are not detailed in this section, the CxA shall prepare test procedures in consultation with the design professional(s) and members of the ISTT for inclusion in the Integrated Systems Testing Plan.

7.2 Fire Alarm Systems

7.2.1 Fire alarm systems integrated with other fire protection and life safety systems shall be tested to confirm correct operation in accordance with the design sequence of operation;

7.2.2 The test method shall be a functional test and shall be appropriate for the method of integration provided;

7.2.3 Where provided, the following interconnections with a fire signal receiving centre shall be confirmed:

7.2.3.1 Receipt of the fire alarm transmission signal;

7.2.3.2 Receipt of the supervisory transmission signal;

7.2.3.3 Receipt of the trouble transmission signal; and

7.2.3.4 Operation of a fire signal receiving centre disconnect means, such as a control by-pass,

results in a specific trouble indication at the fire alarm system and transmits a trouble transmission signal to the fire signal receiving centre.

7.3 Elevators

7.3.1 Where elevators are integrated with other systems, each system interconnection shall be tested to confirm correct operation in accordance with the design sequence of operation;

7.3.2 2 Elevator integration considered by this specification includes integration to a fire alarm system and integration to standalone fire detectors;

7.3.3 Input/output correlations for elevator recall operation shall be tested to confirm the following:

7.3.3.1 Recall to primary level; or

7.3.3.2 Recall to alternate level.

7.3.4 Each elevator recall operation listed above shall be tested to confirm integration as follows:

7.3.4.1 Initiating devices designed to initiate elevator recall operation to the primary recall level shall, when activated, cause the affected elevators to recall to the primary recall level and the in-car recall indicator to stay constantly illuminated;

7.3.4.2 Initiating devices designed to initiate elevator recall operation to the alternate recall level shall, when activated, cause the affected elevators to recall to the alternate recall level and the in-car recall indicator to stay constantly illuminated; and

7.3.4.3 Initiating devices installed within elevator hoistways, elevator machine rooms, control spaces, or control rooms, designed to initiate elevator recall operation shall, when activated, cause the affected elevators to recall to the appropriate recall level and the in-car recall indicator to stay intermittently illuminated.

NOTE: Confirmation of in-car recall indicator status is intended to ensure correct input/output correlation (i.e. correct relay operation) and is not intended to replace elevator functional testing conducted by the local elevator licensing authority or authorized designate. Where one or more initiating device can cause an output correlation function, only one initiating device is required to be tested to confirm correct operation.

7.4 Audio/Visual and/or Lighting Control Systems

7.4.1 Where audio/visual and/or lighting control systems are integrated with other fire protection and life safety systems, each system interconnection shall be tested to confirm that, upon operation, the audio/visual system or lighting control system functions in accordance with the design sequence of operation. Examples of audio/visual and lighting control systems include, but are not limited to, the following:

7.4.1.1 Building lighting control systems;

7.4.1.2 Audio systems;

7.4.2 Each interconnection shall be tested to confirm integration by activating one initiating device associated with the input/output correlation and confirming correct output operation.

7.5 Notification Systems

7.5.1 Where notification systems are integrated with other fire protection and life safety systems, each system interconnection shall be tested to confirm that, upon operation, the notification system

functions in accordance with the design sequence of operation. Examples of notification systems include, but are not limited to, the following:

7.5.1.1 Fire: Do Not Enter signage;

7.5.1.2 Electronic messaging systems;

7.5.1.3 LED scrolling signs;

7.5.1.4 Emergency wayfinding signage;

7.5.1.5 Computer network messaging;

7.5.1.6 Building television systems;

7.5.1.7 Wide area voice paging systems;

7.5.1.8 Community alerting systems;

7.5.1.9 Building voice paging systems (not part of a fire alarm system);

7.5.1.10 Cellular device alerting systems (e.g. mobile phones, pagers, etc.).

7.5.2 Each interconnection shall be tested to confirm integration by activating one initiating device associated with the input/output correlation and confirming correct output operation.

7.6 Sprinkler Systems

7.6.1 Each interconnection between a sprinkler system and other fire protection and life safety system(s) shall be tested to confirm correct operation of the integration;

7.6.2 The test method shall be appropriate for the method of integration provided;

7.7 Standpipe Systems

7.7.1 Each interconnection between a standpipe system and other fire protection and life safety system(s) shall be tested to confirm correct operation of the integration;

7.7.2 The test method shall be appropriate for the method of integration provided;

7.8 Fire Pump

7.8.1 Where fire pumps are integrated with other fire protection and life safety systems, each fire pump interconnection shall be tested to confirm correct change of status in accordance with the design sequence of operation;

7.8.2 Input/output correlations for fire pump supervision shall include, but not be limited to, the following:

7.8.2.1 Fire pump running;

7.8.2.2 Fire pump trouble (diesel only);

7.8.2.3 Fire pump phase reversal (electric only);

7.8.2.4 Fire pump loss of phase (electric only);

7.8.2.5 Fire pump connected to alternate source (electric only); and

7.8.2.6 Controller main switch to OFF or manual position (diesel only).

7.8.3 Each supervision function for the fire pump, shall be tested to confirm integration as follows, where applicable:

7.8.3.1 Fire pump running (electric and/or diesel) shall be confirmed by manually starting the fire

pump. It is not necessary to flow water for the purpose of this test;

7.8.3.2 Fire pump trouble (diesel only) shall be confirmed by causing a trouble condition required to cause a common trouble signal on the fire pump controller in accordance with NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection;

7.8.3.3 Fire pump phase reversal (electric only). Some fire pump controllers have a built-in switch that can simulate phase reversal. Where such a switch is provided, it should be used to test phase reversal interconnections. For fire pump controllers without this switch, activation of the phase reversal relay should be electrically simulated on the fire pump controller side of the interconnection;

7.8.3.4 Fire pump loss of phase (electric only) shall be confirmed by disconnecting one phase of the power source supplying the fire pump;

7.8.3.5 Fire pump connected to alternate source (electric only) shall be confirmed by manually switching the fire pump from primary to alternate power; or

7.8.4 Controller main switch to OFF or MANUAL position (diesel only) shall be confirmed by switching the main switch from the AUTO position to either the OFF or MANUAL position.

7.9 Water Supplies

7.9.1 Each interconnection between a water supply and other fire protection and life safety system(s) shall be tested to confirm correct operation of the integration;

7.9.2 The test method shall be appropriate for the method of integration provided;

7.9.3 Water level supervisory devices shall be tested by adjusting the water level sufficiently, or by simulating its mechanical operation;

7.9.4 Pressure supervisory devices shall be tested by adjusting the pressure level sufficiently, or by simulating its mechanical operation;

7.9.5 Temperature supervisory devices shall be tested by simulating the activation temperature of the device. Low temperature conditions may be simulated by using an aerosol based freeze spray suitable for use with energized electrical equipment. High temperature conditions may be simulated by using a controlled flame-less heat source.

7.10 Water Supplies Control Valves

7.10.1 Each interconnection between a private water supply control valve and other fire protection and life safety system(s) shall be tested to confirm correct operation of the integration;

7.10.2 The test method shall be appropriate for the method of integration provided.

7.11 Freeze Protection Systems

7.11.1 Each interconnection between a freeze protection system and other fire protection and life safety system(s) shall be tested to confirm correct operation of the integration;

7.11.2 The test method shall be appropriate for the method of integration provided.

7.12 Fixed Fire Suppression Systems

7.12.1 Where fixed fire suppression systems are integrated with other fire protection and life safety system(s), each fixed fire suppression system interconnection shall be tested to confirm correct change of status in accordance with the design sequence of operation. Examples of fixed fire suppression systems may include, but are not be limited to, the following:

7.12.1.1 Clean agent systems;

7.12.1.2 Carbon dioxide systems;

7.12.1.3 Halon systems;

7.12.1.4 Water mist systems;

7.12.1.5 Foam water systems;

7.12.1.6 Dry chemical systems; and

7.12.1.7 Fixed aerosol fire extinguishing systems.

7.12.2 The test method shall be a functional test and shall be appropriate for the method of integration provided. Release of suppression agent is not required for this test;

7.12.3 Fixed fire suppression systems shall be secured from inadvertent actuation for the duration of the integrated systems testing by:

7.12.3.1 Disconnecting releasing solenoids or electric actuators;

7.12.3.2 Closing of valves, and

7.12.3.3 Other actions, or combinations thereof, in accordance with manufacturer's instructions;

7.12.3.4 Where multiple initiating devices can cause an input/output correlation function as determined by the sequence of operation, the minimum number of initiating devices required to cause the input/output correlation function shall be tested to confirm operation.

7.13 Hold-Open Devices

7.13.1 Where hold-open devices are integrated with other systems, each system interconnection shall be tested to confirm correct operation in accordance with the design sequence of operation;

7.13.2 Testing of correct operation shall include confirmation that each door equipped with a hold-open device has returned to the closed and latched position;

7.13.3 Hold-open device integration considered by this specification includes integration to a fire alarm system and integration to standalone initiating devices;

7.13.4 Where hold-open devices are controlled by a common fire alarm system interconnection, testing of hold-open devices shall include activation of a minimum of one initiating device;

7.13.5 Where hold-open devices are controlled by local initiating device interconnection, testing of hold-open devices shall include testing of all local initiating devices controlling the hold-open device. As the intent of integrated systems testing is to confirm correct operation of interconnections between two or more fire protection and life safety systems, where each hold-open device is individually interconnected to an initiating device, each separate interconnection would be required to be tested.

7.14 Electromagnetic Locks

7.14.1 Where electromagnetic locks are integrated with other systems, each system interconnection shall be tested to confirm correct operation in accordance with the design sequence of operation;

7.14.2 Testing of correct operation shall include confirmation that each electromagnetic lock has de-energized;

7.14.3 Common release integrations for electromagnetic locks shall be tested by activation of a minimum of one initiating device;

7.14.4 Local release integrations for electromagnetic locks shall be tested by activation of all local initiating devices controlling the electromagnetic locks. Depending on the applicable Building Code, local release integrations may be through exit release hardware or local fire alarm manual stations. In addition, common release integrations are required. As the intent of integrated testing is to confirm correct operation of interconnections between two or more fire protection and life safety systems, each individual local and common release integration would be tested as appropriate to the integration provided.

7.15 Smoke Control Systems

7.15.1 For the purpose of this Specification:

7.15.1.1 Emergency Pressurization Systems are smoke control systems which are installed to limit the movement of smoke in a building to maintain a tenable environment. These systems include exit stairwell, elevator hoist way, areas of refuge, contained use areas, and vestibule pressurization; and

7.15.1.2 Smoke Exhaust Systems are systems which are installed to evacuate smoke from a building to maintain a tenable environment and to aid firefighting. These systems may include smoke exhaust fans, smoke exhaust shafts, smoke control dampers, and pressurization fans.

7.15.2 Smoke control systems may include interconnections between fans, closures, dampers, doors, and associated control systems such as fire alarm systems and building management systems. The interconnections should be tested by activating an alarm initiation device and confirming that the interconnected systems operate in accordance with the design sequence of operation. Access into pressurized areas through at least one access door should be confirmed to ensure that the exiting system and the smoke control system are correctly integrated.

7.15.3 Emergency Pressurization Systems

7.15.3.1 Where emergency pressurization systems are integrated with other systems, each system interconnection shall be tested to confirm correct operation in accordance with the design sequence of operation;

7.15.3.2 The test method shall be a functional test and shall be appropriate for the method of integration provided;

7.15.3.3 Input/output correlations for emergency pressurization systems may include, but not be limited to, one or more of the following:

7.15.3.3.1 Automatic pressurization fan control;

7.15.3.3.2 Manual pressurization fan control;

7.15.3.3.3 Automatic pressurization air relief control;

7.15.3.3.4 Manual pressurization air relief control; or

7.15.3.3.5 Door opening forces.

7.15.3.3.6 Where one or more initiating device can cause an output correlation function, only one initiating device is required to be tested to confirm correct operation;

7.15.3.3.7 With respect to door opening forces, a minimum of one door into each pressurized area is required to be tested to ensure the door is openable with the emergency pressurization system and/or smoke control system in operation.

7.15.4 Smoke Exhaust Systems

7.15.4.1 Smoke exhaust systems integrated with other fire protection and life safety systems shall be tested to confirm correct operation in accordance with the design sequence of operation;

7.15.4.2 The test method shall be a functional test and shall be appropriate for the method of integration provided;

7.15.4.3 Input/output correlations for smoke exhaust systems shall include, but not be limited to, one or more of the following:

7.15.4.3.1 Automatic fan control;

7.15.4.3.2 Manual fan control;

7.15.4.3.3 Fan status monitoring;

7.15.4.3.4 Automatic damper control;

7.15.4.3.5 Manual damper control;

7.15.4.3.6 Damper status monitoring;

7.15.4.3.7 Firefighter's smoke control station; or

7.15.4.3.8 Building Automation system interface.

7.15.4.4 Input/output correlations for smoke exhaust systems shall be tested for each smoke exhaust system interconnection;

7.15.4.5 Where one or more inputs can cause an output correlation function, only one input is required to be activated to confirm the correct operation of the interconnection. The correct operation of the interconnection shall also be confirmed to be in accordance with the smoke exhaust system sequence for the activated input;

7.15.4.6 Where interconnections are provided through digital interfaces, each command string (software object) shall be considered as a separate interconnection for the purposes of integrated testing;

7.15.4.7 For the purpose of confirming smoke exhaust system input/output correlation functions, control and monitoring functions provided through centralized displays, such as the firefighter's smoke control station or the building automation system, may be used provided the control and monitoring functions have been confirmed for correct operation and the monitoring functions provide true status.

7.16 Smoke Alarms

7.16.1 Where smoke alarms are interconnected with other systems or systems with fire protection and life safety functions, the interconnections shall be tested to confirm correct operation of the integration;

7.16.2 The test method shall be appropriate for the method of integration provided.

7.17 Building Automation System (BAS)

7.17.1 Where BAS is interconnected with systems or systems with fire protection and life safety functions, the interconnections shall be tested to confirm correct operation of the integration;

7.17.2 Each input/output correlation shall be tested to confirm correct operation in accordance with the design sequence of operation.

8. INTEGRATED SYSTEMS TESTING DOCUMENTATION

8.1 General

8.1.1 The purpose of an integrated systems testing report shall be to provide results of the implementation of the integrated testing plan;

NOTE: The Integrated Systems Testing Plan and the integrated testing report may be combined into a single document.

8.1.2 The integrated systems testing report shall be presented in a form and media in which it can be easily used, maintained and updated over the life cycle of the systems installed in buildings or facilities.

8.2 Integrated Systems Testing Forms

8.2.1 Integrated systems testing forms are to be developed by the CxA with consultation with the appropriate member(s) of the ISTT based on the test protocols and procedures for integrated systems as outlined in the project specifications;

8.2.2 Integrated systems testing forms shall indicate the test protocol and procedures and allow for documenting the resultant conditions observed by the CxA;

8.2.3 Integrated systems testing forms shall be signed upon completion of the test protocol and procedures confirming that the participants in the integrated systems testing concur that the resultant conditions observed are correctly stated in the integrated systems testing report;

8.2.4 Participants in the integrated systems testing shall only be required to sign integrated systems testing forms detailing the test protocol and procedures for their respective systems;

8.2.5 Where test protocols and procedures are required to be re-implemented due to failure of the initial integrated systems tests, the resultant conditions shall be recorded in an integrated systems testing form;

8.2.6 Integrated systems testing forms for re-tests shall clearly indicate the tests as confirmation of integrations after a failed result during initial integrated systems testing.

8.3 Integrated Systems Testing Report

8.3.1 Following the successful completion of integrated systems testing, the CxA shall prepare an Integrated Systems Testing Report;

8.3.2 The integrated systems testing report shall include, but not be limited to the following:

8.3.2.1 The Integrated Systems Testing Plan;

8.3.2.2 initial integrated systems testing forms;

8.3.2.3 Re-test integrated systems testing forms; and

8.3.2.4 Documentation provided as required by Subsection 1.6.3, Integrated Systems Testing Implementation Phase.

8.3.2.5 Examples of procedures which may be included in the integrated testing report include, but are not limited to, the following:

8.3.2.5.1 Notification of integrated systems testing should be given in advance. The parties to be notified who could be affected may include, but are not necessarily limited to, the fire department, supervisory staff in the building and the occupants of the building;

8.3.2.5.2 During implementation of integrated systems testing, the Fire Department and building occupants/owner should be notified. Instructions should be posted as to alternate provisions or actions to be taken in case of an emergency. These provisions and actions should be acceptable to the Chief Fire Official and be in accordance with the accepted Fire Safety Plan, where provided;

8.3.2.5.3 An attempt to minimize the impact of inoperative equipment should be made (i.e. where portions of a sprinkler system, fire alarm system and standpipe system are taken out of service, the remaining portions will be maintained). Assistance and direction for specific situations should be sought from the authority having jurisdiction and be in accordance with the approved Fire Safety Plan, where provided;

8.3.2.5.4 Where procedures to be followed in the event of a shutdown of any part of a fire protection and life safety system are not detailed in an approved Fire Safety Plan, the following procedures are to be implemented, as applicable, based on stage of construction or occupancy of the building:

8.3.2.5.4.1 Notify the Fire Department, the fire signal receiving centre, and the owner or owner's representatives, as applicable. Give your name, address and a description of the work and when you expect it to be completed. The Fire Department should be notified in writing of shutdowns longer than 24 h, as applicable;

8.3.2.5.4.2 Post notices on all floors by elevators and at entrances, stating the work and when it is expected to be completed,

8.3.2.5.4.3 Have staff or other reliable person(s) patrol the affected area(s) at least once every hour;

8.3.2.5.4.4 Notify the Fire Department, the fire signal receiving centre, and building occupants/owner when work has been completed and systems are operational; and

8.3.2.5.4.5 Alternate measures for ensuring building occupant safety during integrated systems testing.

9. VERIFICATION (by the CxA) of INTEGRATED SYSTEMS TESTING

9.1.1 The appropriate party or parties of the ISTT shall demonstrate to the CxA on-site and through documentation, that the various systems have been properly integrated and are functioning as defined in the Integrated Systems Testing Plan and the contract documents;

9.1.2 The CxA will ensure that any integrated systems testing issues or deficiencies found during this verification process are recorded and then ultimately resolved;

9.1.3 The CxA will recommend acceptance of integrated systems testing results, in consultation with design professionals, to the Owner.

10. DEFERRED INTEGRATED SYSTEMS TESTING

10.1.1 All integrated system tests that could not occur for any reason in the period leading up to or immediately following Ready-for-Takeover is to be rescheduled when the conditions that prevented this testing from occurring can be overcome.

Vendor and/or Manufacturer Sign-Off Form

Project: _____ Equipment Schedule Reference: _____

Asset System / Component : _____

(Make / Model / Size): _____

Vendor and/or Manufacturer: _____

Expected Service Life of Asset / System (years): _____

Standard Warranty Period (years): _____

Optional Warranty Extensions (years) _____

Service Contract Options Description including typical service levels agreement, as applicable:

Preventative Maintenance

Option 1: Number of Visits _____ Unit Price _____ Annual Price _____

Option 2: Number of Visits _____ Unit Price _____ Annual Price _____

Option 3: Number of Visits _____ Unit Price _____ Annual Price _____

Demand Maintenance

Description _____ Unit of Measure _____ Unit Price _____

Maintenance Activity	Weekly	Monthly	Quarterly	Annually

Component Repair / Replacement Activity	Frequency (years)

Propose Equipment Install Location	Mark Applicable
Acceptable Clearances	
Non-Hazardous Area	
Requires Safe Work / Confined Space Provisions	
Other:	

Comments: _____

Licensing costs (if applicable)	Frequency (years)

The undersigned vendor and/or manufacturer of the equipment item described above hereby certifies that the above information is accurate under typical operating conditions and with consideration of acceptable maintenance practices.

_____ _____

Date Vendor and/or Manufacturer

_____

Signature of Authorized Representative

_____ _____

Date Contractor

_____

Signature of Authorized Representative

End of Section