S P E C I F I C A T I O N S

C I T Y O F K A W A R T H A L A K E S

G A R N E T G R A H A M C O M F O R T S T A T I O N

F E N E L O N F A L L S

R O N A L D A . A W D E , A R C H I T E C T

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SC-1 GENERAL

1.1 These Supplementary Conditions presuppose the use of the Standard Construction Document CCDC 2 2008 for Stipulated Price Contract, GC 1 to GC 12, plus the addition of GC 13 inclusive, in full. These "Supplementary Conditions" void, supersede or amend the "General Conditions" as the case may be.

1.2 Where a General Condition or paragraph of the General Conditions of the Stipulated Price Contract is deleted by these Supplementary Conditions, the numbering of the remaining General Conditions or paragraphs shall remain unchanged, and the numbering of the deleted item will be retained, unused.

1.3 Throughout the Contract Documents reference to the "General Conditions of the Contract" shall imply the inclusion of "Supplementary Conditions".

1.4 Throughout the Contract Documents the term "Total Performance of the Work" is used, amend this term throughout to read: "Completion of the Contract".

1.5 Throughout the Contract Documents the term "Certificate of Total Performance of the Work" is used, amend this term throughout to read: "Statement of Completion of the Contract" and any other reference to the word "Certificate" then referring to "Certificate of Total Performance" shall be amended to read "Statement."

1.6 *Notices in Writing* between the parties or between them and the *Consultant* shall be considered to have been received by the addressee on the date of receipt if delivered by hand or by commercial courier or if sent during normal business hours by fax and addressed as set out below. Such *Notices in Writing* will be deemed to be received by the addressee on the next business day if sent by fax after normal business hours or if sent by overnight commercial courier. Such *Notices in Writing* will be deemed to be received by the addressee on the fifth *Working Day* following the date of mailing, if sent by pre-paid registered post, when addressed as set out below. An address for a party may be changed by *Notice in Writing* to the other party setting out the new address in accordance with this Article.

SC-2 DEFINITIONS

2.1 ***Add*** the following definitions:

"**19a Submittals**

Submittals are documents or items required by the *Contract Documents* to be provided by the *Contractor*, such as:
- *Shop Drawings*, samples, models, mock-ups to indicate details or characteristics, before the portion of the *Work* that they represent can be incorporated into the *Work*; and
- As-built drawings and manuals to provide instructions to the operation and maintenance of the *Work*.

SC-2 DEFINITIONS - Continued

"**27 Headings**

Headings of all articles of the Standard Construction Document CCDC 2, 2008 and all articles of the Specifications are inserted for reference only and do not affect the construction and the interpretation of the Contract.

28 Schedules

Schedules are supplementary details and lists contained within or appended to the Specifications and to the Drawings.

29 Syntax

Wherein the words "approved", "designated", "inspected", "instructed", "permitted", "required", "satisfactory", "selected" and "submit" are used in the Contract Documents, they shall be considered, unless the context provides otherwise, to be followed by the words "by the Consultant" and "to the Consultant".

30 Submittals

Wherein the word "submit" is used in the Contract Documents, it shall be considered to be followed by the words "to the Consultant" unless the context provides otherwise.

31 Supply

Wherever the word "supply" is used in the Contract Documents, it means purchase and delivery of items by the Contractor to the project site.

32 Install

Wherever the word "install" is used in the Contract Documents, it means unload, store, uncrate, assemble, mount in position, connect and otherwise perform the Work necessary for proper operation, by the Contractor."

33 Constructor

For purposes of the Contract, the Contractor shall be considered the 'Constructor' as defined by the Occupational Health and Safety Act and Regulation for Construction.

SC-2 DEFINITIONS - Continued

34 Hazardous Substances

In addition to substances generally recognized as hazardous substances or characterized as such under applicable legislation, hazardous substances shall include any solid, liquid, gas, odour, heat, sound, vibration, radiation, mould, bacteria or combination of them that may impair the natural environment, injure or damage property, plant or animal life or harm or impair the health of any person."

35 Conflict Of Interest

"Conflict of Interest means a situation in which financial or other personal considerations have the potential to compromise or bias professional judgment and objectivity. An apparent conflict of interest is one in which a reasonable person would think that the professional's judgment is likely to be compromised."

36 Additional Owner's Definitions Governing Request for Tender and Contract

.1 "Agreement to Bond" is a letter or form issued by a licensed bonding agency advising that, if the Tenderer is selected to enter into a contract with the City of Kawartha Lakes, the bonding agency will issue the required bonds.

.2 "Authorized Agent" is a representative of the Tenderer's firm who has the authority, or appears to have the authority, to enter into a Contract on behalf of the Tenderer.

.3 "Award" is the acceptance of a Tender in accordance with this Request for Tender Call, as evidenced by the City of Kawartha Lakes' written notification to the selected Tenderer.

SC-2 DEFINITIONS

36 Additional Owner's Definitions Governing Request for Tender and Contract - Continued

.7 "Change Order" is a written order issued from the City of Kawartha Lakes that changes the scope or specifications of any project.

.8 "City of Kawartha Lakes" means person who, by virtue of professional expertise of service is contracted by the City of Kawartha Lakes to undertake a specific task or assignment. Examples include: a planner completing a specific study; a City of Kawartha Lakes or engineer drawing plans for a particular building or project; a lawyer representing the City of Kawartha Lakes for a particular legal matter; an appraiser providing an opinion of value on an asset; etc.

.9 "Contract" means legal agreement to be entered into by the selected Tenderer and City of Kawartha Lakes.

.10 "Goods and/or Services" means those goods and/or services set out in the Tender and Contract Documents sought to be procured by the City of Kawartha Lakes as a result of this Request for Tender process.

.11 "Insurance Certificate" a certified document issued by an insurance company licensed to operate by the Government of Canada or the Province of Ontario certifying that the Tenderer is insured in accordance with the City of Kawartha Lakes' requirements.

.12 "CoKL" means City of Kawartha Lakes.

.13 "Mandatory Performance Specification" means requirements that the equipment or Tenderer is obligated to perform under the contract.

.14 "Material Safety Data Sheets (MSDS)" means Material Safety Data Sheets which shall be submitted by the vendor for all hazardous materials, including an index of chemical compounds with details of properties, handling details, precautions and first-aid procedures.

.15 "May" used in this RFT document shall be permissive and discretionary but recommended.

.16 "Project" means the work and specifications of the requirements for this Tender.

.17 "Purchasing Division" has the meaning set forth in Section 1.1.

SC-2 DEFINITIONS

36 Additional Owner's Definitions Governing Request for Tender and Contract - Continued

.18 "Shall" used in this RFT document is a mandatory requirement that if not met, will result in a Tenderer's disqualification.

.19 "Should" used in the RFT document is a permissive and discretionary request but is recommended.

.20 "Surety" means a specified dollar amount in the form of certified cheque, Tender bond, performance bond, labour and materials payment bond, letter of credit or any other form as deemed necessary and stated in the Request for Tender document issued by the City of Kawartha Lakes.

.21 "Tender" is a written offer, in a specified form, received from a Tenderer in response to a Request for Tender to provide goods and services based on the approved format of the City of Kawartha Lakes containing terms and conditions.

.22 "Tender Package" is the submitted package that includes the tender and any documents requested for evaluation.

.23 "Tenderer" Person who submits a Tender.

.24 "Vendor" is the company or supplier that has entered into a contract to supply the goods and equipment and to perform the services contemplated in this Request for Tender.

.25 "Will" used in this RFT document is a mandatory requirement.

.26 "Work" refers to goods and labour supplied by the Vendor pursuant to the Contract and includes all labour, materials, equipment, services and any other items, which are required to execute the Contract.

SC-3 GC 1.1 CONTRACT DOCUMENTS

3.1 ***Add*** to the end of subparagraph 1.1.2.2

"Except where the *Consultant* shall be indemnified as a third party beneficiary as provided in subparagraphs 9.2.7.4, 9.5.3.4 and in 12.1.3."

3.2 ***Add*** new sentence to the end of paragraph 1.1.6:

"The S*pecifications* are divided into Divisions and Sections for convenience but shall be read as a whole and neither such division nor anything else contained in the *Contract Documents* will be construed to place responsibility on the *Consultant* to settle disputes among the *Sub-Contractors* and *Suppliers* in respect to such divisions."

3.3 ***Add*** new subparagraph 1.1.7.5:

"1.1.7.5 In case of discrepancies, noted materials and annotations shall take precedence over graphic indications in the *Contract Documents.*"

3.4 ***Amend*** to read:

"...this includes 1.1.9.1 The Agreement between the Owner and Contractor **including all addenda**."

3.5 ***Add*** the following paragraphs:

"**1.1.11** By-laws, codes or standards quoted shall be the latest edition, including revisions or amendments prior to date of tender submission.

1.1.12 Specifications are divided into Sections for ready reference. Any Section may consist of the Work of more than one (1) trade. Responsibility for determining which trade shall provide labour, materials, equipment and services to complete the Work, rests solely with the Contractor."

SC-4 ***Add*** the following:

4.1 GC 1.5 PROJECT REQUIREMENTS

"e) if the Contractor is not maintaining the Contract schedule consistent with its obligations under this Contract, then at the request of the Owner, the Contractor shall increase its efforts on the project, including, the addition of more personnel to the Project during regular times and during periods of time for which overtime may be required, all of which is to be done promptly at the Contractor's own cost and expense.

4.2 "**GC 1.6 EXPERIENCE OF CONTRACTOR AND STAFF**

a) the Contractor has the necessary high degree of experience and expertise required to enable it to perform the services required by the Contract Documents;

b) the personnel the Contractor assigns to the project are highly experienced;

c) the Contractor has a sufficient staff of qualified and competent personnel to replace its designated Supervisor and Project Manager, subject to the Owner's approval, in the event of death, incapacity, termination or resignation;

d) there are no pending, threatened or anticipated claims or litigation that would have a material effect on the financial ability of the Contractor to perform its Work under this Contract."

SC-5 GC 2.2 "GC 2.2 ROLE OF THE CONSULTANT

5.1 ***Add*** at the end of paragraph 2.2.9. “The *Owner* and the *Contractor* shall waive any claims against the *Consultant* arising out of the making of such interpretations and findings made in accordance with paragraphs 2.2.7., 2.2.8. and 2.2.9”.

5.2 ***Delete*** the comma after the word “*submittals*” and add the words “which are provided” before the words “in accordance” in paragraph 2.2.14.

SC-6 GC 2.3 REVIEW AND INSPECTION OF THE WORK

6.1 ***Add*** the following:

2.3.8 "**Review of Installations - Work at Substantial Completion**

a) It shall be the responsibility of the Contractor to ensure that installations to be reviewed by the Architect are complete and satisfactory in every way prior to requesting such review.

b) The Contractor shall be solely responsible for all consultant time and travel costs required as a result of follow up reviews of deficient Work.

SC-6 GC 2.3 REVIEW AND INSPECTION OF THE WORK

6.1 ***Add*** the following:

c) If the Work is not found to be substantially complete at the time of review by the Consultants as requested by the Contractor, thereby necessitating reinspection by the Consultants; **a minimum of four (4) hours will be invoiced to the Owner at a rate of $180 per hour plus $60 for travel costs for each additional consultant review**. This amount will be deducted from the total amount owing to the Contractor and will be at their cost, not an expenditure from Allowances."

SC-7 GC 2.4 DEFECTIVE WORK

7.1 ***Add*** new subparagraphs 2.4.1.1 and 2.4.1.2:

2.4.1.1 "The *Contractor* shall rectify, in a manner acceptable to the *Owner* and the *Consultant*, all defective work and deficiencies throughout the *Work*, whether or not they are specifically identified by the *Consultant*.

2.4.1.2 "The *Contractor* shall prioritize the correction of any defective work which, in the sole discretion of the *Owner*, adversely affects the day to day operation of the *Owner*.

SC-8 GC 3.1 CONTROL OF THE WORK

8.1 ***Add*** new paragraph 3.1.3:

3.1.3 "Prior to commencing individual procurement, fabrication and construction activities, the *Contractor* shall verify, at the *Place of the Work*, all relevant measurements and levels necessary for proper and complete fabrication, assembly and installation of the *Work* and shall further carefully compare such field measurements and conditions with the requirements of the *Contract Documents*. Where dimensions are not included or contradictions exist, or exact locations are not apparent, the *Contractor* shall immediately notify the *Consultant* in writing and obtain written instructions from the *Consultant* before proceeding with any part of the affected work.

SC-9 GC 3.2 CONSTRUCTION BY THE OWNER OR OTHER CONTRACTORS

9.2 ***Delete*** subparagraph 3.2.2.1 in its entirety:

9.3 ***Delete*** subparagraph 3.2.2.2 in its entirety:

9.1 ***Revise*** 3.2.1 to add:

3.2.1 "The Owner and other Contractors shall have the right to enter upon and occupy the Work, in whole or in part for the purpose of placing fittings and equipment or for such other uses as it may wish. Both the Owner and the Contractor shall co-operate with the other, so as to permit the Contractor to complete the Work and the Owner to place fittings and equipment in the most efficient manner possible. Such entry and occupancy shall not be interpreted as acceptance of the Work, nor in any way relieves the Contractor from its responsibilities under the Contract."

SC-9 GC 3.2 CONSTRUCTION BY THE OWNER OR OTHER CONTRACTORS

9.4 ***Add*** new subparagraph 3.2.3.4:

3.2.3.4 "Subject to **GC 9.4 CONSTRUCTION SAFETY**, for the *Owner's* own forces and for other contractors, assume overall responsibility for compliance with all aspects of the applicable health and safety legislation in the *Place of the Work*, including all of the responsibilities of the constructor under the Occupational Health and Safety Act."

SC-10 GC 3.4 DOCUMENT REVIEW

10.1 ***Delete*** paragraph 3.4.1 in its entirety and ***substitute*** new paragraph 3.4.1:

3.4.1 "The *Contractor* shall review the *Contract Documents* and shall report promptly to the *Consultant* any error, inconsistency or omission the *Contractor* may discover. Such review by the *Contractor* shall comply with the standard of care described in paragraph 3.14.1 of the *Contract*. Except for its obligation to make such review and report the result, the *Contractor* does not assume any responsibility to the *Owner* or to the *Consultant* for the accuracy of the *Contract Documents*. The *Contractor* shall not be liable for damage or costs resulting from such errors, inconsistencies, or omissions in the *Contract Documents*, which the *Contractor* could not reasonably have discovered. If the *Contractor* does discover any error, inconsistency or omission in the *Contract Documents,* the *Contractor* shall not proceed with the work affected until the *Contractor* has received corrected or missing information from the *Consultant*.

10.2 ***Add*** new paragraph 3.4.2:

3.4.2 "If the *Contractor* finds discrepancies in and/or omissions from the *Contract Documents* or has any doubt as to the meaning or intent of any part thereof, the *Contractor* must immediately notify the *Consultant*, who will provide written instructions or explanations. Neither the *Owner* nor the *Consultant* will be responsible for oral instructions."

SC-11 GC 3.5 CONSTRUCTION SCHEDULE

11.1 ***Delete*** paragraph 3.5.1 in its entirety and ***substitute*** new paragraph 3.5.1:

"**3.5.1** The *Contractor* shall,

3.5.1.1 Prior to submitting the first application for payment, submit to the *Owner* and the *Consultant* for their review and acceptance a construction schedule indicating the critical path for the *Project* demonstrating that the *Work* will be performed in conformity with the *Contract Time* and in accordance with the *Contract Documents*. The *Contractor* shall provide the schedule information required by this paragraph in both electronic format and hard copy. Once accepted by the *Owner* and the *Consultant*, the construction schedule submitted by the *Contractor* shall become the baseline construction schedule;

3.5.1.2 Provide the expertise and resources, such resources including manpower and equipment, as are necessary to maintain progress under the accepted baseline construction schedule referred to in paragraph 3.5.1.1 or any successor or revised schedule accepted by the *Owner* pursuant to GC3.5;

3.5.1.3 Monitor the progress of the *Work* on a weekly basis relative to the construction schedule reviewed and accepted pursuant to paragraph 3.5.1.1, or any successor or revised schedule accepted by the *Owner* pursuant to GC 3.5, **update the schedule on a monthly basis and advise the *Consultant* and the *Owner* in writing of any variation from the baseline or slippage in the schedule; and**

3.5.1.4 If, after applying the expertise and resources required under paragraph 3.5.1.2, the *Contractor* forms the opinion that the slippage in schedule reported in paragraph 3.5.1.3 cannot be recovered by the *Contractor*, it shall, in the same notice provided under paragraph 3.5.1.3, **indicate to the *Consultant* and the *Owner* if the *Contractor* intends to apply for an extension of *Contract Time* as provided in PART 6 - CHANGES IN THE WORK."**

SC-11 GC 3.5 CONSTRUCTION SCHEDULE - Continued

11.2 ***Add*** new paragraph **3.5.2**:

"If at any time it should appear to the *Owner* or the *Consultant* that the actual progress of the *Work* is behind schedule or is likely to become behind schedule, based on critical path methodology, or if the *Contractor* has given notice of such to the *Owner* or the *Consultant* pursuant to 3.5.1.3, the *Contractor* shall take appropriate steps to cause the actual progress of the *Work* to conform to the schedule and shall produce and present to the *Owner* and the *Consultant* a recovery plan demonstrating how the *Contractor* will achieve the recovery of the schedule. If the *Contractor* intends to apply for a change in the *Contract Price* in relation to a schedule recovery plan, the *Contractor* shall proceed with PART 6 - CHANGES IN THE WORK."

SC-12 GC 3.6 SUPERVISION

12.1 ***Delete*** paragraph 3.6.1 in its entirety and ***substitute*** new paragraph 3.6.1:

3.6.1 "The supervisory staff assigned to the Project shall also be fully competent to implement efficiently all requirements for scheduling, co-ordination, field engineering, reviews, inspection and testing and submittals defined in the Specifications and have minimum three (3) years documented Superintendent/Project Management experience."

12.2 ***Add*** new paragraph 3.6.3:

3.6.3 "The *Owner* may, at any time during the course of the *Work*, request the replacement of the appointed representative(s), where the grounds for the request involve conduct which jeopardizes the safety of the *Owner's* operations. Immediately upon receipt of the request, the *Contractor* shall make arrangements to appoint an acceptable replacement."

SC-13 GC 3.7 SUB-CONTRACTORS AND SUPPLIERS

13.1 ***Delete*** paragraph 3.7.2 in its entirety and ***substitute*** new paragraph 3.7.2:

3.7.2 "The *Contractor* agrees not to change *Sub-Contractors* without prior written approval of the *Owner*, which approval will not be unreasonably withheld."

SC-14 GC 3.8 LABOUR & PRODUCTS

14.1 ***Add*** the following paragraph:

3.8.4 "Products may be specified by reference to brand names, proprietary names, trademarks or symbols. The name of a manufacturer, distributor, supplier or dealer may be provided to assist the Contractor to find a source supplier. This shall not relieve the Contractor from responsibility for finding sources of supply even if the source named no longer supplies the product specified. If the Contractor is unable to obtain the specified product, a substitute product equal to or better than the specified product, shall be supplied by the Contractor, as approved by the Architect, at no additional cost. Should the Contractor be unable to obtain a substitute product equal to or superior to the specified product and the Owner accepts an inferior product, the Contract Price shall be adjusted accordingly, as approved by the Architect."

3.8.5 "In performing any and all services and obligations that it has agreed to perform in accordance with the terms of this Contract, the Contractor shall exercise a standard of care, skill and diligence that would normally be provided by an experienced and prudent contractor supplying similar services for similar projects and in a first class and expeditious manner. The Contractor acknowledges and agrees that throughout this Contract the Contractor's obligations, duties and responsibilities shall be interpreted in accordance with this standard and any default or alleged default by the Contractor in the performance of its obligations, duties and responsibilities shall similarly be interpreted in accordance with this standard. The Contractor shall exercise the same standard of due care and diligence in respect of any products, personnel or procedures which it may recommend to the Owner."

3.8.6 "The Contractor shall forthwith perform, without cost or expense to the Owner, any and all such services as are required to correct or remedy any act, error, omission or default of or attributable to the Contractor in the performance of any term of this Contract."

SC-14 GC 3.8 LABOUR & PRODUCTS - Continued

3.8.7 "The *Contractor* is responsible for the safe on-site storage of *Products* and their protection (including *Products* supplied by the *Owner* and other contractors to be installed under the *Contract*) in such ways as to avoid dangerous conditions or contamination to the *Products* or other persons or property and in locations at the *Place of the Work* to the satisfaction of the *Owner* and the *Consultant*. The *Owner* shall provide all relevant information on the *Products* to be supplied by the *Owner*."

SC-15 GC 3.9 DOCUMENTS AT THE SITE

15.1 ***Delete*** paragraph 3.9.1 in its entirety and substitute new paragraph 3.9.1:

3.9.1 "The *Contractor* shall keep one copy of the current *Contract Documents*, *Supplemental Instructions*, Contemplated *Change Orders*, *Change Orders*, *Change Directives*, Cash Allowance Disbursement Authorizations, reviewed *Shop Drawings*, *Submittals*, reports and records of meetings at the *Place of the Work*, in good order and available to the *Owner* and *Consultant*."

SC-16 GC 3.10 SHOP DRAWINGS

16.1 ***Add*** the words “AND OTHER SUBMITTALS” to the Title after SHOP DRAWINGS.

16.2 ***Add*** “and *Submittals*” after the words “*Shop Drawings*” in paragraphs 3.10.1, 3.10.2, 3.10.4, 3.10.7, 3.10.8, 3.10.8.2, 3.10.9, 3.10.10, 3.10.11, and 3.10.12.

16.3 ***Delete*** 3.10.3 in its entirety and substitute new paragraph 3.10.3.

GC.3.10.3 Prior to the first application for payment, the *Contractor* and the *Consultant* shall jointly prepare a schedule of the dates for submission and return of *Shop Drawings* and any *Submittals*.

16.4 ***Delete*** subparagraph 3.10.8.1 in its entirety and ***substitute*** new subparagraph 3.10.8.1:

SC-16 GC 3.10 SHOP DRAWINGS - Continued

3.10.8.1 the *Contractor* has determined and correlated the field measurements with the *Shop Drawings* and any *Submittals* and field construction conditions, *Product* requirements, catalogue numbers and similar data, or will do so if not possible at that time, and

16.5 ***Delete*** paragraph 3.10.12 in its entirety and ***substitute*** new paragraph 3.10.12:

3.10.12 "The *Consultant* will review and return *Shop Drawings* and *Submittals* in accordance with the schedule agreed upon in 3.10.3, or, in the absence of such schedule, with reasonable promptness.

SC-17 GC 3.12 USE OF THE WORK

17.1 Paragraph 3.11.1, insert "instructions by the Owner's representative," between "permits" and "or the Contract Documents."

SC-18 GC 3.14 PERFORMANCE BY CONTRACTOR

18.1 ***Add*** new Clause 3.14.1:

3.14.1 "In performing its services and obligations under the *Contract*, the *Contractor* shall exercise a standard of care, skill and diligence that would normally be provided by an experienced and prudent contractor supplying similar services for similar projects. The *Contractor* acknowledges and agrees that throughout the *Contract,* the *Contractor's* obligations, duties and responsibilities shall be interpreted in accordance with this standard. The *Contractor* shall exercise the same standard of due care and diligence in respect of any *Products*, personnel, or procedures which it may recommend to the *Owner*."

18.2 ***Add*** new Clause 3.14.2:

3.14.2 "The *Contractor* further represents, covenants and warrants to the *Owner* that:

.1 The personnel it assigns to the *Project* are appropriately experienced;

SC-18 GC 3.14 PERFORMANCE BY CONTRACTOR

18.2 ***Add*** new Clause 3.14.2: - Continued

.2 It has a sufficient staff of qualified and competent personnel to replace its designated supervisor and project manager, subject to the *Owner's* approval, in the event of death, incapacity, removal or resignation.

.3 There are no pending, threatened or anticipated claims that would have a material effect on the financial ability of the *Contractor* to perform its work under the *Contract*."

SC-19 GC 3.15 RIGHT OF ENTRY

19.1 ***Add*** new clause 3.15.1:

3.15.1 "The *Owner* shall have the right to enter or occupy the *Work* in whole or in part for the purpose of placing fittings and equipment or for other uses before *Substantial Performance of the Work*, if, in the opinion of the *Consultant* and *Contractor*, such entry or occupation does not prevent or substantially interfere with the *Contractor* in completion of the *Contract* within the *Contract Time*. Such entry or occupation shall not be considered as acceptance of the *Work* or in any way relieve the *Contractor* from responsibility to complete the *Contract*."

SC-20 GC 4.1 CASH ALLOWANCES

20.1 Not applicable for this project.

20.2 Not applicable for this project.

20.3 ***Delete*** paragraph 4.1.7 in its entirety and substitute new paragraph 4.1.7:

4.1.7 "At the commencement of the *Work*, the *Contractor* shall prepare for the review and acceptance of the *Owner* and the *Consultant,* a schedule indicating the times, within the construction schedule referred to in GC 3.5, that items called for under cash allowances and items that are specified to be *Owner* purchased and *Contractor* installed or hooked up are required at the site to avoid delaying the progress of the *Work*."

SC-20 GC 4.1 CASH ALLOWANCES - Continued

20.4 ***Add*** new paragraph 4.1.8:

"The *Owner* reserves the right to call, or to have the *Contractor* call, for competitive bids for portions of the *Work*, to be paid for from cash allowances"

SC-21 GC 5.1 FINANCING INFORMATION REQUIRED OF THE OWNER & CONTRACTOR

21.1. ***Delete*** 5.1.1 and 5.1.2 and Replace with:

5.1.1 "The *Owner* and *Contractor* shall provide each other with timely *Notice in Writing* of any material change in their financial ability to fulfill their respective obligations under the *Contract*."

SC-22 GC 5.2 APPLICATIONS FOR PROGRESS PAYMENT

22.1.1 ***Add*** to the end of paragraph 5.2.7 the following new sentence:

"Any *Products* delivered to the *Place of the Work* but not yet incorporated into the *Work* shall remain at the risk of the *Contractor* notwithstanding that title has passed to the *Owner* pursuant to GC 13.4 OWNERSHIP OF MATERIALS."

22.2 ***Add*** new paragraphs 5.2.8, 5.2.9 and 5.2.10:

5.2.8 "The *Contractor* shall submit, with each application for progress payment after the first, a Statutory Declaration, on an original form of CCDC Document 9A-2001, stating that payments in connection with the *Work*, as noted in the Statutory Declaration, have been made to the end of the period immediately preceding that covered by the current application."

5.2.9 "The *Contractor* shall submit Workplace Safety & Insurance Board Clearance Certificate, with each application for progress payment."

5.2.10 "The *Contractor* shall prepare and maintain current as-built *Drawings* which shall consist of the *Drawings* and *Specifications* revised by the *Contractor* during the *Work*, showing changes to the *Drawings* and *Specifications*, which current as-built *Drawings* shall be maintained by the *Contractor* and made available to the *Consultant* for review with each application for progress payment. The *Consultant* reserves the right to retain a reasonable amount for the value of the as-built *Drawings* not presented for review."

SC-23 GC 5.3 PROGRESS PAYMENT

23.1 ***Add*** Paragraph 5.3.2: "Date of receipt by the Owner shall be the same as the date on the Certificate as issued by the Architect."

23.2 ***Delete***: 5.3.1.3 and Replace with:
"The Owner shall make payment to the Contractor on or before 20 working days after receipt of Certificate of Payment as issued by the Consultant."

SC-24 GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK

24.1 ***Delete*** paragraph 5.4.3 in its entirety and ***substitute*** new paragraph 5.4.3:

"**5.4.3** Immediately following the issuance of the certificate of *Substantial Performance of the Work*, the *Contractor*, in consultation with the *Consultant*, shall establish reasonable dates for finishing the *Work* and correcting deficient work.

24.2 **Add** new paragraphs 5.4.4, 5.4.5 and 5.4.6:

"**5.4.4** The *Contractor* shall publish, in a construction trade newspaper in the area of the location of the *Work,* a copy of the Certificate of *Substantial Performance of the Work* within seven (7) days of receiving a copy of the Certificate signed by the *Consultant*, and the *Contractor* shall provide suitable evidence of the publication to the *Consultant* and *Owner*. If the *Contractor* fails to publish such notice, the *Owner* shall be at liberty to publish and back charge the *Contractor* its reasonable costs for doing so.

5.4.5 Prior to submitting its application for *Substantial Performance of the Work*, the *Contractor* shall submit to the *Consultant* all:

.1 guarantees,
.2 warranties,
.3 certificates,
.4 testing and balancing reports,
.5 distribution system diagrams,
.6 spare parts,
.7 maintenance manuals,

and other materials or documentation required to be submitted under the *Contract*, together with written proof acceptable to the *Owner* and the *Consultant* that the *Work* has been substantially performed in conformance with the requirements of municipal, government and utilities authorities having jurisdiction.

5.4.6 Where the *Contractor* is unable to deliver the documents and materials described in paragraph 5.4.5, then, provided that none of the missing documents and materials interferes, in a material way, with the use and occupancy of the *Work*, failure to deliver shall not be grounds for the *Consultant* to refuse to certify *Substantial Performance of the Work*. Any documents or materials not delivered in accordance with paragraph 5.4.5 shall be delivered as provided in GC 5.7, paragraph 5.7.1."

SC-24 GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK - Continued

24.3 ***Add*** the following paragraphs:

"**5.4.7** The Contractor shall complete the Work at times convenient to the Owner. This may include evening work, weekend or shift work, should the Work be not proceeding in accordance with the original construction schedule provided by the Contractor in order to meet the Substantial Performance date. This will be at no additional cost to the Owner where failure to meet the schedule by acts or omissions by the Contractor and/or their Sub-Contractors and Suppliers.

5.4.8 The Contractor shall inform all insurers who have issued Bonds and Insurance for this Contract, of the extent of occupancy. If occupancy by the Owner requires adjustments of bonds or insurances, the Contractor shall, subject to the Owner's approval, initiate and pay for such adjustments on behalf of the Owner and a Change Order will be issued."

SC-25 GC 5.5 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF THE WORK

25.1 ***Add*** new subparagraphs 5.5.1.3, 5.5.1.4 and 5.5.1.5:

"**5.5.1.3** Submit a written request for release of holdback including a declaration that no written notices of lien have been received by it.

5.5.1.4 Submit a Statutory Declaration CCDC 9A-2001.

5.5.1.5 Submit Workplace Safety & Insurance Board Clearance Certificate."

25.2 ***Delete*** from line 1 of paragraph 5.5.2, the words “the statement” and ***substitute*** the words:

"the documents”.

25.3 ***Add*** the following paragraph:

"**5.5.6** The Contractor shall, when requested to do so by the Owner, cause any and all construction liens related to this Contract registered by any Sub-Contractor or Supplier, to be discharged or vacated by the Contractor posting appropriate security and the Contractor shall do so within ten days of that request at its sole expense."

SC-26 GC 5.6 PROGRESSIVE RELEASE OF HOLDBACK

26.1 ***Delete*** clause.

SC-27 GC 5.7 FINAL PAYMENT

27.1 ***Delete*** paragraph 5.7.1 in its entirety and ***substitute*** new paragraph 5.7.1:

"**5.7.1** When the *Contractor* considers that the *Work* is completed, the *Contractor* shall submit an application for final payment. The *Contractor's* application for final payment shall be accompanied by any documents or materials not yet delivered pursuant to paragraph **5.4.5** together with complete as-built *Drawings*. Should the *Contractor* fail to deliver any of the foregoing documents, the *Owner* shall be at liberty to withhold from amounts otherwise payable to the *Contractor*, the sum of 4% of the total contract value as security for the obligation of the *Contractor* to deliver the undelivered documents."

27.2 ***Delete*** from the first line of paragraph 5.7.2 the words "calendar days" and ***substitute*** the words:

"*Working Days*".

27.3 ***Delete*** from the second line of paragraph 5.7.4 the words "calendar days" and ***substitute*** the words:

"*Working Days*".

27.4 ***Add*** new paragraph 5.7.5:

"**5.7.5** As additional requirements for release of finishing construction lien holdback, the *Contractor* shall submit the following documentation."

.1 *Contractor's* written request for release of holdback, including a declaration that no written notices of lien have been received by it.

.2 *Contractor's* Statutory Declaration CCDC 9A-2001.

.3 *Contractor's* Workplace Safety & Insurance Board Clearance Certificate.

27.5 ***Add***:

"**5.7.5** Final Payment shall be issued only upon all conditions of the Agreement being satisfied, including all submittals and rectification of all deficiencies in the Work."

SC-28 GC 5.8 WITHHOLDING OF PAYMENT

28.1 ***Add***:

"**5.8.2** Notwithstanding the provisions of GC 5.3 PROGRESS PAYMENT, GC 5.5 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF THE WORK and GC 5.7 FINAL PAYMENT, the Owner may decline to approve any application for payment and may withhold payment of any certificate for payment, including a certificate for payment of the holdback and a final certificate for payment in whole or in part, to the extent necessary to protect the Owner and may withhold such funds as the Owner shall, pursuant to the opinion of the Consultant, be required to offset any previous payment made to the Contractor, or to set off against any costs and damages, to such extent as may be necessary in the opinion of the Consultant to protect the Owner from loss because of:

1) defective portions of the Work;

2) third party claims or reasonable evidence indicating possible commencement of third party claims;

3) evidence of the Contractor's failure to make payments promptly to Sub-Contractors or Suppliers;

4) delay to work of other Contractors;

5) the Contractor's failure to immediately resolve any liens arising from the Work; or

6) unsatisfactory prosecution of the Work by the Contractor or any Sub-Contractor.

Where the Owner has withheld payment of any portion of the Contract Price pursuant to the provisions of the Contract, the Owner shall be entitled to apply such portion of the Contract Price withheld toward the costs of any required remedial work, or for damages, loss or as indemnification with respect to any third party claims or other loss arising under the Contract."

SC-29.1 GC 6.2 CHANGE ORDER

29.1.1 GC6.2 *Add new sub-paragraph*:

"**6.2.3** Mark ups for any changes to the Work shall be limited to:

.1 For Work performed by the General Contractor's own forces: 10% overhead and 5% profit.

.2 For Work performed by Sub-Contractor: 10% overhead to the Sub-Contractor and 10% profit to the General Contractor.

.3 No Overhead and Profit will be allocated to Change Orders issued for Work to be performed under cash Allowances."

SC-29.2 GC 6.3 CHANGE DIRECTIVE

29.2.1 ***Delete*** 6.3.7.1(1) and ***substitute*** the words:

"**(1)** carrying out the work, including necessary supervisory services;"

29.2.2 ***Delete*** paragraph 6.3.7.1(2) and ***substitute*** the words:

"**(2)** intentionally left blank"

29.2.3 ***Amend*** paragraph 6.3.7.1(3) so that, as amended, it reads:

"**(3)** engaged in the preparation of *Shop Drawings,* fabrication drawings, coordination drawings and project record drawings: or…"

29.2.4 ***Amend*** paragraph 6.3.7.1(4) so that, as amended, it reads:

"**(4)** including clerical staff engaged in processing changes in the Work."

SC-30 GC 6.4 CONCEALED OR UNKNOWN CONDITIONS

30.1 ***Add*** new subparagraph 6.4.5:

"6.4.5 The *Contractor* confirms that, prior to bidding the *Project*, it carefully investigated the *Place of the Work* and applied to that investigation the degree of care and skill described in paragraph 3.14.1, given the amount of time provided between the issue of the bid documents and the actual closing of bids, the degree of access provided to the *Contractor* prior to submission of bid, and the sufficiency and completeness of the information provided by the *Owner*. The *Contractor* is not entitled to compensation or to an extension of the *Contract Time* for conditions which could reasonably have been ascertained by the *Contractor* by such careful investigation undertaken prior to the submission of the bid."

SC-31 GC 6.5 DELAYS

31.1 ***Delete*** the period at the end of paragraph 6.5.1, and substitute the following words:
", but excluding any consequential, indirect or special damages."

31.2 ***Add*** new subparagraph 6.5.6:
"6.5.6 If the *Contractor* is delayed in the performance of the *Work* by an act or omission of the *Contractor* or anyone employed or engaged by the *Contractor* directly or indirectly, or by any cause within the *Contractor's* control, then the *Contract Time* shall be extended for such reasonable time as the *Consultant* may decide in consultation with the *Contractor*. The *Owner* shall be reimbursed by the *Contractor* for all reasonable costs incurred by the *Owner* as the result of such delay, including all services required by the *Owner* from the *Consultant* as a result of such delay by the *Contractor* and, in particular, the cost of the *Consultant's* services during the period between the date of *Substantial Performance of the Work* stated in Article A-1 herein as the same may be extended through the provisions of these General Conditions and any later, actual date of *Substantial Performance of the Work* achieved by the *Contractor*."

SC-32 GC 6.6 CLAIMS FOR A CHANGE IN CONTRACT PRICE

32.1 ***Add*** the words "as noted in paragraph 6.6.3" after the words *"*of the claim*"* in paragraph 6.6.5 and add the words *"*and the *Consultant",* at the end of paragraph 6.6.5.

SC-33 GC 7.2 CONTRACTORS RIGHT TO STOP THE WORK OR TERMINATE THE CONTRACT

33.1 ***Delete*** subparagraph 7.2.3.1 in its entirety.

33.2 ***Delete*** subparagraph 7.2.3.3 in its entirety and ***substitute*** new subparagraph 7.2.3.3:

"**7.2.3.3** the *Owner* fails to pay the *Contractor* when due the amount certified by the *Consultant* or awarded by arbitration or a Court, except where the *Owner* has a bona fide claim for set off, or"

33.3 ***Delete*** from line 2 of subparagraph 7.2.3.4, the words "OF THE OWNER".

33.4 ***Add*** the following paragraph:

"**7.2.6** If the Contractor stops the Work or terminates the Contract in accordance with the paragraphs above, the site and the Work shall be left by the Contractor in secure and safe conditions as required by authorities having jurisdiction and the Contract Documents."

SC-34 GC 8.1 AUTHORITY OF THE CONSULTANT

34.1 ***Delete*** last sentence of 8.1.3 and ***substitute*** the following sentence:

"If it is subsequently determined that such instructions were at variance with the *Contract Documents*, the *Owner* shall pay the *Contractor* costs incurred by the *Contractor* in carrying out such instructions which the *Contractor* was required to do beyond the requirements of the *Contract Documents*, including costs resulting from interruption of the *Work*."

SC-35 GC 8.2 NEGOTIATION, MEDIATION AND ARBITRATION

35.1 ***Add*** the following new paragraphs ***8.2.9***, ***8.2.10***, ***8.2.11***, ***8.2.12.***, ***8.2.13.*** and ***8.2.14***:

8.2.9 "Within five working days of receipt of the notice of arbitration by the responding party under paragraph 8.2.6, the *Owner* and the *Contractor* shall give the *Consultant* a written notice containing:"

a) a copy of the notice of arbitration
b) a copy of supplementary conditions 8.2.9 to 8.2.14 of this *Contract*, and;
c) any claims or issues which the *Contractor* or the *Owner*, as the case may be, wishes to raise in relation to the *Consultant* arising out of the issues in dispute in the arbitration

8.2.10 "The *Owner* and the *Contractor* agree that the *Consultant* may elect, within ten working days of receipt of the notice under paragraph 8.2.9, to become a full party to the arbitration under paragraph 8.2.6 if the *Consultant*: "

a) has a vested or contingent financial interest in the outcome of the arbitration;
b) gives the notice of election to the *Owner* and the *Contractor* before the arbitrator is appointed;
c) agrees to be a party to the arbitration within the meaning of the rules referred to in paragraph 8.2.6, and,
d) agrees to be bound by the arbitral award made in the arbitration.

SC-35 GC 8.2 NEGOTIATION, MEDIATION AND ARBITRATION - Continued

35.1 ***Add*** the following new paragraphs ***8.2.9***, ***8.2.10***, ***8.2.11***, ***8.2.12.***, ***8.2.13.*** and ***8.2.14***:

8.2.11 "If an election is made under paragraph 8.2.10, the *Consultant* may participate in the appointment of the arbitrator and, notwithstanding the rules referred to in paragraph 8.2.6, the time period for reaching agreement on the appointment of the arbitrator shall begin to run from the date the respondent receives a copy of the notice of arbitration."

8.2.12 "The arbitrator in the arbitration in which the *Consultant* has elected under paragraph 8.2.10 to become a full party may:"

a) on application of the *Owner* or the *Contractor*, determine whether the *Consultant* has satisfied the requirements of paragraph 8.2.10, and;
b) make any procedural order considered necessary to facilitate the addition of the *Consultant* as a party to the arbitration.

8.2.13 "The provisions of paragraph 8.2.9 shall apply mutatis mutandis to written notice to be given by the *Consultant* to any sub-consultant;"

8.2.14 "In the event of notice of arbitration given by the *Consultant* to a sub-consultant, the sub-consultant is not entitled to any election with respect to the proceeding as outlined in 8.2.10, and is deemed to be bound by the arbitration proceeding."

SC-36 GC 8.3 RETENTION OF RIGHTS

36.1 ***Add*** new subparagraph 8.3.3:

8.3.3 "If the *Owner* gives the notice in writing described in paragraph 8.2.6 to have a dispute resolved by arbitration, the *Contractor* agrees that this paragraph 8.3.3 shall be construed as a formal consent to the stay of any lien proceedings until an award is rendered in the arbitration or such dispute is otherwise resolved between the parties. In no event shall the *Contractor* be deprived of its right to enforce its lien against the *Project* should the *Owner* fail to satisfy any arbitral award against it in full on the dispute in respect of which the lien proceedings were commenced. Provided nothing in this paragraph 8.3.3 shall prevent the *Contractor* from taking the steps required by the *Construction Lien Act* to preserve and/or perfect a lien to which it may be entitled."

SC-37 GC 9.1 PROTECTION OF WORK AND PROPERTY

37.1 ***Delete*** subparagraph 9.1.1.1 in its entirety and substitute new subparagraph 9.1.1.1:

9.1.1.1 "errors in the *Contract Documents* which the *Contractor* could not have discovered applying the standard of care described in paragraph 3.14.1;"

37.2 ***Delete*** paragraph 9.1.2 in its entirety and ***substitute*** the following new paragraph 9.1.2:

9.1.2 "Before commencing any *Work*, the *Contractor* shall determine the locations of all underground utilities and structures indicated in the *Contract Document*s, or that are discoverable by applying to an inspection of the *Place of the Work* the degree of care and skill described in paragraph 3.14.1."

37.3 ***Add*** new paragraph 9.1.5:

9.1.5 "The *Contractor* shall neither undertake to repair and/or replace any damage whatsoever to the work of other contractors, or to adjoining property, nor acknowledge the same was caused or occasioned by the *Contractor*, without first consulting the *Owner* and receiving written instructions as to the course of action to be followed from either the *Owner* or the *Consultant*. However, where there is danger to life or public safety, the *Contractor* shall take such emergency action as it deems necessary to remove the danger."

SC-38 GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES

38.1 ***Add*** to paragraph 9.2.6 after the word "responsible", the following new words:

"or whether any toxic or hazardous substances or materials already at the *Place of the Work* (and which were then harmless or stored, contained or otherwise dealt with in accordance with legal and regulatory requirements) were dealt with by the *Contractor* or anyone for whom the *Contractor* is responsible in a manner which does not comply with legal and regulatory requirements, or which threatens human health and safety or the environment, or material damage to the property of the *Owner* or others, "

38.2 ***Add*** "and the *Consultant*" after the word "*Contractor*" in subparagraph 9.2.7.4.

SC-38 GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES - Continued

38.3 ***Add*** to paragraph 9.2.8 after the word "responsible", the following new words:

"or that any toxic or hazardous substances or materials already at the *Place of the Work* (and which were then harmless or stored, contained or otherwise dealt with in accordance with legal and regulatory requirements) were dealt with by the *Contractor* or anyone for whom the *Contractor* is responsible in a manner which does not comply with legal and regulatory requirements, or which threatens human health and safety or the environment, or material damage to the property of the *Owner* or others,"

38.4 ***Add***:

"**9.3.10** If the Contractor causes or permits:

1) any toxic or Hazardous Substances or materials to be brought by the Contractor, its Sub-Contractors or Suppliers to the Place of the Work, or

2) any toxic or Hazardous Substances or materials which were already at the Place of the Work (but which were them harmless or stored, contained or otherwise dealt with in accordance with legal and regulatory requirements), to be dealt with in a manner which does not comply with legal or regulatory requirements or which threatens human health and safety or the environment or causes material damage to the property of the Owner or others, the Contractor shall take all reasonable steps, including stopping the Work, to ensure that no person suffers injury, sickness or death and that no property is injured or destroyed as a result of exposure to or the presence of the Hazardous Substances or materials, and

3) immediately report the circumstances to the Consultant and the Owner by telephone, with written confirmation within 12 hours.

In the case of any circumstances described in paragraph 9.3.10, the Contractor shall be responsible, at the Contractor's sole expense, for cleaning up, removing, containing, storing, or otherwise dealing with the toxic or Hazardous Substances or materials and any damage caused thereby in a manner which the authorities having jurisdiction determine will:

1) meet all applicable legal and regulatory requirements and ensure compliance with any applicable permits or other authorizations.

2) remove any threat to human health and safety or the environment, and

3) rectify all material damage to the property of the Owner and others."

SC-39 GC 9.4 CONSTRUCTION SAFETY

39.1 ***Add***:

"**9.4.2** The Contractor shall comply and cause all of its Sub-Contractors, Suppliers and anyone for whom the Contractor is responsible to comply with all applicable provisions, requirements and safety standards of the Occupational Health and Safety Act and regulations thereto. Further, the Contractor shall comply and cause all of its Sub-Contractors, Suppliers and anyone for whom the Contractor is responsible to comply with any City of Kawartha Lakes Policies and Procedures that may be in force or brought into force during construction. The Contractor shall be designated and hereby accepts the responsibilities and designation as 'Constructor' under the Occupational Health and Safety Act on the Project and hereby assumes all liabilities and obligations imposed on a 'Constructor' by the Occupational Health and Safety Act.

Prior to commencement of the Work, the Contractor shall submit to the Owner:

a) Documentation of a valid Workplace Safety and Insurance Board clearance certificate and confirmation of the Contractor's WCB CAD-7 performance rating.

b) Documentation of the Contractor's insurance coverage.

c) Documentation of the Contractor's in-house safety related programs.

d) A copy of the Notice of Project filed with the Ministry of Labour describing the Work to be performed and designating the Contractor as 'Constructor'.

The Contractor hereby represents and warrants to the Owner that appropriate health and safety instruction and training have been provided and will be provided to the Contractor's employees and Sub-Contractors, Suppliers and anyone for whom the Contractor is responsible, before the Work is commenced and agrees to provide to the Owner, if requested, proof of such instruction and training.

The Contractor shall tour the appropriate area to familiarize itself with the job site prior to commencement of the Work."

SC-39 GC 9.4 CONSTRUCTION SAFETY - Continued

39.2 ***Add***:

9.4.3 "The *Contractor* shall indemnify and save harmless the *Owner*, its agents, officers, directors, employees, consultants, successors and assigns from and against the consequences of any and all safety infractions committed by the *Contractor* under OHSA, including the payment of legal fees and disbursements on a solicitor and client basis.

Such indemnity shall apply to the extent to which the *Owner* is not covered by insurance, provided that the indemnity contained in this paragraph shall be limited to costs and damages resulting directly from such infractions and shall not extend to any consequential, indirect or special damages."

39.3 ***Add*** the following paragraph:

9.4.4 "The *Owner* undertakes to include in its contracts with other contractors and/or in its instructions to its own forces the requirement that the other contractor or own forces, as the case may be, will comply with directions and instructions from the *Contractor* with respect to occupational health and safety and related matters. The text of such instruction is attached to these Supplementary Conditions."

SC-40 GC 9.5 MOULD

40.1 ***Delete*** paragraph 9.5.3.3 in its entirety and ***substitute*** new paragraph 9.5.3.3:

9.5.3.3 "extend the *Contract Time* for such reasonable time as the *Consultant* may recommend in consultation with the *Contractor* and the expert referred to in paragraph 9.5.1.3. If, in the opinion of the *Consultant*, the *Contractor* has been delayed in performing the *Work* and / or has incurred additional costs under paragraph 9.5.1.2, the *Owner* shall reimburse the *Contractor* for reasonable costs incurred as a result of the delay and as a result of taking those steps, and"

SC-41 GC 10.1 TAXES AND DUTIES

41.1 ***Add*** new paragraph 10.1.3:

10.1.3 "Where the *Owner* is entitled to an exemption or a recovery of sales taxes, customs duties, excise taxes or *Value Added Taxes* applicable to the *Contract*, the *Contractor* shall, at the request of the *Owner* or the *Owner*'s representative, assist with application for any exemption, recovery or refund of all such taxes and duties and all amounts recovered or exemptions obtained shall be for the sole benefit of the *Owner*. The *Contractor* agrees to endorse over to the *Owner* any cheques received from the federal or provincial governments, or any other taxing authority, as may be required to give effect to this paragraph."

SC-42 GC 10.2 LAWS, NOTICES, PERMITS, AND FEES

42.1 ***Add*** to the end of paragraph 10.2.4, the following words:

"The *Contractor* shall notify the Chief Building Official or the registered code agency where applicable, of the readiness, substantial completion, and completion of the stages of construction set out in the Ontario Building Code. The *Contractor* shall be present at each site inspection by an inspector or registered code agency as applicable under the Ontario Building Code."

42.2 ***Delete*** from the first line of paragraph 10.2.5 the word, "The" and substitute the words:

"Subject to paragraph 3.14.1, the".

SC-43 GC 11.1 INSURANCE

43.1 **11.1.1 General Liability Insurance** - ***Revise*** Sentence .1 to Read:

"Commercial General Liability Insurance shall be in the name of the Respondent with the Corporation of the City of Kawartha Lakes (herein after called the City) named as an additional insured, with limits of not less than Five Million dollars ($5,000,000.00) inclusive per occurrence with a property damage deductible of not more than Five Thousand dollars ($5,000.00). Coverage shall include but is not limited to bodily injury, death and damage to property including loss of use thereof, products and completed operations liability, blanket contractual liability, owners and contractor's protective, sudden and accidental pollution liability with 120 hour reporting, contingent employer's liability, non-owned automobile liability and contain a cross liability and severability of interest clause. The commercial general liability policy shall be maintained continuously from commencement of the Work to the date of Completion Acceptance as indicated by the Certificate of Completion and with respect to products and completed operations coverage; coverage shall be maintained until the end of the Warranty Period."

43.2 ***Add*** to the end of paragraph .2:

"...Standard Form Automobile Liability Insurance with limits of not less than Two Million dollars ($2,000,000.00) inclusive per occurrence for Third Party Liability including bodily injury, death and damage to property, in respect of the use or operation of all motor vehicles owned, operated or leased by the Respondent."

43.3 ***Add*** paragraph 11.1.1.4(4):

""Broad Form" (all risk) Property Insurance covering property, equipment, tools and stock used by the Respondent for the performance of the Work including costs to clean up and restore property damaged by sudden and accidental escape of pollutants and shall be in a form acceptable to the City and shall not allow subrogation claims by the Insurer against the City."

SC-43 GC 11.1 INSURANCE - Continued

43.4 ***Add***:

"The Respondent shall forward with the executed contract documents a Certificate of Insurance as evidence of the above required insurance coverage. All policies shall be endorsed to provide the City with not less than thirty (30) Days' written notice of cancellation, change or amendment restricting coverage. The Respondent shall provide the City with a new Certificate of Insurance showing any changes or upon the renewal of coverage. All policies shall be with insurers licensed to underwrite insurance in the Province of Ontario. The insurance shall be with insurers acceptable to the City and with policies in a form satisfactory to the City and if requested, the Respondent shall provide the City with a certified copy of the applicable insurance policy and any endorsements. The Respondent may be required to provide and maintain additional insurance coverage(s), which are related to this Contract. All applicable deductibles under the above required insurance policies are at the sole cost of the Respondent. All policies shall apply as primary and not as excess of any insurance available to the City."

43.5 ***Revise*** sentence 11.1.1.5 to Add:

"...the addition of the City of Kawartha Lakes and the Consultant..."

43.6 ***Add*** *Sentence 11.1.9.*:

"The Contractor shall at all relevant times carry Workplace Safety and Insurance Board of Ontario (WSIB) coverage."

SC-44 GC 12.1 INDEMNIFICATION

44.1 ***Add*** new clause 12.1.1.3:

"12.1.1. 3. The *Contractor* shall indemnify and hold harmless the *Consultant*, its agents and employees from and against claims, demands, losses, costs, damages, actions, suits, or proceedings by third parties that arise out of, or are attributable to, the *Contractor's* performance of the *Contract*, provided such claims are attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property, and caused by negligent acts or omissions of the *Contractor* or anyone for whose acts the *Contractor* may be liable, and made in writing within a period of 6 years from the date of *Substantial Performance of the Work* as set out in the certificate of *Substantial Performance of the Work*, or within such shorter such period as may be prescribed by any limitation statute or the province or territory of the *Place of Work*."

SC-45 GC 12.2 WAIVER OF CLAIMS

45.1 ***Delete*** the last sentence of subparagraph 12.2.3.4 and ***substitute***:

"For purposes of this subparagraph 12.2.3.4, "substantial defects or deficiencies" means those defects or deficiencies in the *Work* where the reasonable cost of repair of such defects or deficiencies exceeds:

.1 if the *Contract Price* is $2 million or less, the sum of $50,000, before HST;

.2 if the *Contract Price* exceeds $2 million, the sum of $100,000, before HST.

In any event, "substantial defects or deficiencies" shall include defects or deficiencies in the *Work* which affect the *Work* to such an extent or in such a manner that a significant part or the whole of the *Work* is unfit for the purpose intended by the *Contract Documents*."

SC-46 GC 12.3 WARRANTY

46.1 ***Delete*** from the first line of paragraph 12.3.2 the word, "The" and ***substitute*** the words:

"Subject to paragraph 3.14.1, the…".

SC-47 ***Add*** the following Article:

"**Part 13 - ADDITIONAL GENERAL CONDITIONS**

GC 13.1 NO CLAIMS FOR ANTICIPATED PROFIT

13.1.1 If any change or deviation in, or omission from the Work is made by which the amount of Work to be done is decreased, or if the whole or any portion of the Work is dispensed with, no compensation is claimable by the Contractor or Sub-Contractor for any loss of anticipated profits in respects thereof excepting as set out in Bidding And Contract Requirements Document 00400 - Tender Form, 12.1, Separate Prices."

SC-48 ***Add*** the following Article:

"**Part 13 - ADDITIONAL GENERAL CONDITIONS**

GC 13.2 OWNER'S STANDARD TERMS AND CONDITIONS OF PURCHASE

The goods and services described in this Tender are subject to the following terms and conditions and the Vendor agrees to be bound by and comply with all such terms and conditions:

SC-48 ***Add*** the following Article: - Continued

TERMS AND CONDITIONS GOODS & SERVICE:

.1 The Purchase Order together with all relevant documents, drawings and specifications referred to herein, shall, when accepted by the Vendor, constitute the contract between the Vendor and the City of Kawartha Lakes. By shipping goods as stated on the Purchase Order, the Vendor agrees to the Terms and Conditions and will fulfill its obligations according to the Purchase Order.

.2 There shall be no variation, alteration, substitution or amendment of the Purchase Order unless previously approved in writing by the City's Manager of Housing or his/her designate.

.3 The Vendor will not assign or subcontract the Purchase Order or any part thereof, without the prior written approval of the City of Kawartha Lakes, which approval may be withheld by the City of Kawartha Lakes in its sole discretion or may be given subject to such terms and conditions as the City of Kawartha Lakes may impose.

.4 All orders are to be shipped to the location specified on the Purchase Order. FOB the specified location.

.5 The Vendor shall display the complete Purchase Order number prominently on all packages, invoices, correspondence, customs documentation, bills of lading and packing slips and ensure that packing slips accompany all shipments.

.6 Vendors outside Canada shall provide Canada Customs Invoices with completed, acceptable shipment documentation to the Customs broker.

.7 Unless otherwise stated, the City of Kawartha Lakes shall pay to the Vendor all amounts in Canadian funds net thirty (30) days from invoice receipt or satisfactory delivery of goods or services, whichever is later, unless otherwise noted on the Purchase Order. Term discounts will be calculated from the same date.

SC-48 ***Add*** the following Article:

.8 The price indicated on the Purchase Order is the total cost and includes all fees and charges of any kind, including patent, permit, inspection, royalty and license fees, charges for crating, boxing, cartage and re-stocking and government tax levies, unless otherwise stated on the Purchase Order.

SC-48 ***Add*** the following Article: - Continued

.9 All applicable taxes are specified on the Purchase Order. If the Goods and Services Tax applies, the Vendor agrees to invoice in accordance with the Excise Tax Act and include a valid business registration number on the invoice.

.10 Where a delivery date is stated, delivery by such date is regarded as of the essence of the contract. Failure on the part of the Vendor to complete by the stated delivery date for reasons other than those beyond his control, will entitle the City of Kawartha Lakes to any one or combination of the following remedies:

(a) Cancel the order without incurring or being liable for any costs, fees, charges or surcharges of any kind whatsoever.

(b) Reassign the contract and charge the original Vendor with all incremental costs involved.

.11 In the event of strikes, accidents or unexpected events causing stoppage of work, the City of Kawartha Lakes reserves the right to suspend the application of the Purchase Order.

.12 Delivered goods and services are in accordance with the quantity and the requirements as specified in this Purchase Order and any attached specifications and are subject to inspection and approval, following delivery for a period of not less than sixty (60) days, notwithstanding prior payment. In the event any discrepancy of the order or if the goods are rejected by the City of Kawartha Lakes, in its sole discretion, the City of Kawartha Lakes is entitled to return such goods at the Vendor's expense and the Vendor shall credit the City of Kawartha Lakes accordingly within fifteen (15) days of return of the goods.

.13 Notwithstanding delivery of goods, title to the goods remains with the Vendor until the City of Kawartha Lakes has inspected and approved the goods or sixty (60) days has passed after delivery without the City of Kawartha Lakes rejecting the goods.

.14 The Vendor represents, warrants and covenants that the delivered goods do not infringe any patent, copyright, trademark or other intellectual or industrial property right.

SC-48 ***Add*** the following Article:

.15 The Vendor warrants that the shipping and handling of designated products and/or hazardous materials will be made in accordance with the applicable Federal, Provincial and Municipal laws and regulations in force at the time of shipment. Workplace Hazardous Materials Information System, Material Safety Data Sheets, must be provided with the product supplied, as defined under the federal Hazardous Products legislation and provincial WHMIS legislation. Dangerous goods shall be shipped only in compliance with Canadian Transportation of Dangerous Goods (TDG) Regulations, Hazardous Materials Regulations, and all other environmental laws, rules, regulations and procedures, where applicable.

.16 The Vendor represents, warrants and covenants that the goods are new, unused, free of defects or deficiencies in design, materials or workmanship, conforming to all manufacturer and City of Kawartha Lakes specifications and are fit for their ordinary purposes, unless the City of Kawartha Lakes has made a particular purpose known to the Vendor, in which event the goods are fit for that particular purpose as well.

.17 The Vendor warrants that all electrical and electronic components and equipment supplied under this Order shall be approved in accordance in the Ontario Electrical Safety Code and must certified so the intended use of the equipment in Canada by certified organization accredited to the Standards Council of Canada Act.

.18 In the event of any breach of warranty at law or pursuant to the Purchase Order by the Vendor, at any time during the one (1) year warranty period, the Vendor shall, at the City of Kawartha Lakes' option, repair or replace the goods with an equivalent or better product at no additional cost to the City of Kawartha Lakes within fifteen (15) days of the City of Kawartha Lakes' notification to do so.

.19 The City of Kawartha Lakes makes no guarantee of the value or volume of goods or work to be assigned to the Vendor. The Purchase Order is not an exclusive contract for the provision of the goods and/or services listed. The City of Kawartha Lakes may contract with others for the same or similar goods and/or services to those described or may obtain the same or similar internally.

SC-48 ***Add*** the following Article:

.20 The Vendor shall indemnify and save harmless the City of Kawartha Lakes, its directors, officers, councilors, employees, contractors and agents from and against all actions, suits, claims, damages, causes of action, demands, penalties, fines, cost and expenses including legal fees or other proceedings of any kind or nature directly or indirectly arising out of any breach or inaccuracy of any representation, warranty or covenant, performance of services or supply of the goods, including but not limited to personal injuries to anyone, breach or alleged breach of intellectual property laws, environmental non-compliance, product liability or property damage.

.21 The Vendor shall provide the goods and services in strict compliance with all laws, regulations, codes and standards of Canada and the Province of Ontario, at the sole cost of the Vendor.

.22 This Contract is to be construed and governed by the laws of the Province of Ontario and federal laws of Canada applicable therein. The United Nations Conventions on Contracts for the International Sale of Goods and any legislation enacted for the same do not apply.

.23 The Vendor on behalf of itself, its directors, officers, employees and agents acknowledges that for the purposes of the Purchase Order, the provisions of the Municipal Freedom of Information and Protection of Privacy Act bind it.

.24 These Standard Terms and Conditions are meant to supplement but not supersede the terms and conditions of any competitive bid document, contract or agreement. In the event of a conflict or inconsistency, the terms and conditions of the competitive bid document contract or agreement, will govern.

.25 Time is of the essence and the Vendor shall deliver the goods and services contemplated by the Purchase Order in strict accordance with the delivery date, quantity and the requirements as specified on this Purchase Order and any attached specifications.

.26 For services, the Vendor represents that it has the expertise, experience, facilities, skilled personnel, management and knowledge necessary or required to deliver the services in a competent and professional manner. The Vendor understands that the City of Kawartha Lakes is relying upon this representation in issuing the Purchase Order.

SC-48 ***Add*** the following Article:

.27 For the services, the Vendor shall:

(a) perform all work in a good and workmanlike manner to the full satisfaction of the City of Kawartha Lakes;

(b) obtain and maintain full and adequate insurance covering performance of the work, proof of which is to be available to the City of Kawartha Lakes upon request;

(c) obtain and maintain Worker's Safety Insurance Board coverage and provide both WSIB number and proof of satisfactory standing to the City of Kawartha Lakes upon request;

(d) comply with all applicable by-laws, polices, procedures, guidelines and rules of the City of Kawartha Lakes; and

(e) supervise their workers, City of Kawartha Lakes' agents and sub-contractors to ensure they conform to the requirements of the service, specifications and the terms and conditions of the Purchase Order.

.28 The Vendor shall indemnify the City of Kawartha Lakes for any liability to the Workers' Safety and Insurance Board of Ontario arising from the Purchase Order.

.29 Service performed by a City of Kawartha Lakes is an independent contractor and neither an agency, partnership nor employer-employee relationship is intended or created by this Purchase Order or Agreement.

.30 For services, the Vendor shall provide, upon request of the City of Kawartha Lakes from time to time, staff knowledgeable about the delivery of the services for consultation with a representative or representatives of the City of Kawartha Lakes. The City of Kawartha Lakes shall provide, upon request of the Vendor, a representative or representatives of the City of Kawartha Lakes to consult with the Vendor with respect to the services being delivered by the Vendor pursuant to the Purchase Order.

.31 The Vendor will maintain proper records and prepare and submit upon request, comprehensive reports respecting the services provided pursuant to the Purchase Order.

SC-48 ***Add*** the following Article:

.32 The Vendor authorizes the City of Kawartha Lakes, its employees, representatives and agents to enter at all reasonable times, any premises used by the Vendor in connection with the provision of services pursuant to the Purchase Order, in order to:

(a) Observe and evaluate the services provided under the Purchase Order; and
(b) Inspect all records, documents and invoices relating to the services provided pursuant to the Purchase Order.

.33 The City of Kawartha Lakes may terminate the Purchase Order upon thirty (30) days notice in writing, and without any further liability, in the event the City of Kawartha Lakes, in its sole discretion, determines that the Service Provider has:

(a) Neglected, failed or refused to proceed promptly with the Services contemplated to be provided by the Service Provider pursuant to the Purchase Order;
(b) Contravened any of the Service Provider's obligations hereunder; provided however, that the City of Kawartha Lakes shall set out particulars of the default of the Service Provider in any such notice of termination and in the event that the Service Provider corrects or remedies the default to the satisfaction of the City of Kawartha Lakes within the thirty day notice period, the notice of termination shall be null and void.

SC-49 ***Add*** the following Article: - Continued

GC 13.2 FINANCIAL AUDIT

13.2.1 The Contractor is required to maintain an independent audit function to assess internal controls over its environment. The Contractor will cause its auditor to perform annual audits of its internal controls and security and provide the Owner with the results of such audits. The Contractor will provide the Owner and its representatives, auditors, inspectors and regulators upon reasonable written notice with access to all facilities, systems and assets used by the Contractor to provide the services and to all relevant Contractor books, records, inventories and facilities in order to conduct appropriate financial and security audits, examinations and inspections including to: verify (i) the existence of adequate internal control procedures surrounding the delivery of the services and the suitability of their design; and (ii) Contract compliance including amounts billed to the Owner by the Contractor for services; (iii) verify inventory costs.

SC-47 ***Add*** the following Article: - Continued

GC 13.3 RESERVED

GC 13.4 OWNERSHIP OF MATERIALS

13.4.1 Unless otherwise specified, all materials existing at the *Place of the Work* at the time of execution of the *Contract* shall remain the property of the *Owner*. All work and *Products* delivered to the *Place of the Work* by the *Contractor* shall be the property of the *Owner.* The *Contractor* shall remove all surplus or rejected materials as its property when notified in writing to do so by the *Consultant*.

GC 13.5 CONSTRUCTION LIENS

13.5.1 In the event that a construction lien is registered against the *Project* by or through a *Subcontractor* or *Supplier*, and provided the *Owner* has paid all amounts properly owing under the *Contract*, the *Contractor* shall, at its own expense:

.1 within ten (10) calendar days, ensure that any and all construction liens and certificates of action are discharged, released or vacated by the posting of security; and

.2 in the case of written notices of lien, ensure that such notices are withdrawn, in writing.

GC 13.5 CONSTRUCTION LIENS

13.5.2 In the event that the *Contractor* fails to conform with the requirements of 13.5.1, the *Owner* may set off and deduct from any amount owing to the *Contractor*, all costs and associated expenses as related to removal of liens by the *Owner*, including the costs of borrowing the appropriate cash, letter of credit or bond as security and legal fees and disbursements. If there is no amount owing by the *Owner* to the *Contractor*, then the *Contractor* shall reimburse the *Owner* for all of the said costs and associated expenses.

GC 13.6 CONTRACTOR DISCHARGE OF LIABILITIES

13.6.1 In addition to the obligations assumed by the *Contractor* pursuant to GC 3.7, the *Contractor* agrees to discharge all liabilities incurred by it for labour, materials, services, *Subcontractors* and *Products*, used or reasonably required for use in the performance of the *Work*, except for amounts withheld by reason of legitimate dispute which have been identified to the party or parties, from whom payment has been withheld.

SC-49 ***Add*** the following Article: - Continued

GC 13.7 RESERVED

GC 13.8 DAILY REPORTS/DAILY LOGS

13.8.1 The *Contractor* shall cause its supervisor, or such competent person as it may delegate, to prepare a daily log or diary reporting on weather conditions, work force of the *Contractor*, *Subcontractors*, *Suppliers* and any other forces on site and also record the general nature of *Project* activities. Such log or diary shall also include any extraordinary or emergency events which may occur and also the identities of any persons who visit the site who are not part of the day to day work force.

GC 13.8 DAILY REPORTS/DAILY LOGS

13.8.2 The *Contractor* shall also maintain records, either at its head office or at the job site, recording manpower and material resourcing on the *Project*, including records which document the activities of the *Contractor* in connection with GC 3.5, and comparing that resourcing to the resourcing anticipated when the most recent version of the schedule was prepared pursuant to GC 3.5.

GC 13.9 NEUTRAL APPOINTING AUTHORITY

13.9.1 For purposes of the Rules for Mediation and Arbitration of Construction Disputes CCDC 40, the term “neutral appointing authority”, as used in both the Rules for Mediation of CCDC 2 Construction Disputes and the Rules for Arbitration of CCDC 2 Construction Disputes shall mean the head of the construction section of the ADR Institute of Ontario, Inc. presiding at the time notice of the dispute is given pursuant to the *Contract*.

END OF SECTION

1. GENERAL

1.1 The Drawings on which the Tender is based are:

Architectural

A-01 Site Plan & Details
A-02 Plan, Elevations and Section

Structural

S1 General Notes and Typical Details
S2 Plans
S3 Sections

Mechanical

M1 Plumbing & Drainage Layouts
M2 Specifications

Electrical

E1 Layout
E2 Legend & Specs

END OF SECTION

1. GENERAL CONDITIONS

1.1 Work, specified, shown on the drawings or referred to in the Contract Documents, is governed by the General Conditions of the Stipulated Price Contract, CCDC 2 2008 and Document 00800, Supplementary Conditions.

2. WORK DESCRIPTION

2.1 New construction and all site related Work for Garnet Graham Park Comfort Station at 98 Francis Street West, Fenelon Falls, Ontario K0M 1N0, as indicated in the Drawings and Specifications.

3. SCHEDULE

3.1 The entirety of the Work must be completed for occupancy by May 1, 2021.

4. OWNER OCCUPANCY

3.1 The Owner will continue to occupy and use portions of the site and reserves the right to occupy and use portions of the proposed Work, whether partially or entirely completed, or whether completed on schedule or not, provided such occupancy does not interfere with the Contractor's continuing work.

3.2 Partial occupancy or installation by the Owner, Tenants and their Contractors of equipment, fixturing and stock shall not imply acceptance of the Work in whole, or in part, nor shall simply acknowledge that terms of Agreement are fulfilled.

END OF SECTION

1. GENERAL PROCEDURES

1.1 Changes in the Work ordered by the Consultant in accordance with Article GC-6.1 of the General Conditions of the Stipulated Price Contract shall be valued in accordance with Article GC-6.2 of the General Conditions of the Stipulated Price Contract and as more fully specified in this Section.

1.2 The standard documentation for effecting changes in the Work shall be as follows:

.1 The Consultant's Site Instruction and/or Contemplated Change Order will be issued to the Contractor on a Standard Form and accompanied by the necessary Drawings, Specifications and Details.

.2 From time to time, the Consultant may issue Site Instructions for purposes of clarifying Drawings and Specifications. As such, the Contractor shall not be permitted to apply costs against these instructions unless it is noted on the Site Instruction that there may be additional costs associated with the Work. **Should the Contractor believe that there are costs associated with the clarification, the Contractor must notify the Consultant within twenty-four (24) hours of receipt of the instruction and prior to proceeding with the work. Failure to provide such notice will mean that no after claim shall be made**.

.3 The Contractor's Quotation will be submitted to the Consultant showing the amount by which the Contract shall be adjusted by way of increase or decrease if the change is ordered, and also the effect, if any, on contract time with any costs for Extension of Time included in the quotation.

.4 The Contractor shall submit a quotation, with full documentation for changes, including breakdown of labour and materials, including hourly rates, number of hours, unit material costs, etc., to allow the Consultant to ascertain the accuracy of amounts involved. Failure to submit adequate back up may result in delay of approval of the quotation. Any delay to the Work, or extra costs resulting from delay of approval for this reason shall be entirely the responsibility of the Contractor.

.5 Quotations shall be submitted no later than seven (7) days after receipt of a Contemplated Change Order. Where time is of the essence, the Architect may request pricing within a shorter time, but not less than five (5) days.

1. GENERAL PROCEDURES - Continued

.6 The Owner and the Consultant shall have thirty (30) days in which to review and approve the Contractor's quotations for changes to the Work.

.7 The Consultant's Change Order will be issued to the Contractor on Standard Form after the Owner's approval.

.8 Failure to comply with any of these procedures governing changes in the Work may result in delay of issuance of change order to the Contract, but shall not delay the work in any way or to result in any extension of contract time.

.9 Where the Contractor or any Sub-Contractor is authorized by a Site Instruction to proceed with any change on a time and material basis, daily time sheets and material slips must be submitted. Application for a final change order must be accompanied by these time sheets, material slips and a complete break down of all charges and costs. Failure to provide complete back up as required will result in delay of approval until such information is supplied in an acceptable form.

.10 Where the Consultant and/or Owner and the Contractor cannot mutually agree upon cost or evaluation of a given change, the Contractor, upon receiving written directions from the Owner, shall proceed with required change without delaying the Work and evaluation of costs for the change be considered under CCDC 2 2008 - 8.2 Arbitration and Mediation.

2. VALUATION OF CHANGES

2.1 Quotations submitted by the Contractor in response to the Consultant's Contemplated Change Order shall be fully detailed and itemized to facilitate checking and processing by the Consultant. Quotations shall:

.1 List the Work proposed to be carried out by the Contractor's own forces showing labour, material, plant and equipment charges, together with quantities and unit rates used in assessment of such changes.

.2 In the event of a change to the Work being carried out by the General Contractor's own forces, total amount for extras will include cost, plus mark-up for expenses and profit on additional work by the Contractor's own forces, only after all credits for each item included in change order have been deducted. Mark-up and Profit amounts to be included on the Tender Form.

2. VALUATION OF CHANGES

2.1 - Continued

.3 List the Work proposed to be carried out by the Sub-Contractors showing the amount quoted by each Sub-Contractor as verified by the Sub-Contractor's quotation which shall show labour, material, plant and equipment charges, together with quantities and unit rates upon which the quotation is based.

.4 In event of a change to the Work being carried out by Sub-Contractors, the General Contractor shall submit complete quotations from the Sub-Contractors to the Consultant.

.5 Use unit rates quoted in the Tender and incorporated into the Contract where applicable.

.6 As specified in the Form of Tender, unit rates quoted in the Tender and incorporated in the Contract shall include the mark-up for labour on cost specified in Article 2.2.3 in this Section and all overhead and profit charges.

.7 The quantity to which the unit rate is applied in assessing the net cost shall be the net difference in quantity between the original and revised work. For example: If the change effects the omission of one (1) square foot and the addition of three (3) square feet of an item covered by unit rates, the value of the change will be assessed by applying the unit rate to the net difference of two (2) square feet (extra) and applying the appropriate mark-up specified in Article 2.2.3 hereof.

2.2 Cost Analysis

.1 Quote material prices which shall be the net price paid by the Contractor (or Sub-Contractor) after deduction of all trade and cash discounts and the like other than reasonable discount for prompt payment. Submit paid invoices if requested.

.2 Quote plant and equipment costs which shall be not more than rates quoted in the latest edition of ‘Rental Rates on Contractor's Equipment’ published by the Canadian Construction Association. Note that mark-up for Overhead and Profit to be included as quoted on the Tender Form.

2. VALUATION OF CHANGES - Continued

2.2 Cost Analysis

.3 Quote labour costs which shall be the actual rate paid to the workers in accordance with the fair wage provision of the Contract plus a mark-up of percentage noted by Bidder on the submitted Tender Form to cover Welfare contribution, Pension contribution, Vacation Pay, Trade Improvement Fund, Promotional Fund, Training Fund, Supplementary Unemployment Benefit, Check Off, Apprenticeship Trust Fund and similar labour contract payments: Workers' Compensation Insurance Canada Pension Scheme and other statutory charges on labour.

.4 Where two (2) or more unrelated changes are included on the same Contemplated Change Order, each one (1) shall be quoted separately, and treated separately so far as net cost and mark-up are concerned.

2.3 Where the effect of a proposed change is an increase in the Contract or Sub-Contract Sum, the following maximum mark-ups for overhead and profit may be applied to the net cost, calculated as specified in Articles 2.2.1 and 2.2.2 above.

.1 Work carried out by the Contractor's own forces: As noted on the Tender Form.

.2 Work carried out by Sub-Contractors: As noted on the Tender Form

2.4 Where the effect of a proposed change is to reduce the Contract or Sub-Contract Sum, the net cost calculated as specified in Articles 2.2.1 and 2.2.2 above shall be used without application of mark-ups.

2.5 It shall be understood and agreed that the mark-ups specified above shall be deemed to provide for payment in full for all items that in the custom of the Construction Industry in Ontario are considered to include all Site and Head Office overhead and profit including additional bonding, insurance, preparation of quotations, as built drawings and any other site or office based administrative work related to the proposed change.

2.6 Where premium payments in respect to overtime are paid to workers with the Owner's prior approval in writing and where such payments are recoverable from the Owner, then the premium time shall be subject to a mark-up as agreed. There shall be no mark-up for overhead and profit on premium time payments.

2. VALUATION OF CHANGES - Continued

2.7 The intention is that quotations submitted in response to Contemplated Change Orders shall be fair and reasonable and reflect current market prices in line with prices in the original Tender. The Contractor shall check the Sub-Contractor's quotations for compliance with this requirement before submission to the Consultant.

2.8 Changes in Contract Time, as well as changes in Contract Price, must be included in all quotations for changes to the Work. No extension of time will be subsequently granted in the case of non-conformance with this requirement. Following the issuance of a Change Order, the Owner will not entertain requests for Extension to Contract time, unless same was previously stated in the Contractor's quotation submitted due to the Consultant's Contemplated Change Order.

Extension of time does not qualify for additional financial compensation other than as detailed in the quotation for plant and machinery costs. Costs for additional site superintendent time or office based contractor time are considered to be included in the overhead and profit mark-ups.

2.9 The issuance of a Change Order shall be deemed to be formal acceptance by the Owner of the Contractor's quotation as reviewed and recommended by the Consultant. Following the issue of a Change Order, the Owner will not entertain claims for extra payments due to errors alleged to have been made in the Contractor's quotation.

2.10 For change orders with a net cost exceeding $30,000, the Contractor and Sub-Contractors agree to negotiate, if requested by the Owner, overhead and profit mark-ups to a lesser percentage than those specified in the Tender, prior to approval of change order.

3. QUALIFICATIONS

3.1 The amount payable to the Contractor under the Contract will not be increased or decreased by reason of any increase or decrease in the cost of the Work brought about by any increase or decrease in the cost of plant equipment, labour, materials or the wage rates set out and prescribed herein.

END OF SECTION

1. PROJECT CO-ORDINATION

1.1 Assume full responsibility for the co-ordination and co-operation of all trades.

1.2 Ensure that the flow of information and materials, and the availability of work forces is adequate for the satisfactory and expeditious completion of the Work

1.3 Co-operate and co-ordinate with the Owner's Designated Representatives to ensure no interference with any separate Work by the Owner.

1.4 The Contractor shall co-operate with the Owner or whomever the Owner shall designate and arrange for all work to be expedited with the minimum of inconvenience to all parties, and shall report in writing any difficulties encountered in expediting the Work.

1.5 Report to the Consultant on progress of the Work in relation to schedule specified in Section 01310 - Construction Schedule.

1.6 Employ a qualified Superintendent who shall in addition to requirements of GC 3.7 Supervisor of the General Conditions and amended by Supplementary Conditions SC-4, 3.7.2:

.1 Be on the Site at all times that the Work is being performed.

.2 Have full authority to act on the Consultant's instructions.

.3 Control the Work throughout.

.4 **Not be changed for duration of project, without prior approval of the Consultant** and only for good reason, including termination of employment or an inability for them to perform the Work required.

1.7 Responsibility as to which sub-trade provides required Work to be built-in or supplied rests entirely with the Contractor. Differences in interpretation of the Specifications or Drawings as to which trade shall provide certain Work shall not be grounds for payment of extras.

1.8 Co-ordinate use of construction plant and equipment including cranes, hoists, ladders, scaffolds and similar items with the Work of the various trades. Cost of such use is subject to whatever arrangement exists between the Contractor and Trades.

1.9 Include all costs with respect to construction plant and equipment in the Contract Price, until contract completion.

1. PROJECT CO-ORDINATION - Continued

1.10 Co-ordinate use of construction plant and equipment with the Work of other Sub-Contractors, providing such use is arranged so as not to delay the Work of the Contract. All costs for such use shall be by arrangement between the Contractor and their Sub-Contractors concerned and shall not be an extra charge to the Contract.

2. SEPARATE CONTRACTS

2.1 Where the Owner has any Work performed under separate contract by others, co-ordinate and co-operate as fully as possible to allow the work to be carried out at the proper time and location. Notify the Owner if such Work requires the Contractor to assume responsibility as Constructor for that trade or supplier.

2.2 Where the Work under separate contract has to be installed on Work under this Contract, then the Owner or Separate Contractor will provide the necessary Drawings, Templates and Instructions required to prepare the Work of this Contract.

3. CUTTING & PATCHING

3.1 In accordance with Article 31 of the General Conditions of the Contract and as follows:

.1 Cutting and patching of work: By general trades specializing in work to be cut or patched. Payment will be by General Contractor. All cutting and patching must be co-ordinated through the General Contractor. Where any trade of any Division does not co-ordinate the Work as required, they shall be wholly responsible for the costs of cutting and patching.

.2 Obtain the Consultant's written permission before cutting, boring or sleeving any load bearing members, except where shown on the Drawings.

.3 Obtain approval of applicable trade before cutting holes.

.4 Make cuts with smooth, true, clean edges. Fit units to tolerances established for best standard practice for applicable work or as specified. Make patches invisible in final assembly. Drilled holes shall leave no hole larger than required.

.5 Co-ordinate and accurately locate inserts, sleeves, connections and similar items required by all trades or required by site conditions.

.6 Be responsible for correct formation and bridging of openings in masonry and structural walls required by Trades.

.7 Ensure compatibility between installed materials and security of installation.

.8 See Division 15 - Mechanical and Division 16 - Electrical for further details required by Mechanical and Electrical Trades.

.9 Ensure integrity of smoke and fire separations.

4. FASTENINGS

4.1 Supply fastenings, anchors and accessories required for fabrication and erection of the Work.

4.2 Ensure that metal fastenings are of same materials as metal component being anchored or of a metal which will not set up a galvanic action causing damage to the fastening or metal component under moist conditions.

4.3 Ensure that metal fastenings and accessories are of same texture, colour and finish as base metal on which they occur. Fastenings into masonry and concrete shall be galvanized steel and/or stainless or as specified.

4.4 Fastenings shall be permanent, of such a type and size and installed in such a manner to provide positive anchorage of the unit to be secured. Organic plugs are not acceptable. Install anchors at required spacing to provide required load bearing or shear capacity.

4.5 Explosive actuated fastenings shall be used only by trained personnel in accordance with CAN3-Z166-M85 Series.

5. INSERT DRAWINGS

5.1 The Sub-Contractors shall submit insert Drawings which are required by other trades, for attaching the Work of trade submitting the Drawings.

5.2 Indicate on insert Drawings, location and size of sleeves, anchor bolts, openings and miscellaneous items to be incorporated in the Work and material or equipment that will be secured.

5.3 Submit insert Drawings well in advance of construction incorporating building-in of inserts.

6. FIRE SEPARATIONS

6.1 Conform to the following requirements to maintain the continuity of fire separations whether or not shown on the Drawings:

.1 Fire separations may be pierced by openings for electrical and similar service outlets provided such boxes are non-combustible and are tightly fitted and in conformance with OBC 3.1.4. and 3.1.5.

.2 Combustible construction that abuts on, or is supported by a non-combustible fire separation, shall be constructed so that its collapse under fire conditions will not cause collapse of fire separation.

.3 Where a fire separation, required to be of non-combustible construction, terminates at an exterior wall, underside of floor, ceiling or roof structure and at floors, fire-stop opening with non-combustible material.

.4 Do not use combustible members, fastenings, attachments and similar items to anchor electrical, mechanical or other fixtures to fire separations.

.5 Tightly fit or fire stop openings for non-combustible pipes and ducts, to prevent the passage of smoke and flame. Be responsible for ensuring that where work passes through a fire separation, opening is plugged with fire-stop or other material, ULC classified and labelled or other material approved by authorities having jurisdiction to maintain the integrity of the fire separation.

7. UNDERGROUND & CONCEALED SERVICES

7.1 The Contractor shall be responsible for the protection of all pipes, ducts, cables, conduits, wires and other services against damage arising from the performance of the Work.

7.2 The Contractor shall take all the necessary precautions to locate the underground and concealed services and to protect them from damage.

7.3 The Contractor is responsible for making good to the satisfaction of the authorities concerned, any damages to services resulting from the Contractor's performance of the Work, without any additional cost to the Owner.

8. PROTECTION

8.1 Ensure that all work is fully protected against damage and that work damaged is replaced, repaired or rectified and carried out to the Consultant's approval and at no cost to the Owner.

9. AUTHORITY REQUIREMENTS

9.1 Representatives of authorities having jurisdiction over this project may require access and equipment to enable them to carry out inspections to ensure that requirements of codes and regulations have been met.

9.2 Provide all such access as required, at no cost to the Owner.

9.3 Instructions from authorities must be confirmed in writing, before proceeding.

10. RESIDENTIAL TENANCY ACT

10.1 The Contractor acknowledges that in accordance with the Residential Tenancies Act, access to premises of residents may only be gained by permission of the resident, or as necessary, upon the landlord giving notice to the resident specifying the time of entry during daylight hours not less than 24 hours prior to the time of entry.

10.2 The Contractor shall schedule any work accordingly and shall advise the Owner or whom the Owner shall designate at the site of the Work not less than 72 hours in advance of requested access to any resident’s premises.

11. INTERFERENCE

11.1 The Contractor shall maintain normal building operation and traffic flow, with a minimum of inconvenience to the residents of the project.

11.2 The Contractor shall ensure that no essential services such as electric power and domestic hot water supply are interrupted for more than one continuous hour, and no longer than three consecutive hours for the heating system during the heating season except with the prior written permission of the Owner.

11.3 The Contractor shall in every case where an interruption of service is to occur, make prior arrangements with the Owner.

END OF SECTION

1. SETTING OUT

1.1 The Contractor shall:

.1 Layout work from indicated verified reference points.

.2 Protect and preserve reference points. Inform the Consultant immediately if reference points are disturbed or damaged by any work and pay for their repair and/or replacement.

.3 Locate and fix grid lines and location of walls, partitions, shafts and all parts of the construction, as work proceeds.

.4 Verify grade, lines, levels and dimensions indicated and report any errors or inconsistencies to the Consultant before commencing work. Confirm job dimensions at once to allow prompt checking of Shop and other Drawings.

2. DIMENSIONS

2.1 The Contractor shall:

.1 Ensure that necessary job dimensions are taken and trades are co-ordinated for the proper execution of the work. The Contractor shall assume complete responsibility for the co-ordination, accuracy and completeness of such dimensions.

.2 Verify that Work, as it proceeds, is executed in accordance with dimensions and positions indicated which maintain levels and clearances to adjacent Work, as set out by requirements of the Drawings, and ensure that the Work installed in error is rectified before construction continues.

.3 Check and verify dimensions referring to the Work and interfacing of services. Dimensions, when pertaining to the Work of other trades, shall be verified with the trade concerned.

.4 Do not scale directly from the Drawings. If there is ambiguity or lack of information immediately inform the Consultant and await instructions before proceeding. The Contractor shall be fully responsible for rectifying, altering or re-doing any Work resulting from disregarding this clause.

.5 Ensure that all details and measurements of any Work which is to fit or to conform with Work installed shall be taken at the Site.

END OF SECTION

1. REGULATORY DOCUMENTS

1.1 The Contractor and all trades employed for the Work shall be fully conversant and knowledgeable about all requirements of the Ontario Building Code (OBC) and any other laws, regulations or statutory requirements that relate to the Work.

The Contractor shall have the latest version of the Ontario Building Code at the site office at all times.

1.2 Nothing contained in the Drawings or Specifications shall be so construed as to be in conflict with any law, by-law or regulation of the municipal, provincial or other authorities having jurisdiction. Work shall be performed in conformity with all such laws, by-laws and regulations.

1.3 Contract forms, codes, specifications, standards, manuals and installations, referred to in these specifications are of the latest published editions at the date of signing the Contract.

2. PERMITS

2.1 The Owner will apply for the General Building Permit.

2.2 The Owner will pay for General Building Permit.

2.3 The Contractor shall apply, obtain and pay for all other permits from all authorities having jurisdiction, including, where required, inspection fees and permits.

2.4 The Contractor shall be responsible for verifying that the documents forming part of the Contract are in compliance with the applicable laws, ordinances, rules, regulations and codes relating to the Work and if any part of the Contract is at variance therewith, or changes which require modification to the Contract are made, to any of the laws, ordinances, rules, regulations and codes by the Authorities Having Jurisdiction subsequent to the date of tender submission. The Contractor shall notify the Owner in writing requesting direction immediately if any such variance or change is observed by the Contractor.

2.5 If the Contractor fails to notify the Owner in writing and obtain its direction as required in subsection 2.1 (4) and performs any work knowing it to be contrary to any laws, by-laws, ordinances, rules, regulations, codes and orders of any authority having jurisdiction, the Contractor shall be responsible for and shall correct any violations thereof and shall bear all costs, expense and damages attributable to the Contractor’s failure to comply with the provisions of such laws, by-laws, ordinances, rules, regulations, codes and orders.

2. PERMITS - Continued

2.6 The Contractor shall be responsible for ensuring that no Work whatsoever is undertaken which is conditional on permits, approvals, guarantees, until certain that all conditions necessary to obtain these are met. No time extension will be allowed for delay in obtaining necessary permits.

2.7 The Contractor shall be responsible to the Consultant for reporting any condition, in writing, which would prohibit granting of any permit or approval before any Work affecting such items is commenced.

3. SAFETY ACTS & CODES

3.1 The Contractor shall give all required notices and comply with all laws, ordinances, rules, regulations, codes and orders of all authorities having jurisdiction relating to the Work, to the preservation of the public health and construction safety which are or become in force during the performance of the Work.

3.2 The Contractor shall submit notification of project, to Ministry of Labour, in compliance with Construction Safety Act of Ontario, so that a Safety Inspector may visit site. The Contractor shall obtain Ministry of Labour approval in all instances as may be required.

3.3 Upon such inspection being made by the Safety Inspector, under the Safety Act, and if non-compliance with the Act is observed and reported, then the Contractor and/or Sub-Contractor involved shall accept full responsibility for all requirements of the Safety Inspector, as noted in the report, and shall hold harmless the Owner and the Consultant.

END OF SECTION

1. PRE-CONSTRUCTION MEETING

1.1 As soon as possible after award of the Contract, the Contractor will arrange a meeting between the Consultants, Owner's Project Director and other Representatives, Sub-Contractors, Superintendents, Inspection and Testing company representatives, and representatives of others whose co-ordination is required during construction.

1.2 Full details of project, scheduling, co-operation and co-ordination will be given and discussed and questions answered. See Section 01300 - Submittals, Before Commencing Work.

1.3 Minutes will be kept by the General Contractor and issued to all participants within three (3) working days after the meeting by facsimile or electronically.

2. PROJECT MEETINGS

2.1 Organize project meetings on site, on a regular basis as agreed to by the Consultant and send out notices stating time and place to the Owner's representative, the Consultant, Sub-Consultants, Sub-Contractors and/or other persons whose presence is required.

2.2 Attendance is mandatory by all concerned parties. The General Contractor will prepare minutes noting matters discussed, decisions taken and follow-up actions required. Copies of the report will be couriered or transmitted by facsimile or electronically to all parties no later than three (3) working days after the meeting.

2.3 It is the responsibility of the Sub-Contractors to be fully prepared for all meetings so that all items on the agenda can be expedited quickly.

3. PROGRESS REPORTS

3.1 Keep a permanent written record on the site of progress of the Work. This record is to be open to inspection of the Consultant and Owner's Project Director at all times. A copy is to be furnished to the Consultant upon request.

3.2 Include in record each day:

.1 Weather conditions with maximum and minimum temperatures.

.2 Conditions encountered during excavation.

3. PROGRESS REPORTS

3.2 - Continued

.3 Commencement and completion dates of the Work of each trade, in each area of the Project.

.4 Attendance of the General Contractor's and Sub-Contractor's work forces at the Project and a record of the Work they perform.

.5 Dates, status and particulars of submissions, i.e., shop drawings, samples, mock-ups and the like.

.6 Dates, status and particulars of deliveries, i.e., manufacturing dates, delivery and installation dates.

.7 Visits to the site by the Owner, Consultants, Jurisdictional Authorities, Testing Companies, General Contractor, Sub-Contractors and Suppliers.

.8 Maintain photographs per 3.3.9, Section 01300 - Submittals.

END OF SECTION

1. PRIOR TO CONTRACT SIGNING

1.1 Within twenty-four (24) hours of the Tender submission, submit to the Consultant:

.1 All items described in 00100 - Instruction To Bidders.

.2 All other Sections and Drawings to be reviewed.

1.2 Performance Bond, and Labour and Material Bonds to be submitted within fourteen (14) business days of award of Contract.

1.3 Insurance Policies required under GC-20, Insurance, General Conditions of the Contract.

2. PRIOR TO COMMENCEMENT OF THE WORK

2.1 Submit to the Consultant the following:

.1 Certificates of good standing from Workplace Safety & Insurance Board for the Contractor and all Sub-Contractors.

.2 Shop Drawing Schedule as specified in Section 01340 - Shop Drawings And Product Data.

.3 Copy of the Building Permit issued by the Municipality.

.4 Permits required for the Work of Division 15 - Mechanical Trades and Division 16 - Electrical Trades.

.5 Permits for temporary structures, hoists, signs and similar items.

.6 Schedule of Values: Article GC-13, General Conditions of the Contract.

.7 Estimate of monthly progress claims (cash flow schedule) and breakdown of progress claims.

.8 Construction Schedule as specified in Section 01310 - Construction Schedule.

.9 Prior to commencement of the Work by those trades, Interference Drawings for Division 15 - Mechanical and Division 16 - Electrical, to indicate clearances between construction elements such as slabs, beams, drops and ceilings, and to confirm the capability of such clearances to accommodate all various required services.

.10 Failure to comply with requirements of 2.1.11 will result in such work having to be rejected and re-done at no extra cost to the Owner in the event that services are in conflict with one another, and/or with other construction elements.

3. DURING CONSTRUCTION

3.1 Documents specified under Section 01340 - Shop Drawings And Product Data, Section 01345 - Samples, Section 01400 - Testing And Inspection, and Section 01050 - Layout And Dimensions.

3.2 Any permits required from authorities having jurisdiction enabling the Owner to occupy the Work (or part thereof) prior to substantial performance of the Contract.

3.3 Applications for Payment **must** be accompanied by:

.1 The Contractor's Statement of Payment.

.2 Progress Draw showing a schedule of values of various trades and for various parts of the Work, and in a format acceptable to the Consultant.

.3 A Statutory Declaration stating that all Sub-Contractors and their Sub-Contractors, and suppliers have been paid to date and that there are no liens outstanding. Where any Sub-Trade or Supplier has not been paid because of a dispute between the Contractor and the Sub-Trade or Supplier, the Contractor must submit a written explanation with the Progress Draw, notifying the amount that has been withheld.

.4 Workplace Safety & Insurance Board Clearance Certificate.

3.4 Progress records in accordance with Section 01200 - Meetings And Progress Reports, and testing and inspection reports in accordance with Section 01400 - Testing And Inspection.

3.5 Progress Billings:

.1 Co-ordinate the value of the Work completed with cost breakdown.

.2 Include value of the Work completed during the billing period.

.3 Include running total of value of the Work completed by the end of the billing period.

.4 Format of progress billing shall be as requested by, and approved by the Owner and the Consultant.

.5 Submission and approval requirements of progress billings shall be discussed as part of the pre-construction meeting.

3. DURING CONSTRUCTION - Continued

3.6 Record Drawings:

.1 The Consultant will provide for Record Drawing purposes an AutoCAD 2017 file.

.2 Maintain Project Drawings which accurately record significant deviations from Contract Documents due to site conditions and/or changes ordered by the Consultant, Contractor/Sub-Contractor originated changes, Field Instructions, Supplementary Instructions, Addenda, instructions by correspondence and Jurisdictional Authority approvals. Carefully record location of concealed elements which are required for maintenance, alteration work and building additions. Eradicate all obsolete information.

.3 Keep Project Record Drawings updated. Do not record irrelevant information. Do not permanently conceal any work until the required information has been recorded.

.4 Completion of Record Drawings to current stage of construction shall be considered a condition precedent for validation of any application for payment made by the Contractor. Failure to comply may be cause for not issuing the Substantial Performance Certificate.

.5 Mark Record Drawings changes in coloured ink, on white prints and/or mark changes distinctly on AutoCAD 2004 file drawings.

.6 Record the following information:

.1 Location of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features.

.2 Field changes of dimensions and details.

.3 Changes made by Change Order or Supplementary Instructions.

.4 Other significant deviations which are concealed in construction and cannot be identified by visual inspection.

.7 At completion of the project and prior to final inspection, neatly transfer recorded notations to a clear set of prints and submit all sets to the Consultant.

3. DURING CONSTRUCTION - Continued

.8 Clearly mark each copy of the Project Record Drawings "Project Record Copy" and initial each page.

.9 Final satisfactory completion of the Project Record Drawings shall be a condition precedent to the issuance of the Consultant's final payment certificate.

.10 Refer to Division 15 - Mechanical and Division 16 - Electrical Specifications for more specific requirements regarding preparation and submission of final Record Drawings.

3.7 At Substantial Performance the following must be submitted:

.1 Shop Drawings: Two (2) complete sets of final Shop Drawings, marked "Reviewed" or "Reviewed as Noted". Do not include Drawings which were marked "Re-Submit".

.2 Manufacturers' Data Book: Submit two (2) weeks prior to commissioning and demonstrating, and prior to application for certificate of substantial completion, two (2) bound copies as specified in Section 01730 - Operations And Maintenance Data.

.3 Affidavits: Submit, to the Consultant, all affidavits which are specified in other Sections of the Specifications. Affidavits shall be in duplicate, signed by a responsible officer of the certifying company.

.4 Extended Warranties: See Section 01730 - Operations And Maintenance Data.

3.8 Prior to issuance of Final Certificate the following must be submitted:

.1 Extra Materials: Provide the Owner with extra materials, for future maintenance, as specified in trade Sections of the Specifications and Section 01730 - Operations And Maintenance Data.

.2 Final Construction Schedule.

.3 Post Construction topographical survey of the Site.

3.9 All information requested as per Section 01700 - Project Closeout.

3. DURING CONSTRUCTION - Continued

3.9 Progress Photographs:

.1 Upon commencement of the Work and thereafter at weekly intervals, supply the Consultant with photographs, from two (2) locations, including the progress of the Work.

.2 Photographs shall be transmitted as digital images, clearly marked with the Name of Project, Date and Location.

4. PROJECT START-UP SUBMISSIONS

Submission						Consultant	
Division	Item	Description	Start-Up	Reference	Submission Date	Resubmit	Accepted
1300	2.1	Performance Bond	x				
1300	2.1	Labour and Material Bonds	x				
1300	2.2	Insurance Policies	x				
1300	2.3	Worker's Compensation Certificate	x				
1300	2.4	Shop Drawing Schedule	x				
1300	2.5	Mechanical Permits	x				
1300	2.5	Building Permit	x				
1300	2.6	Electrical Permits	x				
1300	2.7	Permits for Temporary Structures	x				
1300	2.8	Schedule of Values	x				
1300	2.9	Estimated Monthly Progress Draw	x				
1300	2.1	Construction Schedule	x				
1550	5.1	Hard Hats & Boots	x				

5. SHOP DRAWING, SAMPLES & PRODUCT DATA SUBMISSIONS

Division	Item	Description	Dwgs.	Sample	Data Sheet	Submission-Date	Accepted	Re-submitted
2710	1.3.(1)&(2)	Perimeter And Underslab Sheet Drainage Sys.	x		X			
3100	1.4	Formwork, Shoring And Bracing	x					
3200	1.4	Concrete Reinforcement	x					
3300	1.4	Cast In Place Concrete	x					
4080	1.4	Masonry Reinforcement	x					
4110	1.3(1-5)	Mortar And Accessories		x				
4220	1.5.1	Sample Wall		x				
4700	1.4	Masonry Units		x	X			
4700	1.4	Sample Panel		x				
6190	1.5	Prefabricated Wood Trusses	x					
6200		Factory Cabinet Work	x	x	X			
6200		Cabinet Hardware		x	X			
7110	1.4	Waterproofing - Self Adhesive		x	x			
7200	1.3	Insulation - All Types		x	x			
7300	1.3	Asphalt Roof Shingles		x	x			
7400	1.4	Roofing, Ice Guards And Ice/Water Shield	x	x	x			
7460	1.3	Vinyl Trim And Soffits		x	x			
7465	1.3	Wood Siding And Trim		x	x			
7600	1.3	Eavestroughs And Downspouts		x	x			
7900	1.2.6	Sealants, Gaskets And Barrier Membrane		x	x			
8100		Pre-Hung Steel Entry Doors	x		x			
8210	1.5.3	Wood Doors	x	x	x			
8610	1.3 & 1.4	Vinyl Windows	x	x	x			
8700	1.5.1&1.6.1	Door Hardware		x	x			
8800	1.4.1	Mirrors	x	x				
9250	1.2.3	Gypsum Board		x	x			
9665	1.3	Resilient Tile Flooring		x	x			
9900	1.3	Paint		x	x			
10210	1.2.1&1.3.1.	Ventilation Louvres And Grilles	x		x			
10800	1.3.	Washroom Accessories	x		x			

6. SUBSTANTIAL PERFORMANCE SUBMISSIONS

Submissions			Consultant		
Division	Item	Description	Submission-Date	Resubmit	Accepted
1300	3.6	Record Drawings			
1300	3.7.1	Shop Drawings (x2)			
1300	3.7.2	Operations & Maintenance Data (x2)			
1300	3.7.5	Extended Warranties			
1300	3.7.6	Final Construction Schedule			
1300	3.9	Progress Photographs			
1700	4.2.1.1	Permit Drawings And Specifications			
1700	4.2.1.2	Plumbing Permit			
1700	4.2.1.3	As-Built Drawings - 2 Sets			
1700	4.2.1.5	Operations And Instructions Manual - 3 Sets			
1700	4.2.1.6	Structural Certificate			
1700	4.2.1.6	Mechanical Certificate			
1700	4.2.1.6	Electrical Certificate			
1700	4.2.1.7	Test Report			
1700	4.2.2.1	Plumbing And Drainage Manuals - 2 Sets			
1700	4.2.2.2	Plumbing And Drainage - Pipe And Valve Tag Directories			
1700	4.2.3.1	Heat/Ventilation Manuals - 2 Sets			
1700	4.2.3.2	Heat/Ventilation - Pipe And Valve Tag Directories			
1700	4.2.4.1	Electrical - Manuals (x2)			
1700	4.2.4.4	Electrical - Panel Directories			
1700	4.2.4.5	Electrical - Hydro Certificates			

7. FINAL PAYMENT CERTIFICATE

Submissions			Consultant		
Division	Item	Description	Submission-Date	Resubmit	Accepted
1300	3.7.4	Extra Material			
1300	3.7.6	Final Construction Schedule			
1700	2.2.1	Post Construction Survey			
1700	4.2.6.1	Final Completion Certificate			

END OF SECTION

1. TIME OF ESSENCE

1.1 The Contractor shall schedule the completion of the Work within the time stated in the tender.

1.2 The Contractor shall schedule the completion of the Work with an understanding that time is of the essence in meeting the obligations under the Contract.

2. SCHEDULE

2.1 Seven (7) days before commencement of the Work, submit Construction Schedule to the Consultant based on the **Bar Chart Method**. Written schedules with dates listed will not be accepted.

2.2 Modify schedule if required by the Consultant and re-submit.

2.3 Schedule shall show:

.1 Commencement and completion dates of the Contract.

.2 Commencement and completion dates of stipulated phases in accordance with the Owner's instructions and Section 01010 - Work Summary And Schedule.

.3 Commencement and completion dates of trades.

.4 Critical dates and activities.

.5 Order and delivery times for materials and equipment, where possible.

.6 Schedule of Shop Drawings - See Section 01340 - Shop Drawings And Product Data.

.7 Any other information relating to the orderly progress of the Contract, considered by the Contractor to be pertinent.

3. UPDATING & MONITORING

3.1 Set up format of Construction Schedule to allow plotting of actual progress against scheduled progress.

3.2 Allow sufficient space for modifications and revisions to the Schedule as work progresses.

3.3 Obtain the Consultant's approval of format.

3.4 Display copy of Schedule in site office during complete construction period and plot actual progress weekly.

3. UPDATING & MONITORING - Continued

3.5 Updating Schedule and Progress Reporting:

.1 Arrange participation, on site and off site, with Sub-Contractors and Suppliers, as and when necessary for the purpose of updating Schedule and monitoring progress.

.2 Reviews of progress by inspections and meetings will be conducted at least once a month or as directed by the Consultant.

.3 Updated Schedule to be available at all project meetings.

3.5 Updating Schedule and Progress Reporting: - Continued

.4 Highlight activities on Schedule, encountering slippage stating the reason for slippage, impact to the overall Schedule and a statement of necessary corrective action in order to adhere to the Construction Progress Schedule.

.5 When requested, provide a statement of monitoring, expediting and controlling of critical activities.

.6 Indicate the effects of changes to the Work on the Construction Progress Schedule.

3.6 Failure to comply with any of the preceding requirements may result in delay in issuance of Certificate of Payment. Neither the Owner nor their Consultant shall be responsible for any delays in issuing payment as a result of the failure of the Contractor to adhere to the requirements of this Section.

END OF SECTION

1. GENERAL CONDITIONS

1.1 This Section provides additional instructions to the requirements of Article GC-3.11 - Shop Drawings, of the General Conditions of the Contract.

2. SUBMISSION REQUIREMENTS

2.1 The Shop Drawing Schedule submittal shall conform to all of the following requirements:

.1 In accordance with Section 01300 - Submittals, submit a Shop Drawings Schedule for review by the Consultant, including the following information:

.1 Shop Drawings to be submitted by each trade.

.2 Dates of submission to the Consultant.

.3 Dates of expected return.

.4 Number of Drawings.

.2 Note that allowance shall be made for a second submission and time required for fabrication and delivery after return of the Shop Drawings by the Consultant.

2.2 The Shop Drawing submissions shall conform to all of the following requirements:

.1 Submit three (3) white prints of each Shop Drawing, where such Shop Drawings are not transmitted electronically.

.2 The Contractor and Sub-Contractor(s) shall mark any information requested by fabricator, confirm field dimensions and layout and compliance with the Contract Documents, check and sign each trade Shop Drawing, and make any other notations considered necessary **before submitting to the Consultant**. Failure to conform to this requirement shall result in an automatic rejection of the Shop Drawings.

.3 Drawings requiring several or extensive changes will be marked “Re-Submit”, otherwise one (1) white print and sepia will be returned marked “Reviewed” or “Reviewed as Noted” and shall not be returned to the Consultant. Drawings marked “Re-Submit” shall be revised and re-submitted.

2. SUBMISSION REQUIREMENTS

2.2 - Continued

.4 All Drawings are to be in imperial measurement. Drawings not in imperial measurements will not be accepted by the Consultant.

.5 The Consultant's Drawings are not to be used for Shop Drawings.

.6 The failure of the Contractor to ensure that Shop Drawing submittals conform to the requirements may lead to delay in the Work. Costs of such delay shall be solely the responsibility of the Contractor and no extension of contract time will be permitted as a result of any delay caused by the Contractor's, Sub-Contractor's or Supplier's failure to submit Shop Drawings in the form and manner prescribed herein.

3. INFORMATION REQUIREMENTS

3.1 Name of the project, including contract number and/or building number.

3.2 Materials and finishes.

3.3 Descriptive names of equipment and mechanical and electrical characteristics when applicable.

3.4 Sections, arrangements and details which indicate complete construction, as well as all interconnections with other Work.

3.5 Fabrication and erection dimensions, together with quantities and/or locations.

3.6 Assumed design loadings, all dimensions of elements and material specifications for all load bearing members.

3.7 Data verifying that superimposed loads will not affect function, appearance and safety of the Work shown on the Shop Drawings, as well as other interconnected Work.

3.8 Proposed chases, sleeves, cuts and holes in structural members.

3.9 Time that the fabricator considers necessary from date of the Contractor's authority to proceed (and Shop Drawings are returned) until fabricated Work will be delivered to site, and for installation if appropriate.

4. PRODUCT DATA

4.1 Certain Specification Sections specify that manufacturers' standard schematic drawings, catalogue sheets, diagrams, schedules, performance charts, illustrations and other standard descriptive data will be accepted in lieu of the Shop Drawings. Six (6) copies must be submitted where the Drawings are not transmitted electronically.

4.2 The above will only be accepted if they conform to the following:

.1 Delete information which is not applicable to the project.

.2 Supplement standard information to provide additional information applicable to the project.

.3 Show dimensions, sizes and clearances required.

.4 Show colours, model number and options.

.5 Show performance characteristics and capacities.

.6 Show wiring diagrams and controls.

.7 Add to standard sheet, the project identification data.

.8 Are 8 1/2" x 11" (213mm x 275mm) originals.

5. CONSULTANT REVIEW

5.1 Review of the Shop Drawings by the Consultant is for the sole purpose of ascertaining conformance with general design concepts.

5.2 Review shall not mean that the Consultant approves detail design inherent in the Shop Drawings, responsibility for which shall remain with the Contractor submitting same, and such reviews shall not relieve the Contractor of the responsibility for errors or omissions in the Shop Drawings or of the responsibility for meeting all requirements of the Contract Documents.

5.3 The Contractor is responsible for dimensions and quantities to be confirmed and correlated at the job site, and for information that pertains solely to fabrication processes or to techniques of construction of the Work of all sub-trades.

5.4 Review of any Drawing and/or any notes added to it, does not constitute authorization to proceed with any Work which, in the Contractor's or Supplier's opinion will involve extra cost to the Owner.

5.5 The Consultant will not review any Shop Drawing for items other than as specified unless prior approval has been given to substitution.

END OF SECTION

1. DEFINITIONS

1.1 Two types of samples may be requested as follows:

.1 Site Samples: Sample installation of materials or components in suitable location, to determine standard of acceptable construction and finish. Site Samples are specified in the appropriate Trade Sections of the Specification and may form part of the completed construction if so approved by the Architect.

.2 Samples: Samples of materials, finishes and other components called for in appropriate Trade Sections of the Specification or as requested by the Architect.

2. SITE SAMPLES

2.1 Construct site samples, in locations determined by the Architect.

2.2 Include all materials specified in Trade Sections, including materials and assemblies required to adequately show site sample in its intended installation.

2.3 Erect, dismantle and re-erect, or modify site samples as many times as is necessary to obtain the Architect's approval.

2.4 Approved site samples will become minimum standards of labour and material against which installed work will be checked on project.

2.5 Site samples may be incorporated into the Work if so designated by the Architect.

2.6 Where site samples are not to be incorporated into the Work, remove same from the Site at completion of the Work or when so instructed by the Architect.

3. SAMPLES

3.1 Where specified, submit to the Architect, sample items and/or samples of adequate size to represent material or assembly.

3.2 Where degrees of marking or colour cannot adequately be shown in a single sample, submit a range of samples to show extremes of colour and marking. Identify samples with project number, date and name of the Sub-Contractor. Materials used in building shall correspond to approved samples for quality, colour, texture, finish and thickness.

3. SAMPLES - Continued

3.3 When samples are very large, require assembly or require evaluation at the site, they may be delivered to the site, but only with the Architect's approval and as directed.

3.4 Include cost of delivery and handling, assembly and return to supplier of samples in the Contract Work.

3.5 If a sample is not approved, it may be returned, noted “Not Approved”. If the sample is approved, one sample will be returned, marked "Approved" or with an accompanying memo concerning approval.

3.6 Each product incorporated in the Work shall be precisely the same in all details as the approved sample.

3.7 Should any change of material, colour, texture, finish, dimensions, performance, function, operation, construction, joining, fastening, fabrication techniques, service characteristics and other qualities be made to a product after approval has been given, request approval of the revised characteristics in writing and re-submit samples of the product for approval if required.

END OF SECTION

1. GENERAL

1.1 Responsibilities of the Contractor for Testing and Inspection include co-ordination of Inspections by an Inspector (or Registered Code Agency appointed by the Municipality) and Inspection and Testing agencies appointed by the Owner to review specific components of the Work.

Inspection and Testing is specified in individual Sections and includes, without being limited to:

- Fill Compaction
- Concrete
- Structural Steel
- Building Envelope
- Baseline Indoor Air

Refer to all Sections and Divisions for Inspection and Testing requirements.

1.2 For purposes of OBC 2.4.5.1(2), the Contractor shall be the ***person*** responsible for notifying the Chief Building Official (or Registered Code Agency appointed by the Municipality) of the readiness for inspection as required by this clause.

1.3 Testing and Inspection agents will be appointed by the Owner to carry out inspection and testing as specified in the various Sections of the Specifications. The Contractor shall co-ordinate all Inspection and Testing as needed.

1.4 Conditions for Access to the Work are as follows:

.1 The Contractor and each Sub-Contractor, Supplier and Manufacturer whose material and work is subject to inspection and testing shall supply material, labour and facilities as required and necessary for the Inspection and Testing agency to perform its work; provide full access to site and/or manufacturing plant; give all required notices for inspection and testing and provide full co-operation.

.2 The Contractor shall submit a schedule of required tests and inspections, for approval by the Architect and Sub-Consultant.

.3 In addition to the above, provisions are to be made for site reviews by the by the Architect and all Sub-Consultants.

2. PAYMENT

2.1 Cost for inspection and testing, unless otherwise specified herein, will be by Allowance, specified in Section 01020 - Allowances.

2.2 Where tests show non-conformity to the Contract Documents, further inspection and testing costs shall be borne by the party at fault, (the Contractor and /or Sub-Contractor).

3. CONFORMANCE

3.1 Inspection and testing specified or directed for any part of the Work, material and manufactured items shall in no instance mitigate the Contractor's, Sub-Contractor's, Supplier's or Manufacturer's responsibility for their own supervision and conformance of the Work and Materials to the Contract Documents.

4. REPORTS

4.1 The Inspection and Testing agency shall provide a written report for each inspection and test made. Providing one (1) copy to the Owner, one (1) copy to the Prime Consultant, one (1) copy to each Sub-Consultant and three (3) copies to the Contractor direct who shall forward one (1) to the Sub-Contractor, Supplier or Manufacturer concerned and one (1) copy to the Chief Building Official.

4.2 Include all of the following information in reports:

.1 Date and time of inspection or test.

.2 Weather conditions and ambient air temperatures during the inspection.

.3 Testing method employed by proper standard reference and specific paragraph or other detailed information as applicable.

.4 Inspection description and details and other relevant information.

.5 Test results in detail, complete with applicable graphs and other clarifying documents and information.

.6 Printed name and signature of person having conducted inspection or test, and name, title and signature of supervisor having verified the report.

5. DEFECTIVE WORK

5.1 Where testing, inspection or surveys indicate that defective labour has occurred or that the Work has been carried out incorporating defective materials, the Architect and their Sub-Consultants may request further tests, inspections or surveys performed, calculation of structural strength made and/or similar analyses in order to help determine whether the Work must be replaced. Such re-testing, inspections, surveys and analyses carried out under these circumstances will be made at the Contractor's expense.

5.2 All testing shall be conducted in accordance with the Architect's and their Sub-Consultant's requirements.

5.3 Defective work discovered before expiration of warranty period, specified in General Conditions of the Contract, as may be extended in this Specification (Section 01740 - Warranties), will be rejected, whether or not it has been previously inspected. If rejected, defective materials or labour shall be promptly removed and replaced or repaired to the Architect's approval, at no cost to the Owner.

5.4 See references to defective products and work in Section 01600 - Material And Equipment.

END OF SECTION

1. CONSTRUCTION SAFETY MEASURES

1.1 Observe and enforce construction safety measures required by National Building Code Part 8, Canadian Construction Safety Code, Occupational Health and Safety Act, Ontario Regulations 213/91, Workers' Compensation Board and municipal statutes and authorities.

1.2 In event of conflict between any provisions of above authorities the most stringent provision will apply.

1.3 Where applicable the Contractor shall be designated the "Constructor", as defined by Ontario Act.

2. FIRE SAFETY REQUIREMENTS

2.1 Comply with requirements of local Fire Marshall and other authorities having jurisdiction.

2.2 Comply with requirements of Section 01500 - Temporary Facilities And Controls.

3. FALSEWORK

3.1 Design and construct falsework in accordance with CSA S269.1 -1975.

4. SCAFFOLD

4.1 Design and construct scaffolding in accordance with CAN/CSA S269.2-M87.

5. VISITORS

5.1 Provide hard hats and safety boots for use of visitors. A minimum of 3 (three) hard hats and 2 (two) sets of safety boots shall be provided solely for use by authorized visitors, consultants and/or Owner Representatives.

END OF SECTION

1. GENERAL

1.1 The Contractor shall furnish all labour, materials, equipment, transportation storage facilities and all other incidentals required to perform the Work.

1.2 All products supplied for the Work shall be new except as noted otherwise.

1.3 The Contractor shall give preference to materials, products and equipment of Canadian origin and manufacture.

1.4 All products shall be supplied in accordance with the Contract requirements of each Section.

1.5 All products and equipment to be provided in conformance with Section 01565 - Construction Waste Management.

1.6 Products and appliances will not be supplied by the Owner unless so stated.

1.7 Description of products and work in the Contract Documents which have well known technical or trade meanings shall be held to denote that all related recognized standards apply.

1.8 The Contractor shall ensure that all materials, products, equipment ad systems are new and they must be listed in the Canadian Construction Materials Centre's 'Evaluation Listing or Evaluation Reports'.

1.9 Where electrical equipment, fixtures, appliances and apparatus are specified under this Contract, they shall be of types approved by the Canadian Standards Association and if they do not bear this approval, the Contractor shall arrange and pay for then to be inspected by the Special Branch of Ontario Hydro and shall alter them at the Contractor's expense, as required by that Inspection Department.

1.10 Any electrical equipment, fixtures, appliance and apparatus delivered to the site, which does not bear either the Canadian Standards Association label with their approval number or the Special Branch of Ontario Hydro label, will be rejected and replaced with acceptable equipment or apparatus, without additional cost to the Owner.

1.11 The Contractor shall assume all liability for and be responsible for loss of or damage to the Contractor's materials or equipment and for any materials delivered to the Contractor from whatever source to the site of the Work.

2. HANDLING

2.1 Arrange for receiving area and procedures which do not require use of the Owner's facilities or personnel.

2.2 Schedule material delivery so as to keep storage at the site to the absolute minimum, but without causing delays due to late delivery. Before delivery arrange for receiving at site.

2.3 Handle and store materials in accordance with manufacturer's instructions to prevent damage to materials, structure and finishes. Avoid undue loading stresses in materials and shock during transport, handling and storage. Do not overload floors of areas used for storage.

2.4 All packaged materials must be in original, unopened and undamaged containers with manufacturer's labels and seals intact.

2.5 Store material that will be damaged by weather in suitable dry accommodation. Provide ventilation. Keep daily records of temperature and relative humidity where these factors are critical in material storage.

2.6 Do not store material and equipment detrimental to finished surfaces within areas of the building where finishing has commenced or has been completed. Material storage within the building is subject to relocation as directed.

2.7 Store highly combustible or volatile materials separately from other materials and under no circumstances within the building. Protect against open flame and other fire hazards. Limit volume of supply of such materials, on the site, to minimum required for one (1) day's operations.

2.8 Products supplied by the Owner and installed under this Contract will be delivered to the site during normal working hours. Unload, transport within the site and store, if necessary, all such products at no additional cost to the Owner providing that such delivery is not made inconsistent with the agreed progress schedule.

2.9 Damaged materials will be rejected for use and thereupon shall be removed immediately from site.

3. CONFORMANCE

3.1 Units of multiple unit products shall have same characteristics and shall be of same manufacturing run, dye lots, etc., wherever this may result in inconsistency in appearance. Materials or manufactured products with manufacturer's specific instructions for application or installation shall be used in strict accordance with such instructions.

3. CONFORMANCE - Continued

3.2 When material or equipment is composed of various components, components shall conform to the manufacturer's and other relevant Specifications.

3.3 Materials and fixtures specified shall be subject to the approval of the Consultant, but where materials or fixtures named by brand, size and quality in the Drawings and Specifications, such materials may be used without further reference to the Consultant.

4. AVAILABILITY

4.1 Determine availability of all specified materials and equipment before award of Contract.

4.2 If any material or equipment is not available at the time of Tender, this shall be brought to the attention of the Consultant at that time and a suitable alternative shall be selected by the Consultant.

4.3 Failure to do so will not be grounds for any extra costs to the Contract.

4.4 Upon award of the Contract, the Contractor shall determine delivery time necessary for all products, equipment and plant required. Order items to ensure that delivery to the site is such that agreed Progress Schedule is maintained. If requested by the Consultant, produce evidence to substantiate the foregoing.

4.5 Delivery time for all major items required during construction, and items in large quantities and over an extended period of time, shall be noted as specified in Section 01310 - Construction Schedule.

5. DEFECTIVE PRODUCTS

5.1 Products and work found defective, whether not in accordance with Specifications or defaced or injured through the Contractor's, employees' or suppliers' negligence, or by fire, weather or any other cause, will be rejected for incorporation in work.

5.2 Remove rejected products and work from site immediately.

5.3 Replace rejected products and work with no delay after rejection. Provide replacement products and execute replacement work precisely as required by specifications for original products at no extra cost to the Owner. Previous inspection and payment shall not relieve the Sub-Contractor from obligation of providing sound and satisfactory Work in compliance with this Specification.

5. DEFECTIVE PRODUCTS - Continued

5.4 See references to defective work uncovered during inspection and testing in Section 01400 - Testing And Inspection.

5.5 If, in the opinion of the Owner, it is not expedient to correct defective work or work not done in accordance with the Contract, the Owner may deduct from the Contract price the difference in value between the Work as done and that called for by the Contract, the amount of which shall be determined by the Owner.

6. QUALITY OF WORK

6.1 The Contractor shall ensure that all work is performed by competent workers, skilled in the particular trade. Only first class work will be accepted, not only with regard to safety, efficiency and durability, but also with regard to neatness and accuracy of detail.

7. DEVIATION

7.1 The Contractor shall not make any deviations from the Drawings and Specifications without prior written permission from the Owner and the Contractor shall correct unauthorized deviations at the Contractor's expense.

END OF SECTION

1. CONTRACTOR'S OPTIONS

1.1 Where products are specified only by reference standards, the Contractor may select any product meeting the standards by any manufacturer.

1.2 Where products are specified by naming several products or manufacturers, the Contractor may select any product and manufacturer named.

1.3 Where products are specified by naming one or more products, but indicating the option of selecting equivalent products by stating "or approved alternate" after a specified product, the Contractor may submit a request to the Consultant, **in writing as required for the substitution**, for any product not specifically named.

1.4 Where products are specified by naming one product and manufacturer, **there is no option and substitution will not be allowed**.

1.5 Note that where 'Approved Alternates' are selected, they must be equal or superior to the product(s) in every respect. No additional costs will be entertained in order for alternate products to be used.

2. CONSIDERATION OF SUBSTITUTIONS

2.1 Submit requests for substitutions as specified in Document 00100 - Instruction To Bidders, and on the form provided as part of this Section.

2.2 The Request for Substitution shall include the following information prior to submittal to the Consultant:

.1 Reason for Substitution.

.2 Credit to the Owner for considering the substitution.

.3 Certification by the Contractor that the proposed product and/or method has been investigated by them and determined to be equal or superior in all respects to that specified.

.4 Certification that same or better warranty is provided for the substitution as for the products and methods originally specified.

.5 Indication that all aspects of co-ordinating the proposed substitution into the Work have been considered for all trades prior to requesting approval for substitution.

2. SUBSTITUTIONS

2.2 - Continued

.6 Request for consideration of substitution is accompanied by complete specifications and sample of material or product.

.7 Agreement to pay costs by Consultants to examine and consider request for substitutions.

Note that a minimum of three (3) hours will be charged at $175 per hour to consider any request for substitution where the reason for substitution is not unavailability of the product.

These charges will be invoiced to the Owner and charged against the Contractor's Progress Application.

If the amount of time required by the Consultant to review and consideration is likely to exceed three hours, the Consultant will provide the Contractor with an estimate of the time required and costs associated with the consideration of the substitution.

.8 Should proposed substitution be accepted, either in part or in whole, assume full responsibility when substitution affects any other Work. The Consultant will execute any changes to Drawings required as a result of substitution, and costs of making such changes will be billed based at $200 per hour and in accordance with Section 01026 - Change Order Procedures.

.9 Proposed substitutions must satisfy all design conditions and other specified requirements. Properties including, but not necessarily limited to the following, as applicable, will be considered:

Physical dimension requirements to satisfy space limitations; static and dynamic weight limitations; structural properties; audible noise levels; vibration generation; interchangeability of parts of components; accessibility for maintenance; possible removal or replacement; colours; textures and compatibility with other materials, products, assemblies and components.

.10 Cost of all changes in the Work of other trades, necessitated by the use of proposed material and product substitutions, shall be borne by the Contractor or Sub-Contractor proposing the substitution.

2. SUBSTITUTIONS - Continued

2.3 **Do not** substitute materials, equipment or methods into the Work unless such substitutions have been specifically approved by the Consultant and Owner.

Use of substitute materials, equipment or methods without approval of the Owner shall result in such Work being removed and replaced, with specified materials, at the Contractor's own cost.

2.4 Substitutions will not be considered if:

.1 They are indicated or implied on the Shop Drawings or the project data without a formal request submitted as specified above.

.2 Acceptance will require substantial revision of the Contract Documents.

2.5 The Consultant reserves the right to refuse any substitution without giving a reason.

Request for Substitution

To: Ronald A. Awde, Architect

Requested by: _____

Project: City of Kawartha Lakes
Garnet Graham Park Comfort Station
98 Francis Street West
Fenelon Falls, Ontario K0M 1N0

Date Issued: _____

We hereby request consideration for a substitution for the following item in accordance with Section 01630 – Substitutions:

Division: _____ Section: _____ Item: _____

Proposed Substitution: _____

Reason for Substitution: _____

Credit to the Contract: $ _____

☐ Complete specification attached

☐ Sample of material or product attached

Contractor Certification

1. The proposed product and/or method has been investigated by the contractor and determined to be equal or superior in all respects to that specified.

2. The same or better warranty is provided for the substitution as for products and methods originally specified.

3. All aspects of coordinating the proposed substitution into the work have been considered for all trades prior to requesting approval for substitution, including but not limited to the following: intended function, dimensional requirements, static and/or dynamic weight, structural properties, noise and vibration, accessibility for maintenance, removal or replacement, colour, texture, compatibility with other products.

4. We agree to reimburse the Owner for costs incurred by the consultants to examine and consider the request for substitutions, based on a minimum of three hours at the current OAA rates or as advised by the Consultant. This shall include any charges the consultants must make to drawings.

5. We agree that if the proposed substitution is accepted in part or in whole, that we will assume full responsibility in the event that it affects any other part of the work.

6. We agree that the cost of all changes in the work of other trades, necessitated by the use of the proposed product substitution shall be borne by the Contractor or Sub-Contractor proposing the substitution.

Signature: _____ Signature _____
General Contractor Sub-Contractor (if applicable)

Consultants

Recommended ☐ Not Recommended ☐ Reimbursed Consultant Hours: _____

Signature: _____ Signature _____
Prime Consultant Sub-Consultant (if applicable)

END OF SECTION

1. FINAL INSPECTIONS & CLOSEOUT

1.1 Arrange for, conduct and document final inspection, closeout, and takeover at completion of the Work in accordance with procedures described in the most recent edition O.A.A./OCGA Document Take-Over Procedures, O.A.A./OCGA Document No. 100, in force at the time of tender.

1.2 Supply all documents specified in Section 01300 - Submittals, under heading "Documents required at Substantial Performance".

1.3 Arrange with the Owner for termination of the Contractor's liability insurance coverage. The Contractor's insurance coverage shall not terminate until such time as the premises are vacated by the builder's forces and the Work has been certified complete.

2. POST CONSTRUCTION SURVEY

2.1 Arrange and pay for the services of a qualified surveyor to prepare an as-built record of the finish grading within the Site area included in this Contract. Failure to supply this shall result in the Owner having the survey completed and back charging the costs against the final payment certificate, including any Consultant time required to co-ordinate this item.

3. TRIAL USAGE & INSTRUCTIONS - MECHANICAL

3.1 Thoroughly instruct the Owner's authorized representative in the safe operation of the systems and equipment.

3.2 Arrange and pay for the services of qualified manufacturer's representatives to instruct the Owner on specialized portions of the installation; such as refrigeration machines, automatic controls, primary air handling and cooling equipment.

3.3 Submit a complete record of instructions as part of the maintenance instructions and data book given to the Owner. For each instruction period, supply the following:

.1 Date.

.2 System or equipment involved.

.3 Names of persons giving instructions.

.4 Names of persons being instructed.

.5 Other persons present.

3. TRIAL USAGE & INSTRUCTIONS - MECHANICAL - Continued

3.4 Instructional period shall be carried out during a continuous period of thirty (30) days.

3.5 The Owner shall be permitted trial usage of systems or parts of system for the purpose of testing and learning operational procedures. Trial usage shall not affect the warranties, nor be construed as acceptance thereof and no claim shall be made against the Owner for any injury or breakage to any part or parts of such systems due to the aforementioned tests, where such injuries and/or breakage are caused, directly or indirectly, by a weakness or inadequacy of parts, or by defective materials or labour of any kind whatsoever.

4. TRIAL USAGE & INSTRUCTIONS - ELECTRICAL

4.1 Provide services of manufacturer's specialized representatives to instruct the Owner in operation of systems and equipment.

4.2 Permit the Owner's representatives, in order to familiarize themselves with the equipment, to operate the system(s) for a reasonable period of time.

4.3 The trial usage of any equipment by the Owner shall not affect the warranties, nor be construed as acceptance of the equipment or system and no claim for damage shall be made against the Owner for injury or breakage to any part or parts of the aforementioned system or systems due to any such test, where such injuries or breakage are caused, in whole or in part, directly or indirectly, by a weakness or inadequacy of parts, or by defective materials or labour of any kind whatsoever.

4.4 Review information provided in the maintenance instructions and data book with the Owner's representatives to ensure the Owner has a complete understanding of the electrical equipment.

5. REQUIREMENTS FOR COMPLETION

5.1 Provide notice, in writing, to the Owner of anticipated takeover date.

5.2 The following articles are to be submitted to the Owner before issuance of the Substantial Completion Certificate:

.1 General

.1 Building Permit copy of Drawings and Specifications.

5. REQUIREMENTS FOR COMPLETION

5.2 .1 General - Continued

.2 Final Plumbing Permit clearance.

.3 One (1) set of as-built architectural, structural, mechanical and electrical drawings in the form of permanent reproducible (i.e., Mylar).

.4 One (1) set as-built architectural, structural and electrical drawings in the form of white prints reproduced from the above Mylars.

.5 Operating and Instruction Manuals.

.6 Structural, mechanical and electrical certificates on site copy to the Owner.

.7 Copies of all test reports

.8 Extended warranties as listed in Section 01740 - Warranties.

.9 Post Construction topographical survey.

.2 Plumbing & Drainage

.1 Operating and Instructions Manuals - two (2) copies, hard bound.

.2 Piping and valve tag directories - one (1) copy framed and one (1) copy for the Operating Manual.

.3 All other requested data.

.3 Heating & Ventilating

.1 Operating and Instructions Manuals - two (2) copies, hard bound.

.2 Piping and valve tag directories - one (1) copy framed and one (1) copy for the Operating Manual.

.3 Balancing report of heating system and ventilator system.

.4 Test report on heating and ventilating control systems.

.5 All other requested data.

.6 Air quality report.

5. REQUIREMENTS FOR COMPLETION

5.2 - Continued

.4 Electrical

.1 Operating and Instructions Manuals - two (2) copies, hard bound.

.2 Completed Record Drawings, including television signals, telephone, fire alarm and intercom systems.

.3 Test report of fire alarm system.

.4 One (1) copy of all panel directories affected by the Work.

.5 Hydro certificate.

.5 Substantial Performance

.1 Upon receipt of a Certificate of Substantial Performance, the Contractor shall provide the Owner with evidence of publication (including name of paper, date of publication, etc.), of the Certificate of Substantial Performance acceptable to it.

.5 Final Payment

.1 Final completion certificate required from the Architect and Consultants dated to takeover date.

END OF SECTION

1. GENERAL

1.1 Cleaning for specific products of the Work is described in the Specifications Section for that work.

1.2 At completion of the Work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials, and clean all sight exposed surfaces. Leave project clean and ready for occupancy.

1.3 Other Sections related to this Work:

.1 Section 01170 - Sustainable Design And Construction

.2 Section 01565 - Construction Waste Management

2. SAFETY REQUIREMENTS

2.1 Maintain project in accordance with the Health and Safety Standards of the Province of Ontario.

2.2 Hazard Controls:

.1 Store volatile wastes in covered metal containers, and remove from premises daily.

.2 Prevent accumulation of wastes which create hazardous conditions.

.3 Provide adequate ventilation during use of volatile substances.

3. MATERIALS & INSTRUCTIONS

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

3.2 Obtain from each Sub-Contractor, instructions which designate proper methods and materials to be used in final cleaning and provide such instructions to the Owner, for continued maintenance, as more exactly specified. Include instructions in Manufacturer's Data Book, specified in Section 01730 - Operations And Maintenance Data.

4. CLEANING DURING CONSTRUCTION

4.1 Maintain project grounds and public properties free from accumulations of waste materials and rubbish. Do not allow rubbish to accumulate in the Work under construction or on any roof area.

4.2 Provide on the Site, containers for collection of waste materials and rubbish.

4.3 At reasonable intervals during progress of the Work, clean the Site and public property, and dispose of waste materials, debris and rubbish.

4.4 Wet down dry materials and rubbish to lay dust and prevent blowing dust.

4.5 Vacuum clean interior building areas when ready to receive finish painting and continue vacuum cleaning on an as needed basis until building is ready for substantial completion or occupancy.

4.6 Schedule cleaning operations so that dust or other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.

4.7 Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.

4.8 Take precautions to prevent the disposing of mud or debris on roadways. Any and all mud or debris shall be cleaned up immediately. Neglect of this requirement will cause the Owner to have the necessary clean-up work carried out and charge all costs to the Contractor.

4.9 Cleaning operations shall include those areas used for temporary site access or used on a temporary basis to facilitate the Work.

5. FINAL CLEANING

5.1 Employ experienced workers or professional cleaners for final cleaning, prior to application for Substantial Performance.

5.2 In preparation for Substantial Performance or occupancy, conduct final inspection of sight exposed interior and exterior surfaces and of concealed spaces.

5. FINAL CLEANING - Continued

5.3 In addition to the progressive removal of rubbish from the entire building and site, and leaving the building's broom clean, the Contractor shall perform the following the Work before final acceptance. Final cleaning shall not commence until so authorized by the Architect.

.1 Remove grease, dust, dirt, stains, labels, finger prints and other foreign materials from all interior and exterior finished surfaces; polish surfaces so designated to shine finish.

.2 Repair, patch and touch up marred surfaces to specified finish, to match adjacent surfaces.

.3 Clean hardware, aluminum, stainless steel and similar finishes.

.4 Completely clean all glass, interior and exterior and replace broken glass.

.5 Remove paint spots and smears from all surfaces.

.6 Vacuum clean all building interiors affected in construction operations.

.7 Broom clean and wash paved surfaces inside and outside the building.

.8 Remove debris and materials from roof areas.

.9 Vacuum out and wipe clean all electrical, signal and security panels; switchboards, transformers and other electrical equipment.

.10 Replace ventilating and air conditioning filters if units were operated during construction.

.11 Clean ducts, blowers and coils if air conditioning units were operated without filters during construction.

.12 Where the Owner takes over portions of the building for occupancy, carry out final cleaning in each portion of the Work prior to such takeover.

.13 Remove all cleaning equipment and materials from the Site.

END OF SECTION

1. GENERAL

1.1 Prior to date of Substantial Performance submit to the Consultant four (4) copies of Operations Data and Maintenance Manual made up as follows:

.1 For mechanical, electrical and other equipment that is specified to be demonstrated to the Owner's staff and maintenance personnel, the submission time shall be a minimum of fourteen (14) working days before date of Substantial Performance. When an Air Balancing Report is called for under Division 15 - Mechanical, it shall be noted that failure to provide such report before the fourteen (14) day period specified above may be held as a reason by the Consultant to delay substantial performance inspection.

.2 Deliver maintenance materials to the Owner's representative complete with Transmittal Form, with a copy of Transmittal Form to the Consultant.

2. MAINTENANCE MANUAL

2.1 Bind data in vinyl hard covered, three ring loose leaf binder for 8 1/2" x 11" (213mm x 275mm) size paper and also scan all data and provide manuals in PDF format on CD.

2.2 Enclose title sheet, labelled "Operation Data and Maintenance Manual", project name, date and list of contents.

2.3 Organize contents into applicable Sections of the Work to parallel Project Specification break down. Mark each Section by labelled tabs protected with celluloid covers fastened to hard paper dividing sheets.

2.4 Include the following information plus data specified:

.1 Maintenance instructions for finished surfaces and materials.

.2 Copy of hardware and paint schedules.

.3 Description, operation and maintenance instructions for equipment and systems, including complete list of equipment and parts. Indicate name plate information such as make, size, capacity and serial number. Operations data may be supplemented by verbal instructions on cassette.

.4 Names, addresses and telephone numbers of the Sub-Contractors and Suppliers.

2. MAINTENANCE MANUAL

2.4 - Continued

.5 Warranties and bonds.

.6 Additional material used in project listed under various Sections showing name of manufacturer and source of supply.

.7 Neatly type lists and notes. Use clear Drawings, diagrams or manufacturers' literature.

.8 Include one (1) complete set of final reviewed Shop Drawings, bound separately, indicating corrections and changes made during fabrication and installation.

.9 See Division 15 - Mechanical and Division 16 - Electrical for further instructions concerning data in maintenance manuals.

END OF SECTION

1. GENERAL

1.1 Standard one (1) year warranty, shall start at date of Substantial Performance of Contract. Ensure that all warranties comply with this stipulation prior to submission of same.

1.2 The Owner shall give prompt notice, in writing, to the Consultant and the Contractor of any defects noted during warranty period(s) in accordance with the attached form.

1.3 During month prior to end of standard one (1) year warranty period, the Owner, Consultant and Contractor will conduct an inspection of the project and the Contractor shall promptly remedy any defects due to faulty materials or labour.

1.4 Use of permanent heating system for temporary heat shall not affect requirement that all warranties start at date of the Consultant's Certificate of Substantial Completion.

1.5 At the expiry of the standard one (1) year warranty period, the Contractor shall formally assign to the Owner, all extended warranties given by Sub-Contractors for their work on the project and such Sub-Contractors shall be formally advised of assignment.

2. EXTENDED WARRANTIES

2.1 Provide extended warranties specified in Trade Sections of the Specification. Extended warranties shall commence immediately after the expiration of the standard one (1) year warranty included in the Contract under Article GC 2.4 - Defective Work. Submit warranties in Form of Warranty, a sample of which is included in this Section. Extended warranties must be co-signed by Manufacturer or Supplier.

2.2 Items shown in brackets on the Specimen Warranty Form are to be changed to give the specific information for this project and trade.

2.3 Extended warranties are to be submitted through the General Contractor

2.4 If validity of extended warranties is related to proper maintenance and servicing of equipment and similar procedures, full details must be provided in the Manufacturer's Data Book.

3. SPECIMEN FORM

TO	City of Kawartha Lakes Garnet Graham Park Comfort Station - Fenelon Falls P.O. Box 9000 Lindsay, Ontario K9V 5R8
DATE	
EXTENDED WARRANTY	(Name of trade and Specification Section, or brief description of the Work covered)
OWNER	City of Kawartha Lakes P.O. Box 9000 Lindsay, Ontario K9V 5R8
PROJECT	City of Kawartha Lakes Garnet Graham Park Comfort Station 98 Francis Street West Fenelon Falls, Ontario K0M 1N0
DEFINITION	(Give a clear description of the Work covered, including consequential damage to other Work and what remedial action will be taken under the Warranty)
WARRANTY JOINTLY AND SEVERALLY	The Contractor and the Sub-Contractor for valuable consideration jointly and severally warrant that all Work defined above is free from any defect in labour and materials. Without limiting the generality of the foregoing, moveable and adjustable work, including hardware, doors, drawers, apparatus, machinery, mechanical and electrical equipment are and shall remain in perfect working order for the Warranty Period hereinbefore set out, and in consideration as aforesaid, the Contractor and the Sub-Contractor jointly and severally covenant to remedy any defect due to faulty materials and labour appearing within the said Warranty Period according to notice, in writing, received from the Owner, or their duly authorized agents.
WARRANTY PERIOD	Commences on date of Certificate of Substantial Performance* (Date) and expires on Date).

_____	_____
Name and Address of General Contractor	Name and Address of Trade Contractor
_____	_____
Signature	Signature
SEAL	SEAL

*(This also applies to mechanical and electrical equipment which has been in use).

END OF SECTION

CITY OF KAWARTHA LAKES **WARRANTY REQUISITION FORM**

Specimen

City of Kawartha Lakes
Garnet Graham Park Comfort Station
98 Francis Street West
Fenelon Falls, Ontario K0M 1N0

To: [Contractor]

Date: _____

WR No.: _____

Brief Description of Problem: _____

_____

_____

_____

Warranty: 1 year _____ Extended _____

Priority:
High (Health & Safety) _____ Can Be Scheduled _____

Action Taken By Contractor: _____

_____

_____

_____

Date Work Completed: _____

Work Completed to Satisfaction of the Owner:

_____ _____
Owner Signature *Contractor Signature*

c.c.: Architect

1. GENERAL

1.1 Description

.1 The Work of this Section **as indicated in the Drawings or Specifications** includes removal and disposal of all Site excavated material, rough grading and supply, placing and compaction of fill for buildings, mechanical and electrical services and general landscaping.

.2 Related Work Specified Elsewhere:

.1 Structural Drawings and Specifications

.2 Section 01630 - Substitutions

.3 All other Sections and Drawings to be reviewed

.3 Examine above Sections and note where finished grading is specified and depth below finished elevations at which Rough Grading Finished Elevations are to be established.

.4 Geotechnical investigation reports are not available for this project.

.5 Where conditions or requirements of this Section are in conflict with the Structural Drawings and Schedules, these latter shall prevail.

1.2 Inspection & Testing

.1 An Inspection Company will be appointed by the Owner in accordance with Section 01400 - Testing And Inspection, to test proposed fill material density of backfilled areas.

.2 Co-operate and assist inspection company in the execution of their work.

.3 Submit 50lbs. (22.5kg.) samples of the materials to the inspection and testing company at least ten (10) days prior to commencement of backfill operations. Materials tested and approved shall constitute a standard for the acceptance of material delivered to the site.

1. GENERAL

1.2 Inspection & Testing - Continued

.4 The inspection and testing company shall be responsible for the following Work:

1. Determine the depth of unsatisfactory material to be removed.

2. Inspect and approve the sub-grade prior to commencement of backfill operations.

3. Test and approve the proposed backfill materials.

4. Be present during operations in order to inspect and approve the methods of placing and compacting and to carry out the necessary tests to determine the Proctor density of the backfill and the actual field densities being obtained. Take sufficient tests to ensure that adequate information is obtained to judge the uniformity of compaction.

5. Standard Proctor Density shall be tested in compliance with ASTM Design D 698.

6. Modified Proctor Density shall be tested in compliance with ASTM Design D 1557.

7. Sample water to determine sulphate concentration when excavation is to its full depth and before any concrete is placed.

8. Issue reports to the Consultant tabulating test results and giving final approval or recommendations for remediation of any deficiencies in backfilling and compaction operations.

9. The cost of such inspection and testing shall be paid for under the Fill and Compaction Allowance specified in Section 01020 - Allowances. The cost of re-testing unacceptable compaction shall be borne by this Section.

1.3 Unit Prices

.1 Provide unit prices as required in the appropriate spaces on the Tender Form.

1.4 Dewatering

.1 Excavations shall be kept dry at all times. Granular backfill materials and concrete shall be placed on dry bedding only. Dewatering by placing granular materials or concrete over wet areas is not permitted.

2. Products

2.1 Materials

.1 **Provide** fill in conformance with requirements noted on the Drawings or in the Specifications with minimum requirements as follows:

.1 Granular A, OPSS 1010, clean, angular, crusher run, natural stone from approved source, free from shale, clay and friable materials and organic matter.

.2 Granular B Type 1, OPSS 1010, clean, angular, crusher run, natural stone from an approved source, free of shale, clay and friable materials and organic matter.

.3 Sub-Soil: Clean excavated soil material, free from roots, tree or shrub material, foreign or building debris and graded within the following limits:

Sieve Size (Tyler)	Per Cent Passing
2 1/2" (63mm)	100%
No.4 (4.75mm)	80% maximum
No.200 (75mm)	10% maximum

.4 Sand: Clean washed coarse river sand free from clay, shale, vegetable matter conforming to sand aggregate requirements of CAN3-A23.1-M.

.5 Filter Membrane: 'Mirafi 140' by the Canadian Celanese Corporation. Typar spunbonded polypropylene by DuPont of Canada Limited, Permealiner I.S.S. Type 1 by Staff Engineering Membranes or approved alternate.

.6 Moisture Barrier: Minimum 6mil (.15mm) black polyethylene sheet.

2.3 Material Source

.1 Be responsible for determination of location, suitability and quantity of available material before tendering, including cost and amount of work required to crush, screen, wash or clean or otherwise process material and cost of hauling of materials from source to job site.

.2 Supply the Consultant, in writing, at least thirty (30) days before beginning operations, with a complete statement of origin, composition, suitability and intended location of all deposits proposed for use as fill on the project.

3. EXECUTION

3.1 Inspection

.1 Carefully examine site including access requirements.

.2 Establish extent and nature of materials to be removed and amount of fill necessary to provide required grades.

.**3** Check dimensions at the site before commencing excavation work. Report discrepancies to the Consultant.

.4 Consult utilities to ascertain location of services. Promptly notify the Consultant if uncharted services are uncovered. Protect such services pending instruction. Reimbursement for repairs and removals will be based on field measurement and unit rates or fixed sum as determined by the Consultant.

.**5** Arrange and pay for disconnection, capping and/or plugging of all abandoned ore redundant services in accordance with utility company requirements.

3.2 Removal of Existing Materials

.1 Excavate and remove sod, topsoil, fill and debris within the building area to elevations indicated. Neatly stockpile topsoil on the site in a manner so as to prevent any interference to drainage from the site or adjacent properties. Remove surplus excavated material not required for regrading from the site.

.2 Promptly notify the Consultant in writing of any conditions at the site differing materially from those referred to in the contract documents. The Owner will obtain any necessary additional surveys and tests and will furnish copies of results to the Consultant and Contractor.

.3 Prevent any weakening of soils such as through action of ground water, over excavation, undermining, inadequate protection from weather and any construction activity. Do not expose bottom of excavations for longer than 48 hours, or leave excavations uncovered in wet weather.

.4 Extend excavation a sufficient distance as possible beyond face of walls to permit installation of drainage tile, foundations, waterproofing, shoring, adequate drying, inspection and proper construction methods. Hand trim bottom of excavations for foundations.

3. EXECUTION

3.2 Removal of Existing Materials - Continued

.5 Excavate to within 6" (150mm) to required depth for all trenches, pipe and service lines. Excavation to final grade for trenches, pipe and service lines shall be carried out under the respective sections installing such services. Slope earth adjacent to excavations at an incline not exceeding ratios recommended according to conditions of soils and depth of excavation.

.6 Boulders removed from within excavated areas may be buried clear of the building with a minimum coverage of 2'-0" (600mm) of backfill above their top surface. Where removal of such material results in an elevation lower than the bottom of excavation required for footings, fill to required level with concrete backfill.

.7 Carry excavation for foundations to undisturbed soil of the bearing capacity required to support loads indicated on the Structural Drawings. If upon excavating to specified elevations it is found that conditions are not fulfilled, promptly notify the Consultant. Excavations shall only be lowered with written authorization of the Consultant.

.8 Wherever excavations under foundations are carried to greater depths, backfill to the correct level with concrete. Backfill over excavation in other areas with Type 1 fill material. Over excavation not ordered by the Consultant will be corrected by the Contractor as specified at no extra cost to the Owner.

.9 Provide a de-watering system including trenches, dams, culverts, continuous pumping or any other means as necessary to keep excavations free of water prior to installation of permanent drainage. Proposed de-watering system shall be submitted for review by the Consultant prior to commencement of the Work.

.10 Remove all excavated materials not required for fill from site, arrange dumping location and pay for all fees and charges.

.11 Do not load vehicles above rated limits. Do not allow spillage or tire tracking to occur on public or other property. Clean up any such occurrence immediately.

.12 Break rock, concrete and masonry into pieces not greater than 2'-0" (600 mm) in all dimensions.

.13 Conform to trucking routes, timing restrictions and other stipulations of Municipal or Regional authorities and Police at no extra cost to the Owner.

3. EXECUTION - Continued

3.3 Backfilling & Compaction

.1 Do not place backfill until the subgrade, footings, drainage tile and foundation walls have been inspected and approved. Give 48 hours notice to the Consultant for such inspection. Do not backfill at ambient temperatures below 0 degrees C. Do not backfill over frozen soil, snow or ice. Temporary backfilling is not permitted.

.2 Place fill material evenly in loose layers not exceeding 10" (250mm) in depth and compact each layer to the specified ratio before placing subsequent layers. Ensure adequate bracing is provided for top and bottom of all foundation walls and that adequate protection is provided for all waterproofing and insulation.

.3 Compact fill materials only when moisture content is within 2% of optimum level for obtaining the specified density. If fill is too dry, dampen with water from an approved source of supply. If moisture content is too high, aerate by means of disking or other approved method.

.4 Do not compact material containing frost.

.5 Compact fill until required density is achieved in accordance with ASTM D 698 maximum dry density.

.6 Fill hollows and depressions developed under compaction with matching backfill material. Regrade surface where base becomes displaced due to any cause.

.7 Compact fill Types as follows:

.1 Type 1 to100% Standard Proctor Density
.2 Type 2 to 98% Standard Proctor Density
.3 Type 3 to 90% Standard Proctor Density
.4 Type 4 to 98% Standard Proctor Density

.8 Fill to underside of concrete sidewalks and asphalt paving 95% Modified Proctor Maximum Dry Density.

.9 Fill below Sodding and Planting: 75% to 85% Modified Proctor Maximum Dry Density.

.10 Make good any damage caused by uncompacted backfill at no cost to the Owner.

3. EXECUTION - Continued

3.5 Grading

.1 Do all necessary rough grading, excavating and filling to establish sub-grades under all paved areas site structures and landscape areas allowing sufficient depth for subsequent site, construction and landscape work.

.2 Excavate and fill all soft and unstable areas in sub-grade.

.3 Establish sub-grade parallel to finished grades indicated on drawings and shape sub-grade in such a manner so as to permit drainage at all times.

.4 Such sub-grade constitutes a rough machine finished surface. Establish uniform slopes between points for which Finish Grades are indicated or between such points and existing grades. Round and smooth grades at top and toe of slopes and banks.

.5 Do not grade when soil is wet.

.6 Do not obstruct flow in swales and provide adequate falls for drainage at all times.

.7 Arrange for inspection of all rough grading work before placing other materials on sub-grade.

.8 Roll top of final sub-grade with smooth-wheeled roller. Remove debris, building materials and stones larger than 2" (50mm).

.9 Use approved equipment and methods for compaction. Maintain materials at optimum moisture content to obtain required compaction.

.10 Repair all damage to installed materials due to improper compaction methods and settlement of fill. Make good to approval by the Consultant.

.11 Sub-grade level to be 4" (100mm) below finished grade level.

3.6 Dewatering Of Excavations

.1 The Contractor shall be fully responsible for all dewatering the excavation during construction (surface and groundwater). The cost of dewatering is deemed to be included in the Tender price.

.2 Disposal of excess water shall be by the Contractor in strict accordance with Ministry of Environment, applicable regional conservation authority and local municipal by-law requirements.

END OF SECTION

1. GENERAL

1.1 Description

.1 The Work of this Section **as indicated in the Drawings or Specifications** includes Sodding within project boundaries.

.2 Related Work Specified Elsewhere:

- **.1** Section 01630 - Substitutions
- **.2** Section 02200 - Excavation, Compaction And Grading
- **.3** Section 02510 - Concrete Walks And Curbs
- **.4** Section 02950 - Planting
- **.5** All other Sections and Drawings to be reviewed

1.2 Inspection

.1 Make materials available for inspection upon arrival at site or at source of supply when requested.

.2 Submit name of sod supplier.

.3 Give timely notice, in writing, when materials are available for inspection.

.4 Installation of sod, prior to inspection by the Consultant, is the Contractor's responsibility. The Consultant reserves the right to reject sod after it has been installed, if sod does not conform to the Specifications and/or Drawings.

.5 Remove all rejected materials immediately from the site.

.6 Give timely notice to the Consultant, in writing, when all Sodding Work has been completed. All Sodding Work is to be inspected upon completion to establish the start of the specified maintenance period.

1.3 Delivery, Handling & Storage

.1 Protect sod during transportation and deliver to the site in a fresh and healthy condition.

.2 Install sod as soon as possible after arrival on site, but within 24 hours. Protect sod from drying out if immediate installation is not possible.

.3 Deliver all materials such as fertilizers, in standard containers, clearly marked with contents, weight, analysis and name of manufacturer.

1. GENERAL - Continued

1.4 Warranty

.1 Warranty all sodded areas for a period of one (1) year from date of final inspection in accordance with Section 01740 - Warranties.

.2 Replace all sod which has failed to establish into a healthy, vigorous growing condition as a result of faulty materials and/or labour.

.3 During the warranty period, replace sod where necessary and make periodic inspections of all sodded areas. Notify the Owner and the Consultant, in writing, of any corrective or preventative measures necessary to maintain grass in specified condition.

1.5 Maintenance

.1 Maintain all sodded areas from time of installation until acceptance of the Work, but not less than thirty (30) days after installation.

.2 Take necessary measures to establish and maintain all sodded areas in a healthy, vigorous growing condition, free of thin, poor or burned out patches.

.3 Mow grass regularly to maintain a maximum height of 2 5/8" (65mm). Trim edges of sodded area neatly, by hand clipping if necessary, and remove all clippings from planted beds, tree saucers and paved areas.

.4 Roll sodded areas where necessary to remove depressions or irregularities.

.5 Water when necessary, with sufficient amounts to saturate the upper 4” (100mm) of topsoil, and apply fertilizers when necessary.

.6 Check sodded areas for diseases and weeds to take immediate measures to eliminate diseases and control weed growth.

.7 Use minimal amount of chemicals for disease and weed control in strict accordance with manufacturer's recommendations and local municipal requirements. Assume full responsibility for use of such chemicals and repair, replace or remedy otherwise, all damage resulting from the use of such chemicals.

.8 Re-sod areas which show deterioration or which are thin, bare or burned out, and repair all damages resulting from erosion and washouts or any other causes.

.9 At time of final inspection all sodded areas shall have a healthy, even, vigorous growing stand of grass, free of diseases, weeds, bare, thin or burned out grass areas. Grass shall be cut to maximum height of 2 5/8” (65mm) at time of final inspection.

2. PRODUCTS

2.1 Materials

.1 Topsoil

.1 Fertile, friable, natural loam containing 4% minimum organic matter for clay loams and 2% minimum organic matter for sandy loams to a maximum of 25% by volume with acidity range (pH) of 6.0 to 7.5 and capable of sustaining vigorous plant growth. It shall be free of any admixture of subsoil, clay lumps, stones and roots over 1" (25mm) diameter and reasonably free of weed seeds. Topsoil containing crabgrass, couchgrass or other weeds is not acceptable.

.2 Sod

.1 Certified No.1 cultivated turf grass sod, grown and sold in accordance with the Classifications of the Nursery Sod Growers Association of Ontario, latest edition, of the following mix: 25% Touchdown, 25% Nugget, 25% Chen or Barren and 25% Corman.

.2 At time of delivery, it shall have a strong, fibrous root system, be free of stones, burned or bare spots and contain not more than 1% twitch grass or other weeds.

.3 Cut sod in accordance with recommendations of Nursery Sod Growers Association of Ontario, but not to exceed 38mm (1 1/2") nor be less than 1" (25mm) thickness and cut in pieces one 3 1/4sq ft (1sq m) in area.

.4 Handle sod in such a manner to prevent breaking or tearing. Do not lay damaged and broken pieces but remove from the site.

.3 Fertilizer

.1 Inorganic Fertilizers: Complete, commercial fertilizers of approved manufacturer containing not less than 60% urea formaldehyde by weight.

.2 Fertilizer: 8-32-6.

.3 Commercial Superphosphate: Finely ground with a minimum analysis of 20% P205.

3. EXECUTION

3.1 Preparation

.1 Rough grading is specified in Section 02200 - Excavation, Compaction And Grading. Check that this has been carried out.

.2 Where necessary, regrade sub-grade until it conforms to the Drawings and Specifications and has the Consultant's approval.

.3 Scarify existing sub-grade to a minimum depth of 3” (75mm) and remove from the surface all stones 2" (50mm) diameter or larger and all weeds.

.4 Spread topsoil over area and grade evenly to minimum depth of 4" (100mm) below finished grade. Remove stones, roots and debris, lumps and sod and dispose of off site.

.5 Apply commercial fertilizer at manufacturer's recommended rate and superphosphate at 32oz per 100sq ft (1kg per 10sq m).

.6 Apply fertilizers within 48 hours before laying sod and work well into the topsoil by discing, raking or farrowing.

.7 Fine grade area to finished grade and roll with 31lb to 40lb (14kg to 18kg) roller to make finished surface smooth and firm against footprints, and apply roller in two (2) directions perpendicular to each other. Minimum depth of topsoil: 6" (150mm).

.8 After rolling, check finished surface for depressions, lumps and other irregularities and correct same by re-rolling where necessary.

3. EXECUTION - Continued

3.2 Sod Laying

.1 Place sod closely knit together in such a manner that no open joints are visible or pieces overlapping.

.2 Blend sod smoothly and uniformly with paving and other adjacent surfaces.

.3 On slopes steeper than 1:3, lay sod perpendicular to slope and peg every row at maximum 1'-0" (300mm) spacing with hardwood pegs, minimum 9 1/4" (230mm) long x 1" (25mm) square, driven flush with sod.

.4 Immediately after installation of sod, water area with sufficient amounts to saturate sod and upper 4" (100mm) of topsoil.

.5 After sod and soil had dried sufficiently to prevent damage, roll area with roller providing 726lbs (330kg) pressure to ensure good bond between sod and soil and to remove minor irregularities.

.6 Upon completion of all Sodding Work arrange for inspection by the Consultant. Give timely notice for such inspection.

.7 Approval of the Work at such inspection will establish commencement of maintenance period, which shall be at least thirty (30) days after completion of all Sodding Work.

3.3 Protection

.1 Assume full responsibility for protection of all sodded areas until end of maintenance period.

.2 Erect protective barriers and post signs where necessary and maintain same until acceptance. Remove after final inspection.

.3 Remedy all damages, washouts and eroded areas resulting from weather, improper protection or other causes.

.4 Report, in writing, to the Consultant and the Owner, all damages resulting from vandalism or any other causes beyond the Contractor's control.

3.4 Clean-Up

.1 At completion, clean-up and remove from site all surplus materials and equipment to the Consultant's approval.

END OF SECTION

1. GENERAL

1.1 Description

.1 The Work of this Section **as indicated in the Drawings or Specifications** includes preservation of existing trees and herbaceous materials, supply, installation and maintenance of Trees, Shrubs and Groundcovers.

.2 Related Work Specified Elsewhere:

.1 Section 01020 - Allowances

.2 Section 01630 - Substitutions

.3 Section 02200 - Excavation, Compaction And Grading

.4 Section 02800 - Sodding

.5 All other Sections and Drawings are to be reviewed

1.2 Preservation of Existing Plantings

.1 The Contractor shall review the site plan and ensure that areas indicated as remaining vegetation are protected with silt barriers and protective enclosures.

.2 The Contractor will employ a qualified arborist to review the plant material and recommend:

.1 Relocation of any native wildflowers or other herbaceous material from areas designated for construction.

.2 Measures for the proper protection and preservation of trees and native plantings.

.3 Review of excavation to determine impact on root systems of existing trees and to advise on measures for proper root pruning or to reassess whether removal of trees will be required as a result of footings and foundations.

.3 The Contractor shall be diligent in ensuring that materials and equipment are not stored in any area designated as protected and will ensure that workers fully understand that they are not to disturb the habitat in areas designated as protected.

The Contractor will be wholly responsible for all costs associated with restoration of any protected areas damaged during construction.

.4 The Contractor shall submit the arborist's report to the Consultant for review prior to clearing any trees or underplanted native vegetation.

.5 The trees, shrubs and other plant materials shown on the landscape drawings may be relocated and quantities increased or decreased in accordance with the final outcome of grading and construction.

1. GENERAL - Continued

1.3 Source Quality Control

.1 Make plant materials available for inspection at source of supply when requested.

.2 Notify the Consultant of source of material at least seven (7) days in advance of shipment.

.3 Approval of plant material at its source does not prevent rejection on site prior to or after planting operations. All plant materials shall be subject to inspection upon arrival on job site before starting the Work.

.4 Imported plant materials must be accompanied by necessary permits and import licenses. Conform to federal and provincial regulations.

.5 Give the Consultant at least 48 hours notice of arrival of plant materials on job site.

1.4 Shipment & Pre-Planting Care

.1 Tie branches of trees and shrubs securely and protect plant materials against abrasion, exposure and extreme temperature change during transit. Avoid binding of planting stock with rope or wire which would damage bark, break branches or destroy natural shape of plant. Give full support to root ball of large trees during lifting.

.2 Cover plant foliage with tarpaulin, and protect bare roots by means of dampened straw, peat moss, saw dust shingle tow or other acceptable material to prevent loss of moisture during transit and storage.

.3 Remove broken and damaged roots with sharp secateurs. Make clean cut.

.4 Keep roots moist and protected from sun and wind. Plant materials shall be planted immediately after arrival on job site whenever feasible. Heel in trees and shrubs, which cannot be planted immediately, in shaded areas and keep well watered.

1. GENERAL - Continued

1.5 Guarantees

.1 Provide a written guarantee stating that all plant materials as itemized on plant list are guaranteed against defects for a period of one (1) year from the date of Preliminary Acceptance.

.2 Guarantee that all plant materials shall remain free of defects, pests and diseases for the full duration of the guarantee period.

.3 All plant materials shall be in a healthy, vigorous growing condition at the end of the guarantee period.

.4 The Consultant reserves the right to extend guarantee period for an additional one (1) year at the end of the initial guarantee period, if leaf development and growth are not sufficient to ensure future survival.

1.6 Replacements

.1 During the guarantee period, remove from site any plant material that has died or failed to grow satisfactorily as a result of pests, diseases or failure to provide Winter protection, as determined by the Consultant.

.2 Replace plant materials in the next planting season.

.3 Extend guarantee on replacement plant material for a period equal to the original guarantee period.

.4 Continue such replacement and guarantee until plant material is acceptable.

.5 Guarantee of replacements shall not apply where replacement is necessary due to vandalism or inadequate maintenance carried out by others.

2. PRODUCTS

2.1 Materials

.1 **Water**: Potable free of minerals which may be detrimental to plant growth.

.2 **Stakes**: T bar steel stakes 1 5/8" x 1 5/8" x 1/4" x 8'-0" (5mm x 5mm x 2400mm).

.3 **Turnbuckles**: Factory galvanized with 6" (150mm) long eyebolts and 5/8" (16mm) diameter threaded opening for tightening.

.4 **Guy Wires**: 1/8" (3mm) steel wire to CSA G4-M1977.

2. PRODUCTS

2.1 Materials - Continued

.5 **Anchors**: Underground 4" (100mm) diameter steel disc, screw in or T bar steel stakes 1 5/8" x 1 5/8" x 2" x 1'-8" (5mm x 5mm x 500mm) or duckbill anchors.

.6 **Tree Rings**: Fabricated from 1/8" (3mm) galvanized wire encased in two (2) ply reinforcing 1/2" (13mm) diameter rubber garden hose or equivalent.

.7 **Root Ball Burlap**: 6oz Hessian burlap.

.8 **Tree Wrapping Material**: New, clean, plain burlap strips 8oz/sq ft (.024kg/sq m) 6" (150mm) wide.

.9 **Mulch**: Shall be native shredded bark mulch free of decomposed colloidal residue and roots. Shredded materials may not exceed 6" (150mm) in length.

.10 **Antidesiccant**: Wax like emulsion to provide film over plant surfaces reducing evaporation but permeable enough to permit transpiration shall be provided as required.

.11 **Wound Dressing**: Horticulturally accepted non-toxic, non-hardening emulsion.

.12 **Topsoil**: Friable, sandy loam, free from subsoil, large roots, vegetation, debris, toxic materials, stones over 2" (50mm) diameter and reasonably free of rhizomes.

.1 All topsoil required for planting will be provided by the Contractor.

.2 Make topsoil available for inspection at source by the Consultant. All topsoil shall be subject to the Consultant's approval before use on job site, but subject to receipt and analysis of soil testing report.

.3 Have all topsoil tested by approved independent testing laboratory for N, P, K, soluble salts, organic matter, clay sand and silt content and pH value. Topsoil shall have 2% minimum sand and 4% minimum clay and loam.

.4 Submit to the Consultant two (2) copies of soil testing report with recommendations for correction.

.13 **Planting Soil Mixture**: Thoroughly mix nine (9) parts topsoil with one (1) part peat moss. Incorporate bonemeal at 1lb/5cu ft (3.2kg/1cu m) of soil mixture.

2. PRODUCTS

2.1 Materials - Continued

.14 **Peat Moss**: Derived from partially decomposed fibrous or cellular stems and leaves of Sphagnum Mosses, free from decomposed colloidal residue, wood, sulphur and iron.

.15 **Fertilizer**: Complete commercial synthetic fertilizer slow release planting tablets, minimum 65% insoluble nitrogen, conforming to soil testing report recommendations.

.16 **Bonemeal**: Finely ground with minimum analysis of 20% phosphoric acid.

.17 **Limestone**: Ground agricultural limestone containing minimum 85% of total carbonates, graded to 90% passing by weight 1.0mm sieve and 50% passing 0.125mm sieve.

.18 **Quality and Source**: Nursery grown, No.1 Grade Stock, complying with the latest edition of Canadian Standards For Nursery Stock of Canadian Nursery Trades Association referring to size and development of plant material and root ball. Measure plants when branches are in their natural position. Height and spread dimensions refer to main body of plant and not from branch tip to branch tip.

.19 Use trees and shrubs with strong fibrous root systems free of diseases, insects, defects or injuries and structurally sound. Upon written approval of the Consultant and depending on availability and plant materials specified, Nursery Stock may be:

.1 Container Grown

.2 Balled and Burlapped

.3 Machine Dug Into Wire Baskets

.4 Processed Ball

.5 In-Ground Fabric Container

.6 Bare Root

.20 Use trees with straight trunks, well and characteristically branched for the species. Plants must have been root pruned regularly, but not later than one (1) growing season prior to arrival on site.

2. PRODUCTS

2.2 Materials - Continued

.21 **Cold Storage**: Approval required for plant materials which have been held in cold storage.

.22 **Container Grown Stock**: Acceptable if containers large enough for root development. Trees and shrubs must have grown in container for minimum of one growing season but no longer than two. Root system must be able to 'hold' soil when removed from container. Plants that have become root bound are not acceptable. Container stock must have been fertilized with slow releasing fertilizer.

.23 **Balled and Burlapped**: Coniferous and broad leaved evergreens over 1'-8" (500mm) tall must be dug with soil ball. Deciduous trees in excess of 10'-0" (3000mm) height must have been dug with large, firm root ball. Root balls must include 75% of fibrous feeder root system. Secure root balls with burlap, heavy twine and rope. For large trees: wrap ball in double layer of burlap and drum lace with minimum 5/8" (16mm) diameter rope.

Protect root balls against sudden changes in temperature and exposure to heavy rainfall.

.24 **Plant List**:

Locations and quantities are **as indicated in the Drawings and on the Schedule**.

.25 Substitutions to plant materials as indicated on planting plan not permitted unless written approval has been obtained as to type, variety and size. Plant substitutions must be of similar species and of equal size as those originally specified.

3. EXECUTION

3.1 General

.1 Stake out location of trees and planting beds as per planting plan. Obtain approval prior to excavating.

.2 Apply antidesiccant in accordance with manufacturer's instructions.

.3 Co-ordinate operations. Keep site clean and planting holes drained. Immediately remove soil or debris spilled onto pavement.

3. EXECUTION - Continued

3.2 Planting Time

.1 Plant deciduous plant materials during dormant period before buds have broken. Plant materials noted for spring planting only, must be planted in dormant period.

.2 If planting deciduous plant materials after buds have broken, spray plants with antidesiccant to slow down transpiration prior to transplanting.

.3 Plant evergreens in spring before bud break. Planting of such stock with root balls may start after middle of August. Apply anti-desiccant to evergreens before digging.

.4 Trees, shrubs and groundcovers growing in containers may be planted throughout growing season.

3.3 Planting

.1 Plant only under conditions that are conducive to health and physical conditions of plants.

.2 Provide planting schedule. Extending planting operations over long period using limited crew will not be accepted.

.3 Do all planting as soon as possible after arrival and inspection on job site.

.4 Immediately remove all rejected plant materials from the site.

.5 Loosen bottom of planting hole to depth of 6" to 8" (150mm to 200mm). Cover bottom of each excavation with minimum of 6" (150mm) of topsoil mixture.

.6 Plant trees and shrubs vertically with roots placed straight in hole. Orient plant material to give best appearance in relation to structure, roads and walks.

.7 Place plant materials equal to depth they were originally grown in nursery.

.8 **Prior to placing in hole, slash burlap wrapper every 6” (150mm) vertically to within 1” (25mm) of the base of the burlap.**

.9 **With balled and burlapped root balls, loosen burlap and cut away minimum top 1/3 without disturbing root ball once tree has been placed, remove entire container without disturbing root ball. Non-biodegradable wrapping must be removed.**

.10 With trees in wire baskets, remove wire from top 2'-0" (600mm) after tree has been placed in tree pit.

3. EXECUTION

3.3 Planting - Continued

.11 During planting of bare rooted stock, first shake backfill of planting soil among the roots.

.12 Tamp planting soil around root system in layers of 6" (150mm) eliminating air voids. Frozen or saturated planting soil is unacceptable. When 2/3 of planting soil has been placed, fill hole with water. After water has completely penetrated into soil, complete backfilling.

.13 Build 4" (100mm) deep saucer around outer edge of hole to assist with maintenance watering.

.14 When planting is completed, give surface of planting saucer a dressing of organic 10-6-4 fertilizer at rate of 4oz/sq ft (12.2kg/sq m) for shrub beds or 4.5oz/in (52g/cm) of caliper for trees. Mix fertilizer with top layer of planting soil and water well.

3.4 Tree Support

.1 Install supports as shown on planting details.

.2 Staking for trees up to 10'-0" (3000mm) and evergreens up to 6'-8" (2000mm) in height: backfill planting hole 2/3, drive T rail stake 3'-0" (900mm) into bottom of pit, taking care not to damage main roots. Place stake or anchor 6" (150mm) away from trunk on side of prevailing wind. Fasten trunk to stake or anchor with tree ring. Different methods of fastening tree trunk to stake or anchor are acceptable if no damage to bark of tree will occur. Obtain approval prior to using other methods.

.3 Guy wires for trees up to 6" (150mm) caliper:

.1 For deciduous trees taller than 10'-0" (3000mm) and evergreens up to 6'-8" (2000mm), fasten three (3) wires to tree where a branch will prevent slipping down. Use tree rings to prevent abrasion of bar.

.2 Fasten guy wires to anchors at distance from tree base equal to height of where wire is attached to trunk. Break wires, install wire tighteners and tighten slightly.

.3 Where guy wires are used close to pedestrian traffic ways, fasten metal flags to wires and 2'-0" (600mm) long rubber hose around bottom portion of guy wires to make them clearly visible.

.4 Use sufficient number of guy wires to support large shrubs.

3. EXECUTION - Continued

3.5 Wrapping

.1 Wrap deciduous trees, whose caliper is 2" to 6" (50mm to 150mm), spirally from ground up, to height of second branches. Treat trunk with paste of long residual insecticide, lindane or equivalent before applying wrapping. Secure burlap with binder twine wound in opposite direction to burlap at 4" (100mm) intervals. Place wrapping neatly and snugly with 1 5/8" (40mm) overlap.

Tree wrap shall be applied only after trees have been inspected and accepted by the Consultant.

3.6 Pruning

.1 Prune trees and shrubs after planting, as indicated, to remove damage suffered during transplanting. Postpone pruning of those trees where heavy bleeding may occur, until in full leaf. Employ clean sharp tools and make cuts flush with main branch, smooth sloping as to prevent accumulation of water. Remove projecting stumps on trunks or main branches that rub causing damage to bark. Trim out crown of trees and shrubs without changing their natural shape. Do not damage lead branches or remove smaller twigs along main branches. Treat cuts in excess of 5/8" (16mm) diameter and damaged parts with application of wound dressing.

3.7 Mulching

.1 Obtain approval of planting before mulching material is applied. Loosen soil in planting beds and pits and remove debris and weeds. Spread mulch to a minimum thickness of 2" (50mm).

3.8 Maintenance

.1 Maintain all plant materials from the time of planting until date of Final Completion Certificate.

.2 During the guarantee period, be responsible for pest and disease control, Winter protection and maintenance of tree supports.

Inspect project site at regular intervals during the guarantee period and provide any necessary maintenance to ensure plant materials are in a healthy, vigorous growing condition.

.3 Water once a week for the first four (4) weeks and then sufficiently thereafter to maintain optimum growing conditions. Ensure adequate moisture in root zone at freeze up.

3. EXECUTION

3.8 Maintenance - Continued

.4 Keep soil, within confines of planting saucer around trees and planting beds, shallowly cultivated and free from weeds.

.5 Spray plants to combat pests and diseases. Do not use DDT or sprays prohibited by Agriculture Canada or any chemicals not recommended by the Green Building Council and/or as noted in Section 01170 - Sustainable Design And Construction.

.6 Keep tree guards and guy wires in proper repair.

.7 Provide adequate protection against winter damage including damage caused by rodents.

.8 Remove trunk wrapping, tree stakes, guy wires, eyebolts at end of guarantee period.

END OF SECTION

1. GENERAL

1.1 Description

.1 The Work of this Section **as indicated in the Drawings or Specifications** includes supply and installation of Concrete Formwork.

.2 Related Work Specified Elsewhere:

- **.1** Structural Drawings and Specifications
- **.2** Section 01630 - Substitutions
- **.3** Section 03200 - Concrete Reinforcement
- **.4** Section 03300 - Cast-In-Place Concrete
- **.5** Section 03345 - Concrete Floor Finishing
- **.6** All other Sections and Drawings to be reviewed

.3 Products supplied under the Work of other Sections and installed under the Work of this Section: Insets, anchor slots, flashing reglets, weather bars, holes, sleeves and other items.

1.2 Quality Assurance

.1 Design, construct and remove formwork and falsework to conform with requirements of authorities having jurisdiction, the Construction Safety Act of the Province of Ontario, CAN/CSA-A23.1/A23.2-M90 and 'Recommended Practice for Concrete Formwork ACI 347'.

.2 Be responsible for design and adequacy of all formwork and falsework.

1.3 Shop Drawings

.1 Submit Shop Drawings in accordance with Section 01340 - Shop Drawings And Product Data.

.2 Indicate the method and a schedule of construction materials, arrangement of joints, ties, shores, liners and locations of temporary embedded parts.

.3 Each Shop Drawing submitted shall bear the stamp and signature of a qualified Professional Engineer in the Province of Ontario.

2. PRODUCTS

2.1 Materials

.1 **Form Release Agent**: Non-staining, suitable for type of formwork on which used and having no adverse effect on waterproofing adhesives, or other surface treatment which is specified in other Sections for application to concrete.

.2 **Form Stripping Agent**: Colourless mineral oil, free of kerosene.

.3 **Formwork Lumber**: Plywood and wood conforming to CAN/CSA-A23.1/A23.2M-90.

.4 **Tubular Column Forms**: Round, spirally wound laminated fibre forms, plastic lined.

.5 **Plywood Liner**: Douglas Fir conforming to CAN/CSA0121 -M1978.

.6 **Hardware**: Use internal and external form hardware, adjustable inserts for bolts, as required, by Mills Steel Product or approved alternate.

.7 **Form Ties**: Snap-back ties, of adequate strength, breaking off a minimum of 1 1/2" (38mm) from face of concrete. Provide plastic plugs for exterior retaining walls.

.8 **Reglets**: 'Cushion-Lock' Type A for use in concrete and 'Cushion-Lock' Type B3 for use in masonry construction by Superior Concrete Accessories or approved alternate.

.9 **Dovetail Anchor Slots**: Galvanized type, filled by Superior Concrete Accessories or approved alternate.

.10 **Adjustable Inserts**: ASAI type.

3. EXECUTION

2.1 Construction & Removal

.1 Clean formwork in accordance with CAN/CSA A23.1/A23.2-M90 before placing concrete.

.2 Design forms to shapes, lines, locations, levels and dimensions as shown on the Drawings. Properly brace or tie forms together to maintain position and shape during concrete placement and to prevent leakage of mortar.

.3 Install formwork, plumb, level and suitably braced to prevent movement during placing. Seal all joints tight to prevent seepage.

.4 Spray forms with an approved non-staining parting agent prior to placing of reinforcing steel. Where exposed surface is to be painted, parting agent must be compatible with type of paint to be used.

.5 Obtain the Consultant's permission before framing openings not indicated, in concrete slabs, beams or columns.

.6 No horizontal form joints for exposed concrete will be permitted at columns and walls. Formwork shall be one piece from slab to slab (12'-0")(3600mm) unless otherwise shown.

.7 Form chases, slots, openings, drips, recesses, expansion and control joints as indicated.

.8 Remove forms in such a way as to ensure complete safety of structure. Where structure is supported on shores, vertical forms such as beam and girder sides and column faces may be removed after 48 hours, providing the concrete will not be damaged.

.9 Do not remove supporting forms or shoring until members have acquired 75% strength to support their weight and imposed loads safely as indicated by test cylinders or as directed by the Consultant.

END OF SECTION

1. GENERAL

1.1 Description

.1 The Work of this Section, **as indicated in the Drawings or Specifications** includes without being limited to:

.1 Placing of concrete and bonded concrete toppings.

.2 Finishing.

.3 Crushed stone base for slabs on grade.

.4 Installation of inserts, anchors, sleeves and similar items, and building-in of items supplied under other Sections.

.5 Concrete Reinforcing.

.6 Insertion of neoprene pads into expansion joints.

.7 All concrete Work required by Mechanical, Electrical and other trades. Co-ordinate with Division 15 - Mechanical and Division 16 - Electrical.

.2 Related Work Specified Elsewhere:

.1 Section 01630 - Substitutions

.2 Section 02200 - Excavation, Compaction And Grading

.3 Section 07900 - Sealants Gaskets And Barrier Membranes

.4 Division 15 - Mechanical

.5 Division 16 - Electrical

.6 All other Sections and Drawings to be reviewed

1.2 Work Installed As Furnished By Others

.1 Install anchors, ties, sleeves, bolts, inserts, cast-in miscellaneous metal items, sub-frames, reglets and other items required to be built into, anchored to, or passing through the concrete Work of this Section and which is specified for supply in the Work of other Sections.

1. GENERAL - Continued

1.3 Co-Operation With The Work Of Other Sections

.1 Check the Drawings and Specifications for the requirements of the Work of other Sections which will affect the construction of formwork.

.2 Inform those performing the Work of other Sections, in writing or by schedules, of the requirements for services, materials and built-in items prepared and/or supplied by other Sections which will affect the Work of this Section.

1.4 Quality Assurance

.1 The following Reference Standards shall govern the Work of this Section except where they are in conflict with requirements imposed by authorities having jurisdiction or by this Specification in which case the latter shall govern.

.1 Supply and place concrete in accordance with the latest edition of OPSS Nos. 351, 352, 904, 919, 1350 and CAN/CSA A23.

.2 CSA Standard A23.1 and CSA Standard 23.2 'Methods of Test for Concrete' shall govern the Work of this Section.

.3 Perform the reinforcement Work of this Section in accordance with the specified requirements of CSA A23.3-1973 'Code for the Design of Concrete Structures for Buildings'.

.4 All Standards referenced in this Specification are to be the latest editions, unless otherwise noted.

1.5 Qualifications

.1 The Contractor shall ensure that the Site Superintendent is experienced and knowledgeable about the placement of concrete in all climatic conditions. In any case where the Site Superintendent does not have experience in placement of concrete, the Contractor, at their expense shall employ additional personnel with expertise in this area for the duration of the placement, finishing and curing of the concrete.

.2 Undertake welding of reinforcement by a fabricator or Sub-Contractor full approved by the Canadian welding Bureau to the requirements of CSA W186-1970 'Welding of Reinforcing Bars in Reinforced Concrete Construction'.

1. GENERAL - Continued

1.6 Formwork Design

.1 Assume full responsibility for the complete structural design and construction of formwork and falsework including shoring and bracing to resist vertical and horizontal loads due to the weight of wet concrete, self-weight of forms, wind, fluid pressure of concrete and other forces arising from equipment used in placing the concrete.

.2 Perform structural design of formwork by a professional engineer experienced in the design of formwork and falsework and who is licensed to practise at the location of the project. The Engineer's responsibility shall include design of the formwork, falsework and shoring, review of the Drawings related to the Work of this Section and field review of the construction.

1.7 Tolerances

.1 Do not allow tolerances to accumulate or combine in such a manner that strength of the member will be reduced by a greater amount than would be caused by incorporation of any one of the acceptable maximum tolerances.

.2 The following maximum tolerances shall apply to concrete in place after removal of formwork, except as additionally specified for Architectural Concrete:

.1 For lines and surfaces of walls and in corners, plumb within 1/4" (6mm) per 10'-0" (3000mm), 1" (25mm) maximum.

.2 Variation of the linear building lines from established position in plan and related position of walls and partitions: 1/2" (12mm) in any bay of 20'-0" (6000mm) maximum 1" (25mm) in greater than 40-0" (12000mm).

.3 Variation in thickness of slabs and walls, minus 1/4" (6mm) and plus 1/2" (12mm) for beams, minus 0" and plus 1/4" for slabs and walls.

.4 Variation in footings minus 1/2" (12mm) and plus 2" (50mm) for plan dimensions, 2" (50mm) maximum or 2% of footing width in direction of misplacement for location, minus 5% of specified thickness.

.5 Variation in stairs 1/8" (3mm) for riser in a flight, 1/4" (6mm) for tread in a flight, 1/16" (1.5mm) for riser in consecutive steps, 1/8" (3mm) for tread in consecutive steps.

1. GENERAL - Continued

1.8 Submittals

.1 Shop Drawings:

.1 Submit Shop Drawings in accordance with Section 01340 - Shop Drawings And Product Data at least four (4) weeks prior to starting concrete work.

.2 Prior to submission to the Consultant, the Contractor shall review all Shop Drawings and Submittals. By this review, the Contractor represents that they have determined and verified all field measurements, filed construction criteria, materials, catalogue numbers and similar data and have checked and co-ordinated each Shop Drawing with the requirements of the Work and of the Contract Documents. The Contractor's review of each Shop Drawing shall be indicated by their stamp, date and signature of a responsible person.

.3 At the time of submission, the Contractor shall notify the Consultant, in writing, of any deviations in the Shop Drawings from the requirements of the Contract Documents.

.4 The Architect will review and return the Shop Drawings in accordance with the schedule agreed upon. The Architect's review will be for conformity to the design concept and for general arrangement only. Such review shall not relieve the Contractor of the responsibility for meeting all requirements of the Contract Documents unless a deviation on the Shop Drawings has been approved, in writing, by the Architect.

.5 The Contractor shall make any changes to the Shop Drawings which the Architect may require, consistent with the Contract Documents and resubmit unless otherwise directed.

.6 Submit specified reinforcement Shop Drawings in accordance with the General Conditions for the Consultant's review. Allow at least seven (7) days for the Consultant's review. Do not commence fabrication or placement of reinforcement before the Shop Drawings have been reviewed and the Consultant's comments are incorporated on the Drawings issued to the fabricating shop.

.7 Submit the Placing Drawings and Bar Lists, sufficiently detailed and dimensioned, with complete information necessary for fabrication of reinforcement and placing of bars and accessories without reference to the design Drawings. Show reinforcement in elevation on the Placing Drawings for wall reinforcement.

1. GENERAL

1.8 Submittals

.1 Shop Drawings - Continued:

.8 Prepare the Shop Drawings in accordance with 'American Concrete Institute Detailing Manual - 1980' and the Typical Details included with the Contract Documents to a minimum scale of 1/4" = 1" (6mm = 25mm).

.2 Inspection Reports:

.1 Submit written reports of inspection and tests as follows:

Two (2) Copies to the Architect.
One (1) Copy to the Consulting Engineer.
One (1) Copy to the Contractor.

.2 On concrete cylinder test reports, include:

Specific location of concrete represented by the sample.
Design Strength.
Slump.
Class of concrete.
Aggregate size and admixtures incorporated.
Date, hour and temperature at time sample was taken.
Percentage air content and unit weight of sample.
Test strength of cylinder.
Type of failure, if any.

.3 Submit, in writing, reports on all testing of other materials in accordance with Section 01400 - Testing And Inspection.

1.9 Inspection & Testing

.1 An independent Inspection and Testing Agency will be appointed and paid for as specified in Section 01400 - Testing And Inspection.

.2 Each strength test will consist of three (3) cylinders. One (1) specimen will be tested at seven (7) days and two (2) at twenty-eight (28) days. One (1) additional site cured specimen is required for testing at seven (7) days when concrete is placed under cold weather conditions.

.3 Store cylinders in metal lined curing box maintained at a temperature of 10 degrees C until shipped to the testing laboratory. Store additional cylinder required for cold weather conditions adjacent to the Work for seven (7) days.

1. GENERAL

1.9 Inspection & Testing - Continued

.4 Should first cylinders of concrete already in place, fall below specified value, any remedial measures deemed fit to repair the deficiencies shall be made. The costs of such measures to be borne by this Sub-Contractor.

.5 Concrete slump and air content tests shall also be made at the site.

.6 Conduct all testing in accordance with CAN/CSA-A23.1, A23.2 and at least for each day's pour.

1.10 Weather Requirements

.1 Cold Weather:

.1 When air temp is below 4 degrees C, temperature of concrete when deposited shall not be less than 16 degrees C and not more than 27 degrees C and areas where concrete is to be placed shall be maintained at a temperature of at least 10 degrees C for a minimum of five (5) days after placing.

.2 Hot Weather:

.1 When air temperature is above 27 degrees C, comply with requirements of CAN/CSA-A23.1 and sprinkle all formwork, reinforcing, sub-grade and general work area, with cold water to increase humidity. Place concrete as quickly as possible.

.2 Protect exposed areas from the direct rays of the sun.

.3 Apply fog sprays as soon as possible after placing.

.4 Do not place concrete which has a temperature above 32 degrees C.

.3 Wet Weather:

.1 Schedule concrete placing to avoid all possible marring by rain.

.2 Take precautions to protect freshly placed surfaces from rain.

1.10 Provision For Future Extension

.1 Provide for any future vertical or horizontal extension to the building **as indicated in the Drawings or Specifications**.

2. PRODUCTS

2.1 Materials

.1 Cement: CAN/CSA-A5/A8/A362, normal (Type 10) Portland Cement.

.2 Cement:

- **.1** Proportions in accordance with CAN/CSA-A23.1
- **.2** Type GU normal Portland: 75% minimum
- **.3** SCM, Type S: 25% maximum
- **.4** Or blended cement Type GUb-25S

.3 Aggregates: Clean, sand and stone from an approved source to CAN/CSA-A23-1/A23.2 maximum size 3/4" (19mm). Aggregates for exposed concrete to be consistent in gradation, type and from the same source and batch.

.4 Water: Clean, directly from main source.

.5 Admixtures

- **.1** Cement Dispersing Admixture: To entrain maximum 2% air content for all concrete below grade.
- **.2** Air Entraining Admixture: Conforming to CAN3-A266.1 to entrain 6% (+/-1%) air content for all other concrete.

.6 Concrete Properties:

- **.1** Compressive Strength: 4300psi (30mpa) in general; Refer to Drawings for any exceptions noted.
- **.2** Maximum Slump: 3" (75mm).

.7 Joint Filler: Asphalt impregnated fibreboard, 'Flexcel' by Sternson or approved equal.

.8 Granular Fill Below Slabs: Compacted Granular 'A' **as indicated in the Drawings**.

.9 Welded Wire Reinforcing Mesh: Conforming to CSA G30.5, welded steel wire fabric for concrete reinforcement.

.10 Waterstop: 'Superstop' by Paramount Technical Products Inc. or equivalent.

.11 Screw Anchors and Bolts: 'Richmond Screw Anchors' by Acrow Richmond Ltd., or approved equivalent.

.12 Dovetail Anchor Slots: Specified under Section 03100 - Concrete Formwork.

2. PRODUCTS - Continued

2.2 Mixing

.1 Conform to Part 14 of CAN/CSA-A23.1/A23.2. Design mixes to produce concrete with specified strength as noted on drawings, workability consistent with placing conditions and methods, durability consistent with service conditions, and in the case of floor surfaces, finishability. Provide a minimum cement content as specified on the Structural Drawings, for floors. Submit mix designs to the Consultant for review.

3. EXECUTION

3.1 Examination

.1 Examine surfaces on which the Work of this Section depends.

.2 Commencement of the Work will denote acceptance of surfaces and conditions.

.3 Do not place any concrete until the Consultant has inspected and approved formwork and reinforcing.

3.2 Placing Concrete

.1 Prior to placing concrete, the Contractor shall give Inspection and Testing firm at least 24 hours notice to review placement of reinforcing. No concrete shall be placed without review by the give Inspection and Testing authority or by the municipal building official if required by them.

.2 Compact concrete with general purpose vibrators so that concrete is evenly and adequately distributed around and between reinforcing and against formwork, without honeycombing. External vibrating of forms is not permitted.

.3 Methods of conveying and placing are to be such that concrete components do not segregate.

.4 Use ready mix concrete. The time between adding of mixing water and discharge of concrete into final location must not exceed 1 1/2 hours.

.5 Concrete shall be homogenous, uniformly workable, readily placeable into corners and angles of forms and around reinforcements without permitting materials to segregate or excessive free waters to collect on the surface.

.6 Retarding agents may only be used where the Contractor's engineer considers such agents necessary because of hot weather, heating of concrete or the need for continuous concrete placement.

3. EXECUTION

3.2 Placing Concrete - Continued

.7 Tolerances: To conform to CAN/CSA-A23-1/A23.2-M90 where less than those stated in this Section.

.8 Slabs on Grade:

.1 Lay and compact granular fill to thicknesses **as indicated in the Drawings**, immediately below slabs on grade.

.2 Place concrete to thicknesses **as indicated in the Drawings or Specifications**.

.9 Hot and Cold Weather Protection:

.1 For concrete placed during hot weather the Contractor shall protect the concrete as detailed in CAN/CSA-A23.1.

.2 For concrete placed during cold weather the Contractor shall protect the concrete as detailed in CAN/CSA-A23.1.

.3 There will be no additional compensation for concrete placed and cured under either hot weather or cold weather concreting conditions.

.10 Fillets and Chamfers:

.1 The edges and re-entrant angles of all concrete exposed to view shall be bevelled to a 20mm x 20mm fillet or chamfer unless large fillets or chamfers are indicated on the Drawings.

.11 Build In:

.1 Wherever practicable, fittings and pipework to be built-in shall be installed at the time of pouring of the concrete structure, and boxing out will be done only with sanction and to the satisfaction of the Architect. Forms shall be neatly fitted around the items built-in so as to prevent any leakage of mortar. All pipes passing through floors or through concrete walls retaining liquids shall have wall flanges cast en situ.

.12 Anchor Bolts:

.1 Anchor bolts shall be set in place prior to placement of concrete. Setting of anchor bolts shall be to the dimensions and details shown on the Contractor's structural steel erection diagrams or the equipment manufacturer's shop Drawings which have been approved by the Architect. Tolerances on anchor bolt placement shall be as shown in Appendix D of the CISC Code of Standard Practice for Structural Steel.

3. EXECUTION

3.2 Placing Concrete - Continued

.2 Anchor bolts for columns within the braced frames shown on the Contract Drawings and anchor bolts for columns supported by concrete columns below shall be set in place prior to placement of concrete.

.3 Use templates for anchor bolts of mechanical equipment, provided by mechanical supplier.

.13 Construction Joints:

.1 Contractor shall submit the construction joint layout for Architect's review with the shop Drawings. Locate construction joints so as not to impair the strength, water tightness and appearance of the structure. Wall construction joints shall be staggered from those locations in roof and floor slabs. Construction joints in slabs and beams shall be at the approximate centre of span.

.2 Unless otherwise shown, maximum distances between construction joints are:

.1 Walls: 6-10 m

.2 Base slabs and slabs on grade: 6-10 m

.3 Suspended slabs and super-structure beams and girders: 6-10 m

.3 The pouring of the base slab may be sequenced in either a linear or checker-board pattern provided the maximum construction joint distances are maintained. The walls are to be poured in a checker-board fashion. A minimum of 48 hours must elapse between casting of infill or adjacent wall units. A pouring sequence and proposed schedule must be submitted to the Architect at least 14 days prior to commencing the Work.

.4 Beams, girders, curbs, brackets, column capitals, haunches and drop panels shall be placed with slabs.

.5 Provide a bulkhead at all construction joints.

.6 All steel as shown on Drawings is to be continuous through construction joints.

.7 Before placing new concrete, remove all dirt, loose aggregate and laitance from face of existing concrete. This shall be accomplished by sandblasting, power washing or other method acceptable to the Architect.

3. EXECUTION

3.2 Placing Concrete - Continued

.8 Allow adequate curing time to the satisfaction of the Architect between placing adjacent sections separated by construction joints. Place concrete in alternate sections if necessary and place closing sections after alternate sections have cured.

.9 All construction joints shall have a row of form ties located at a distance of approximately 150mm from the joint to permit aligning and tightening of the forms for subsequent sections.

.14 Repairing Concrete Surfaces:

.1 As soon as face forms are removed, the surfaces shall be thoroughly washed with clean water under pressure, and all fins, projections and off-sets smoothed off. Metal ties shall be cut and any defective areas, permitted by the Architect to be patched shall be repaired at once before the concrete is thoroughly dry.

.2 At the discretion of the Architect, defective areas shall be chipped away to a minimum depth of 25mm or to solid concrete, whichever is greater, with edges perpendicular to the surface. The area to be patched and a 150mm wide band around it shall be thoroughly wetted. A grout of equal parts cement and sand shall then be brushed into the surface followed by a mortar of the same sand/cement mix as the unit being repaired.

.3 Repair patches shall be left slightly higher than the surrounding area and allowed to reach initial shrinkage before the final screeding.

.4 Repair patches shall be cured continuously for a period of 10 days. Bonding of patch Work to parent concrete and the curing of the complete repair Work will require special attention. Repair patches shall be free from shrinkage cracks or voids after the repair patches have been cured.

3. EXECUTION - Continued

3.3 Finishing

.1 Finish exposed concrete surface as required by the Drawings and Schedules and specified herein, before concrete is thoroughly cured. Conform to CAN/CSA-A23-1/A23.2-M90.

.2 Generally, the surface of all concrete, immediately after the removal of forms, shall be finished as follows:

.1 Chip off the fins and ridges flush with general surface and cut back metal form ties not less than 1" (25mm) from the surface.

.2 Honeycomb and other defective areas shall be cut perpendicular to the surface and at least 1 1/2" (38mm) deep. Voids and honeycomb areas shall be inspected by the Consultant who shall direct the corrective methods of treatment to be carried out.

.3 Saturate cut out areas or cavities with water. Scrub patch surfaces with neat cement paste and immediately after, fill holes with mortar having same general composition and cement as mortar in concrete. Pack mortar into depressions to completely fill them and then finish to match adjacent surface.

3.4 Curing & Sealing

.1 Cure with a sealing and curing compound finished horizontal concrete surfaces, except surfaces to receive mortar beds or air entrained concrete exposed to freezing temperatures and placed between October 1st and April 1st.

Use a sealing and curing compound which will leave the surface with a uniform appearance and with a minimum of discolouration after drying. Check that the curing compound will be compatible with the architectural finishes. Apply the compound in accordance with the manufacturer's written instructions.

.2 Protect surfaces which will be exposed to direct sunlight during the curing period and which will remain exposed permanently, with a light coloured laminated waterproof paper immediately after the curing and sealing compound has hardened sufficiently for the paper to be placed without damage to the sealed surface. Lay the paper in place for at least seven (7) days.

.3 Cure horizontal surfaces to which a curing and sealing compound cannot be applied by covering with 4 mil thick polyethylene sheets. Lap and seal all edges. Maintain in place for seven (7) days minimum.

.4 Comply with 'Hot Weather Concreting' requirements of CSA A23.1-1973, Clause 17.

3. EXECUTION - Continued

3.5 Grouting For Steel Members

.1 Grout for setting of base plates shall be shrinkage compensating, premixed type and shall be placed in accordance with the manufacturer's instructions.

3.6 Dampproofing/ Waterproofing

.1 Apply dampproofing to the entire surface of the earth face of exterior and interior foundation walls with earth on one side only. Apply dampproofing from the exterior grade level down to and including the top surface of the footing.

.2 At temperature of 4 degrees C and above, apply approved mineral colloid asphalt emulsion in accordance with CGSB 37 -GP-3M 'Application of Emulsified Asphalts for Dampproofing or Waterproofing', at a rate of 2gal/100sq ft (7.6L/9.3sq m) for each of two (2) coats.

.3 At temperature below 4 Degrees C, apply approved unfilled asphalt cutback in accordance with CGSB 37-GP-12M 'Application of Unfilled Asphalt Cutback for Dampproofing', at a rate of 2gal/100sq ft (7.6L/9.3sq m) for each of two (2) coats.

.4 Caulk the exterior joint between the footing and the foundation walls after the dampproofing has cured, with asphalt caulking compound.

.5 Obtain the Consultant's approval of the dampproofing before backfilling.

3.7 Defective Work

.1 Concrete is defective when:

.1 Failing to meet all requirements of this specification.

.2 Concrete contains excessive honeycombing or embedded debris.

.3 28 day average strength in any defined area is less than the permitted tolerances specified in CAN/CSA A23.1.

.2 Movement and displacement of the formwork during construction, variations in excess of specified tolerances and marked and disfigured surfaces that cannot be repaired by specified methods will be considered defective Work performed by this Section.

3. EXECUTION

3.7 Defective Work - Continued

.3 Reconstruct defective formwork and replace concrete and reinforcement placed in defective formwork at no additional cost to the Owner.

.4 Replace or modify concrete that is out of place or does not conform to lines, details or grade as directed by the Consultant.

.5 Replace or repair defectively placed or finished concrete as directed by the Consultant.

.6 Testing and replacement of deficient Concrete-In-Place:

.1 The Contractor shall pay for additional testing and related expenses if the concrete Work has proven to be deficient.

.2 The Contractor shall replace or strengthen deficient concrete Work as directed by the Consultant and pay for all testing and related expenses for replaced Work until approved by the Consultant.

3.8 Clean-Up

.1 Clear away from the Building and Site excess and waste materials and debris resulting from the Work of this Section. Leave the premises in a condition acceptable to the Consultant before completion of the Work.

END OF SECTION

1. GENERAL

1.1 Description

.1 The Work of this Section **as indicated in the Drawings or Specifications** includes Bonded Concrete Topping over core slab and all other Finishing of Concrete Floors.

.2 Related Work Specified Elsewhere:

- **.1** Section 01630 - Substitutions
- **.2** Section 03300 - Cast-In-Place Concrete
- **.3** Section 09800 - Epoxy Flooring
- **.4** All other Sections and Drawings to be reviewed

1.2 Quality Assurance

.1 The Company performing the Work of this Section must have a minimum of five (5) years recent experience in similar installations.

.2 Workers must be skilled and each have a minimum of five (5) years experience.

1.3 Reference Standards

.1 ASTM C309, 'Specification for Liquid Membrane Forming Compounds for Curing Concrete'.

.2 CAN/CSA-A23.1-M90/A23.2-M90, 'Concrete Materials and Methods of Concrete Construction', 'Specification for Liquid Membrane Forming Compounds for Curing Concrete'.

1.4 Tolerances

.1 Levels of finished concrete floors and floors under finished flooring applications shall be within 1/4" (6mm) of established elevations in any 20'-0" (6000mm) square area and sufficiently even to contact a 10'-0" (3000mm) long straightedge with a tolerance of 1/4" (6mm).

.2 Under resilient and seamless flooring, finish levels shall not vary more than 1/16"/lineal foot (1mm/meter)

1. GENERAL - Continued

1.5 Co-Operation

.1 Ensure that concrete supplied for slabs does not contain admixtures which will be incompatible with floor hardener materials.

1.6 Job Conditions

.1 Perform the Work only when environmental conditions are as specified in CAN/CSA-A23.1-M90/A23.2-M90.

.2 Ensure that adequate temporary heating is provided as required to perform the Work in cold weather.

.3 Provide adequate moisture, sun shades and wind barriers to prevent too rapid drying of concrete during hot weather.

.4 Ensure that finished concrete floor areas are protected from abrasion from foot or wheeled traffic and from damage caused by spillage of oil or other harmful materials.

2. PRODUCTS

2.1 Materials

.1 **Concrete Materials**: In accordance with Section 03300 - Cast-In-Place Concrete.

.2 **Hardener Aggregate**: Dry-Shake, non-metallic, mineral aggregate surface hardener Mastercron by Degussa or approved alternate (waste management floor area).

.3 **Curing Sheet**: 2 mil. Polyethylene or waterproof paper.

.4 **Sealing Compound**: 'Hydrozo 100' silane sealer by Degussa for exterior slabs, equipment pads, sidewalks and ramps not receiving architectural finish.

.5 **Curing Compound**: Where concrete floors are to be left exposed, unpainted and concrete ***cannot*** be water cured; use ***only*** non-volatile curing compounds conforming to ASTM C309 such as 'Planicure 65' by Mapei or approved alternate.

.6 **Grout**: Non-shrink grout 'In-Pakt' by Sternson Limited or approved alternate.

3. EXECUTION

3.1 Examination

.1 Before commencing the Work of this Section, ensure that surfaces are acceptable to receive and maintain concrete finishing and that specified installation will be achieved.

.2 Commencement of the Work will denote acceptance of conditions and surfaces.

3.2 Bonded Concrete Topping

.1 Conform to CAN/CSA-A23.1.

.2 Strength of concrete and mix to be in accordance with CAN/CSA-A23.1.

.3 Roughen concrete slab surface before placing topping. Use mechanical means to roughen slab, as may be required to ensure a bond with topping.

.4 Place each section in one operation.

.5 Take special precautions against plastic shrinkage cracking, in accordance with /CSA-A23.1, Clause 21, whenever rapid drying of topping may occur.

.6 Provide control joints in topping directly over control joints in slabs, with 3/16" (5mm) saw to depth of 2/3 topping thickness no later than 24 hours after placing. After 24 hours clean and install filler in joint.

3.3 Concrete Floor Finishing

.1 Immediately after placing, screed and darby concrete before any water has bled to the surface.

.2 Strike off concrete level to screeds leaving no low spots. If vibrators are used on straightedge ensure that concrete is not over vibrated causing segregation and collection of water and fines over the surface.

.3 Smooth concrete to an even plane with a darby or bull float and leave until bleed water and water sheen has disappeared and ridges and voids have disappeared.

.4 Immediately after preliminary work, apply floor hardening compounds in accordance with manufacturer's requirements.

3. EXECUTION

3.3 Concrete Floor Finishing - Continued

.5 Proceed with finishings only when bleed water has disappeared and concrete has hardened sufficiently to support a worker with only slight footprint left on the surface.

.6 Apply curing and sealing compounds in accordance with manufacturer's application instructions.

.7 Do not use curing or hardening compounds on concrete where ceramic tile or seamless epoxy flooring is to be provided.

.8 Finish concrete surface with mechanical float or with metal hand floats in areas inaccessible to power floats. Floating shall embed large aggregate below the surface, consolidate mortar at the surface, provide even planes with no bumps or depressions, remove marks from edging and prepare the surface for further specified finishing. Do not bring water and fine material to the surface by overworking.

.9 Steel trowel floated surface with mechanical trowels or hand trowels in areas inaccessible to power trowels. Proceed with trowelling only when there is no sheen on the surface. Repeat trowelling until the surface is brought to approved finish. Allow sufficient time between trowellings for additional set of concrete.

.10 Draw a soft bristled brush over steel trowelled surfaces to provide a very light swirled broom surface where a non-skid floor is required.

.11 Finish floor surfaces shall be level dense with no aggregate showing and free of blemishes.

3.4 Hardened Floors

.1 Apply hardener aggregate to floor surfaces **as indicated in the Drawings or Specifications** in two shakes, half of the aggregate for each shake.

.2 Apply the first shake when the concrete is firm enough to support worker and equipment and when standing water is present. Mechanically float aggregate into the surface.

.3 Apply the second shake and mechanically float as specified above for finishing.

.4 Apply total amount of aggregate at a rate of 26 ounces per square foot (3kg/sq m) of floor area.

3. EXECUTION - Continued

3.5 Curing

.1 Cure Concrete as specified in CAN/CSA-A23.1-M90/A23.2-M90 and by methods specified in 3.7 'Concrete Floor Finishing Schedule'. Ensure that no curing compound is used which is detrimental to the bond of bedding for finish flooring or finish flooring materials. Where concrete curing compounds are used, sandblast floor finish after concrete is fully cured.

3.6 Patching & Refinishing

.1 Before the completion of project, patch and refinish defective surfaces to match surrounding areas with no discernable variation in appearance.

3.7 Concrete Floor Finishing Schedule

.1 **Rough Floor and Horizontal Surfaces**: Screed surfaces to an even, level or sloped surface to elevations **as indicated in the Drawings or Specifications**.

.2 **Floor Finishing**: Ensure that the floor finishes are provided **as indicated in the Drawings or Specifications.** Verify with those performing the Work of applicable Sections that the proposed finishing is satisfactory for the Work they apply to the floors.

.3 **Steel Trowel Finish**: Smooth finish by hand and machine float, free from laitence, excessive water, trowel marks, blemishes and ridges for the Work of Section 09800 - Epoxy Flooring.

.4 **Exposed Floors**: Give floors exposed to view a steel trowel finish to provide a hard, smooth, dense surface free from laitence, excessive water, trowel marks, blemishes and discolouration.

.5 **Non-Slip Floor Surface**: For light non-slip surface, provide swirl trowel finish to match the approved sample. For heavy duty non-slip surface provide a swirl trowel finish.

END OF SECTION

1. GENERAL

1.1 Description

.1 Related Work Specified Elsewhere:

- **.1** Section 01630 - Substitutions
- **.2** Section 04220 - Concrete Masonry Units
- **.3** All other Sections and Drawings to be reviewed

.2 Submittals

- **.1** See Section 04220 - Concrete Masonry Units

.3 Delivery & Storage

- **.1** See Section 04220 - Concrete Masonry Units

1.2 Quality Assurance

.1 Submit affidavits of an independent laboratory that materials conform to requirements specified herein.

.2 References:

- **.1** ASTM A82-01 'Steel Wire, Plain for Concrete Reinforcement'.
- **.2** ASTM A116-00 'Specification for Zinc Coated (Galvanized) Steel Woven Wire Fence Fabric'.
- **.3** ASTM A153-83/A153M-01 'Specification for Zinc Coating (Hot Dip) on Iron and Steel Hardware'.
- **.4** ASTM C207-91 'Specification for Hydrated Lime for Masonry Purposes'.
- **.5** ASTM C270-96a 'Specification for Mortar for Unit Masonry'.
- **.6** CAN/CSA5-93 'Portland Cements'.
- **.7** CAN/CSA-A8-93 'Masonry Cements'.
- **.8** CAN/CSA-A23.1-94/A23.2-94 'Concrete Materials and Methods of Concrete Construction/Methods of Test for Concrete'.
- **.9** CSA A82-56-M1976 'Aggregate for Masonry Mortar'.
- **.10** CSA A179-94 'Mortar and Grout for Unit Masonry'.

1. GENERAL - Continued

1.3 Samples

.1 Submit samples in accordance with Section 01345 - Samples:

.1 Mortar colour selection.

.2 Reinforcement.

.3 Ties.

.4 Anchors.

.5 Closures and Fillers.

1.4 Submittals

.1 Submit samples in accordance with Section 01345 - Samples:

.2 Submit, a minimum of 2 weeks in advance, testing reports of samples prepared in accordance with mix designs when tested in accordance with CAN/CSA A179 for site prepared mortars and grouts.

.3 Submit with testing reports, site mix designs for grout indicating proportions of constituents required to achieve strengths as specified on the Drawings and placement of the Work.

.4 Submit with testing reports, site mix designs for mortar indicating proportions of constituents required to achieve strengths, durability and workability as specified in CAN/CSA A179.

2. PRODUCTS

2.1 Mortar Materials

.1 **Materials**: Conform to CSA A179-1994.

.1 Use same brand of materials and source of aggregate for entire project.

.2 Mortar and grout to CAN/CSA A179.

.3 Mortar for exterior masonry above grade:

.1 Load bearing: Type S based on approved mix design

.2 Non-Load bearing: Type N

.4 Mortar for interior masonry:

.1 Load bearing: Type S based on approved mix design

.2 Non-Load bearing: Type N

2. PRODUCTS

2.1 Mortar Materials - Continued

.5 Following applies regardless of mortar types and uses specified above:

.1 Mortar for manufactured stone veneer.

.2 Mortar for grouted reinforced masonry: Type S based on approved mix design.

.2 **Cement**: Normal Portland Cement conforming to CAN/CSA-A5 -93.

.3 **Sand**: Sharp, durable, clean and free from contaminants, uniform in colour, CSA A82.56-M1976.

.4 **Hydrated Lime**: ASTM-C206-84.

.5 **Masonry Cement**: CAN/CSA-A8-93.

.6 **Water**: Clean, free of contaminants and potable.

.7 **Pre-Mixed Mortar**: Prepared, mixed and bagged mortar, requiring only the addition of water and mixing to provide specified mortar, Betomix supplied by Daubois Inc.

.8 **Pigment**: Iron oxide type by Northern Pigments Ltd. Colour: As required to provide mortar to the Consultant's colour selection. Not to exceed 10% of cement content by mass.

.9 **Non-Staining Mortar**: use non-staining masonry cement for cementitious portions of specified mortar type.

.10 **Grout**: 20 MPa to approved mix design.

2.2 Mortar Mixing

.1 Accurately proportion by volume and thoroughly mix mortar in a mechanical mixer for at least five (5) minutes after all material is in the mixer.

.2 For pre-mixed mortar mix in accordance with manufacturer's written instructions.

.3 Retempering: Add water so that mortar will contain maximum amount of water consistent with good workability. Mortar that has started to set shall not be retempered but removed from site.

2. PRODUCTS

2.2 Mortar Mixing

- Continued

.4 Time Limits: Use mortar within 2 1/2 hours when temperature is 27 degrees C or higher. Use within 3 1/2 hours when temperature is below 27 degrees C.

.5 Add pigment to mortar mix, in accordance with manufacturer's instructions to produce mortar matching colour of samples. Maximum content, by volume: 10% of total mortar content.

2.3 Mixes

.1 For Load Bearing and all Exterior Exposed Masonry: Type S mortar, (CSA A179) 1 part cement, 1/2 part lime, 4 1/2 parts sand or 1 part cement, 2 parts masonry cement, 9 parts sand.

.2 For Non Load Bearing Masonry: Type N mortar, (CSA A179) 1 part cement, 1 part lime, 6 parts sand or 1 part masonry cement, 3 parts sand.

.3 Temperature of Mortar: 21 degrees C minimum, 49 degrees C maximum.

2.4 Reinforcing & Ties

.1 Horizontal reinforcing: Galvanized wire reinforcing composed of two corrugated 10ga (3.8mm) wires spaced apart 5/8" (15mm) less than actual block with, unless specified otherwise on drawings, and held apart by straight cross wires welded in place.

.2 Wall Ties (for fastening masonry veneer through insulation and air barrier to sheathing): Stainless steel with insulation support, Helifix by Blok-Lok Ltd. or Slotted Rap-Tie by Fero Corp.

.3 Provide galvanized ties and other similar items as required, including dovetail anchors.

.4 Bolts and Anchors: Conforming to Clause 3.6.2 and 4.5.4 of CAN3-S304-M78.

.5 Corrosion Protection: Conforming to Clauses 3.3.3.1 and 3.6.2.6 of CAN3-A370-M84 for metal ties and horizontal reinforcing in exterior walls.

.6 Weep Joints and Vents: P.V.C. brick joint type conforming to CAN3-A93-M82 with horizontal louvres by Goodco or other approved manufacturer.

2. PRODUCTS

2.4 Reinforcing & Ties - Continued

.7 Nailing Inserts: 25ga (.5mm) galvanized corrugated steel inserts for setting into mortar joints.

.8 Dovetail Brick Anchors: Standard 18ga galvanized metal ties, length to suit application.

2.5 Flashing & Joint Filler

.1 Flashing: 'Blueskin' by Bakor, 'AirShield' by W.R. Meadows or 'Aqua Barrier' by IKO.

.2 Joint Filler: Rubber type, by Blok-Lok Ltd. Dur-O-Wall Ltd. or Debro Products Ltd.

2.6 Vertical Metal Air Stops

.1 Per CMHC Best Practice detailing, provide vertical Metal Air Stops galvanized steel 16 ga minimum at centreline of demising wall between units and at corner.

3. EXECUTION

3.1 Installation

.1 As specified in Section 04220 - Concrete Masonry Units.

END OF SECTION

1. GENERAL

1.1 Description

.1 The Work of this Section **as indicated in the Drawings or Specifications** includes:

.1 Supply and installation of concrete block, brick, precast sills, cavity wall, insulation and all other specified components

.2 Building in of items supplied under other Sections.

.2 Related Work Specified Elsewhere:

.1 Structural Drawings and Specifications

.2 Section 01630 - Substitutions

.3 Section 04110 - Mortar And Accessories

.4 Section 05500 - Metal Fabrications

.5 Section 06100 - Rough Carpentry

.6 Section 07900 - Sealants, Gaskets And Barrier Membrane

.7 All other Sections and Drawings to be reviewed

1.2 Quality Assurance

.1 Masons shall have a minimum of five (5) years experience in this type of Work.

.2 Masonry shall be constructed in accordance with Sub-Section A-4.1.9.1 - 'Effects of Earthquakes', of the Ontario Building Code for the appropriate Ontario Earthquake Zone.

.3 References:

.1 ASTM C140-96a (1996) 'Sampling and Testing Concrete Masonry Units'.

.2 ASTM C331-02 'Specification for Lightweight Aggregates for Concrete Masonry Units'.

.3 CAN/CSA A23.1-94/A23.2-94 'Concrete Materials and Methods of Concrete Construction/Methods of Test for Concrete'.

.4 CSA-A82.2-M78 'Methods of Sampling and (R1984) Testing Bricks'.

1. GENERAL

1.2 Quality Assurance

.3 **References:** - Continued

.5 CAN3-A165 Series 94 'CSA Standards on Concrete Masonry Units'.

.6 CAN3-S304-M84 'Masonry Design for Buildings'.

.7 CAN/CSA A371-94 'Masonry Construction for Buildings'.

1.3 Job Conditions

.1 Temperature requirements:

.1 Air temperature below 4 Degrees C, heat water and sand between 21 Degrees C and 70 Degrees C.

.2 Air temperature below 0 Degrees C, in addition to 1.1 requirements, enclose and heat working areas and maintain heating for seven (7) days after installation.

.3 Air temperature below -18 Degrees C, no construction should be attempted except for emergency construction.

.2 Protection requirements:

.1 Cover top edges of masonry with polyethylene sheet or other impervious material during wet weather and at completion of each day's work.

.2 Erect windbreaks when wind is in excess of 15mi (24km) per hour.

.3 Protect new work from direct rays of sun to prevent fast drying and shrinkage.

1.4 Samples

.1 Submit samples of the following in accordance with Section 01345 - Samples.

.1 Concrete Masonry Units

.2 Anchors

.3 Closures and Fillers

1. GENERAL - Continued

1.5 Sample Panel

.1 Erect 6'-0" x 10'-0" (2000mm x 3000mm) sample panel of exterior wall showing exterior face, cavity, air barrier, insulation, interior wythe, mortar joints and control joints, in location selected by the Consultant.

.2 Maintain approved panel until directed to remove same by the Consultant.

.3 Approved panel shall be minimum standard for the Masonry Work.

1.6 Testing & Inspection

.1 The Owner may appoint an inspection company to test and inspect materials in accordance with O.B.C. and N.B.C. requirements and Section 01400 - Testing And Inspection.

.2 The cost for testing and inspection will be paid for under an allowance in accordance with Section 01020 - Allowances.

.3 Include for labour and cost of material samples required by the inspection company.

1.7 Delivery & Storage

.1 Store cementitious materials above grade in weathertight and warm conditions and aggregate in accordance with CSA standards.

.2 Cement, lime and mortar: Delivered in original containers with manufacturer's seals and labels intact.

.3 Stack masonry units to avoid chipping and protect from weather and soil.

.4 Stained or chipped masonry units and other materials affected by inadequate protection shall be replaced.

2. PRODUCTS

2.1 Masonry Units

.1 **Concrete Block**:

.1 Conform to CSA-A-82-3-M 1970.

.2 Concrete Block:

- Colour A - Greystone
- Colour B - Ash (Banding as shown on the Drawing) Concrete Masonry Units

.2 **Pre-Cast Sills**:

.1 Tapered with upstand and 2” (50mm) shoulder and end dam to suit window opening size by manufacturer with a minimum of five (5) years experience in casting of concrete sills.

3. EXECUTION

3.1 Examination

.1 Examine Work on which the Work of this Section is supported or comes into contact and do not proceed unless surfaces and conditions are acceptable.

.2 Commencement of the Work will denote acceptance of surfaces and conditions.

.3 Examine the relevant Shop Drawings for items to be built into or supported by masonry construction.

3.2 Preparation

.1 Establish lines, levels and coursing and protect from disturbances.

.2 Prepare for building in of all items whether supplied and installed by others or installed under this Section.

3.3 Erection Tolerances

.1 Construct walls as true planes with maximum tolerances of 3mm in 1/4" in 10'-0" (6mm in 3000mm) in any direction.

.2 Variation from plumb: 1/2" in 30'-6" (6mm in 9150mm) at corners.

.3 Wall openings: 1/2" (6mm) Maximum from designated opening size.

3.4 Installation

.1 Distribute exposed masonry units of varying colours, tones and textures evenly over the wall surface to avoid patches and streaks and to produce an even appearance.

3. EXECUTION

3.4 Installation - Continued

.2 Gaining to meet spandrels or similar conditions, leaving courses uneven or with visibly thicker mortar joints will not be accepted; remove and rebuild any such work.

.3 Construct masonry evenly in maximum lifts of 5'-0" (1500mm) per working day.

.4 Toothing is not permitted. Rake back one-half unit length where stop off is necessary in horizontal run of masonry.

.5 Chases shall be built - not cut.

.6 Chipped or blemished units may be used where concealed. Defective and broken units shall be rejects and removed.

.7 Build masonry neatly and with accurately plumbed faces, truly horizontal bed joints and accurately aligned vertical joints.

.8 Cut masonry neatly with a table mounted carborundum saw, where masonry comes in contact with the structure and where less than full units are required, and build tightly against structure except where expansion, control and deflection joints are required.

.9 Adjust openings to present uniform appearance with minimum of cut units.

.10 Bond intersecting walls or partitions, of equal coursing height, in regular coursing.

.11 Where fresh masonry abuts partially or fully set masonry, clean and dampen existing exposed surface to ensure good bond.

.12 **Exposed interior and outside corners, jambs, sills, balustrade and non-full height walls shall have single or double bullnose corner block as required**.

.13 Lay concrete block in running bond, with thicker end of face shell upward. Coursing to be modular 10" (200mm) for one (1) block and one (1) joint.

.14 Completely fill face shells and end joints of block with mortar, joints squeezed tight.

.15 Do not tie intersecting bearing walls together in masonry bond, except at corners.

.16 Lay up facebrick generally in running bond. Provide soldier courses, stack bond, special colour band courses where noted on Drawings.

3. EXECUTION - Continued

3.4 Installation

3.5 Beds, Joints & Coursing

.1 Lay masonry units with all beds and vertical collar joints filled with mortar including webs of concrete block, through the entire wall thickness.

.2 Above requirement will be rigidly enforced and wherever it is found that it has not been carried out, the wall shall be taken down and re-built.

.3 Bed first course of non-load bearing masonry partitions on two layers of standard 'Glaskraft' waterproof paper.

.4 Rake out joints of skills to a depth of 1/2" (12mm) and fill with non-shrink mortar grout.

3.6 Joints

.1 For brick exposed: Tooled Concave.

.2 For tooling of joints, compress mortar with a non-staining plastic or stainless steel tool to produce a dense, perfectly flush or concave joint.

3.7 Cavity Walls

.1 Remove all mortar projections and dust, fill large holes and depressions with mortar.

.2 Keep cavity clear of mortar droppings as work proceeds, this will be strictly enforced. Make provision for and clean out base of cavity on completion - every third brick at base of cavity to be left out for cleaning and inspection. Do not insert bricks into opening until directed by the Consultant.

.3 Clean off mortar droppings from reinforcing and ties.

.4 Drill ties through insulation and air barrier into concrete backup wall, in accordance with manufacturer's instructions. Seal holes at air barrier and co-ordinate with Section 07220 - Air Barrier/Insulation System, for this work. Ensure ties are correct length for building in to brick veneer.

3. EXECUTION

3.7 Cavity Walls - Continued

.5 Provide cavity vents every third vertical joint immediately above flashing and damp proof course and other locations where cavity is closed or as shown, to vent cavity. Insert pre-moulded plastic weep holes as specified in Section 04110 - Mortar And Accessories. At top of cavity wall locate brick vents at second course below top at minimum 4'-0" (1200mm) o. c.

.6 Make provision for and cleaning out base of cavity upon completion.

.7 Cavity Wall Flashing

.1 Edge of flashings to be cut flush with edge of brick.

.2 Cavity flashings, rivetted lapped joints sealed with caulking or cavity insulation are acceptable.

.3 Extend cavity wall flashings vertically, minimum 10" (200mm) above base of cavity or above openings, embedded into the nearest horizontal inner wythe mortar joint a minimum of 3" (75mm). At concrete walls, provide continuous formed reglets 1/2" (12mm) wide x 1" (25mm) deep to receive hemmed edges of flashing secured with lead wedges and sealants.

.8 Provide vertical air stops as noted on the Drawings and Specifications.

.9 Brick Ties shall be installed in accordance with CSA S304.1-94, CSA A370-94. Maximum 23 5/8" (600mm) vertical and 15 3/4" (394mm) horizontal spacing to centre to centre.

3.8 Shelf Angles & Lintels

.1 Install angles for support of exterior face of masonry at locations and sizes shown on Structural Drawings. Angles to be minimum 1/2" (12mm) less than masonry wythe x same height x 3/8" (8mm). Angles supplied under Section 05500 - Metal Fabrications.

3.9 Building In, Cutting & Fitting

.1 Do cutting, fitting and making good to receive work of other trades.

.2 Install items supplied by others to be built into masonry including miscellaneous metal work, loose lintels, bearing plates, sleeves, anchor bolts, wood nailers, anchors and other similar items. Set access doors with front face flush with final wall finish. Locate such fittings precisely as directed.

3. EXECUTION - Continued

3.10 Shrinkage Control Joints

.1 Locate control joints as required maximum spacing of 25'-0" (7500mm) o.c. and located at intersection of masonry walls and spaced at equal distant intervals. Do not position control joints at jambs of masonry openings but locate minimum 1'-6" (450mm) clear of opening. At exterior cavity walls, stagger location of control joints between inner and outer wythes a minimum of 10" (200mm) horizontally. Locate one control joint within 1'-4" to 2'-0" (400mm to 600mm) of external or interior wall corners.

.2 Carry joints from support of wall to top of wall at structure above. For exterior walls apply a strip of elastomeric sheet to the back face of the exterior masonry wythe using adhesive applied with caulking gun. Prime masonry surfaces before applying elastomeric sheet.

.3 Control joints shall provide a complete vertical and offset separation through wall and be nominal 3/8" (9mm) wide. Do not carry reinforcing through joint. Ensure that ties are not closer than 6” (150mm) to joint edges and junctions between masonry and concrete structure.

.4 Form all control joints as shown on details.

3.11 Adjust & Clean

.1 Surplus mortar shall be removed immediately from floors, walls and other locations.

.2 At completion of pointing, remove all rubbish and surplus material, and brush and clean all masonry with water and stiff fibre brush.

.3 If further cleaning of masonry surfaces is required follow recommendations of masonry manufacturer and treat a sample area of masonry for the Consultant's approval before proceeding with cleaning of all surfaces.

3.12 Dampproof Course

.1 Dampproof courses must be stepped where shown with lapped and seamed edges where vertical and horizontal sections intersect.

.2 Install elastomeric flashing on walls and partitions rising from footings below grade and in locations **as indicated in the Drawings or Specifications**. Lap and seal all joints.

END OF SECTION

1. GENERAL

1.1 Description

.1 The Work of this Section **as indicated in the Drawings or Specifications** includes fabrication, supply and installation of Fabricated Metal items.

.2 Related Work Specified Elsewhere:

- **.1** Structural Drawings and Specifications
- **.2** Section 01630 - Substitutions
- **.3** Section 04220 - Concrete Masonry Units
- **.4** Section 08800 - Miscellaneous Glass, Glazing And Mirrors
- **.5** Section 09900 - Painting
- **.6** All other Sections and Drawings to be reviewed

1.2 Quality Assurance

.1 Fabricators shall be fully approved by Canadian Welding Bureau and conform to CSA W47-1-1983 and have a minimum of five (5) years experience in the fabrication and erection of structural steel.

.2 Meet requirements of governing codes and standards specified which shall be latest current editions in all cases.

1.3 Shop Drawings

.1 Submit the Shop drawings for all specified components for the Consultant's review in accordance with Section 01340 - Shop Drawings And Product Data.

.2 Show on the drawings:

- **.1** Size and location of all members and necessary details.
- **.2** Identify materials and give thicknesses and finishes.
- **.3** Sizes and dimensions based on field measurements where possible.
- **.4** Provide templates and show dimensions for setting anchor bolts, sleeves, frames and fastenings by other trades.

1. GENERAL - Continued

1.4 Protection

.1 Prevent staining by concrete, mortar, plaster, oil, grease or other decontaminants.

.2 Do not use paint, crayon or other markings on exposed surfaces.

2. PRODUCTS

2.1 Materials

.1 Use all new materials and grades of metals and alloys to suit application.

.2 **Steel Sections and Plates**: CSA G40-21.

.3 **Steel Pipe**: Schedule 40.

.4 **Welding**: CSA W59-1.

.5 **Welding Electrodes**: CSA W48 Series.

.6 **Shop Coat Primer**: CGSB 1-GP-40.

.7 **Zinc Rich Primer**: Ready mixed type, CGSB 1-GP-181a.

.8 **Galvanizing**: CSA G164.

.9 **Expanding Grout**: Equal to Embeco by Master Builders Ltd.

2.2 Fabrication

.1 Fabricate fit and shop assemble items wherever possible.

.2 Fabricate to approved shop drawings and details.

.3 Verify site dimensions before proceeding with shop fabrication to suit field conditions and field openings.

.4 Fabricate the Work complete with components required for anchoring, bolting or welding to structure; standing free or resting in frames and sockets.

.5 Fabricate items in largest possible sections. Form joints in field by welding.

.6 Grind and fill welds after inspection and acceptance and leave ready for prime painting.

.7 Fill open joints, depressions and seams with metallic paste filler or by continuous brazing or welding and grind smooth to true, sharp arrises and profiles.

2. PRODUCTS

2.3 Finishing

.1 Prime Finish:

.1 After fabrication clean, scrape and remove rust, mill scale, grease and other extraneous materials.

.2 Apply full smooth coat of primer, working paint into corners and open spaces such that all visible and accessible surfaces are fully covered.

.3 Deliver items to site with primer undamaged.

.2 Galvanizing:

.1 Galvanize Work where specified.

.2 Galvanize items after fabrication. Where this is not possible, touch up welds with zinc rich primer.

.3 Clean and prepare surfaces and hot dip galvanize to CSA G164-M1981.

.4 Coating: 3oz/sq ft. (764g/sq m).

3. EXECUTION

3.1 Installation

.1 Provide temporary supports and bracing.

.2 Do drilling, cutting and fitting necessary to attach the Work to adjoining components and surfaces and make it complete.

.3 Make joints tight and smooth; leave the completed Work straight, true, positioned and anchored securely.

.4 Where anchors, fastenings or sleeves have to be built in by other trades, supply necessary templates, instructions and supervision to ensure satisfactory installation.

.5 Use bituminous paint, butyl tape or other suitable and approved means to prevent electrolytic action between metal and metal; metal and concrete; metal and masonry.

.6 Grind welds smooth and touch up prime coats and galvanizing damaged by field erection.

3. EXECUTION - Continued

3.2 Miscellaneous Rough Hardware & Sections

.1 Supply anchor bolts, washers and nuts, lag screws, expansion shields, toggles, straps, sleeves, brackets and other similar items where required or called for on the Drawings, for the Work in this Section. Such items occurring on or in an exterior wall or slab shall be hot dip galvanized. Thread dimensions shall be such that nuts and bolts will fit without rethreading or chasing threads.

.2 Provide all miscellaneous steel angles, channels, tubes, plates and similar items of shapes and sizes noted or required which are not included on the Structural Drawings or called for in other Sections of this Specification.

4. Item Schedule

.1 Lintels and Shelf Angles: Provide steel lintels and shelf angles for all openings in masonry where these are not otherwise provided for. Where necessary provide double angles welded back to back. Provide packing where back to back angles are at different levels. Provide for bearing at each end as directed by Structural Sub-Consultant.

END OF SECTION

1. GENERAL

1.1 Description

.1 The Work of this Section **as indicated in the Drawings or Specifications** includes interior and exterior Rough Carpentry and Moisture Barrier Work.

.2 Related Work Specified Elsewhere:

- **.1** Section 01630 - Substitutions
- **.2** Section 03100 - Concrete Formwork
- **.3** Section 05500 - Metal Fabrications
- **.4** Section 06120 - Prefabricated Wood Trusses
- **.5** Section 06200 - Finish Carpentry
- **.6** Section 07200 - Insulation
- **.7** Section 07900 - Sealants, Gaskets And Barrier Membrane
- **.8** All other Sections and Drawings to be reviewed.

1.2 Quality Control

.1 Identify lumber by grade stamp of an agency certified by the Canadian Lumber Standards Accreditation Board.

.2 References:

- **.1** Comply with the National Building Code or the latest edition as a minimum standard.

2. PRODUCTS

2.1 Materials

.1 Lumber Material

- **.1** **Furring and Blocking**: No. 2 grade and better Spruce-Pine-Fir.
- **.2** **Pressure Treated Wood**: No. 1 grade pine treated in accordance with CAN/CSA 080 series 97. Acceptable products: 'Solignum' by Sturgeons Ltd.; 'Rez Sanding Sealer' by Monsanto Co. Ltd.; 'Pentox' by Osmose Wood Preserving Co. of Canada Ltd., or approved equal.

2. PRODUCTS

2.1 Materials - Continued

.2 Panel Material

.1 **Plywood**: 3/4“ plywood, good one side.

.2 **Roof Sheathing**: Fir Plywood; 5/8" (16mm) thick or as noted on the Drawings and Schedules.

.4 Fastenings and Hardware

.1 Fastenings and hardware in accordance with the National Building Code and CSA B111-1974, Wire Nails, Spikes and Staples, Subsection 9.2.3.3.

.2 **Exterior Bolt, nut, washer, screw and pin type fasteners**: Hot-dip galvanized finish.

.3 **Joist Hangers**: minimum 0.039” (1mm) thick sheet steel, galvanized, 6672-N bearing strength.

3. EXECUTION

3.1 Installation

.1 General:

.1 Install structural framing and components according to CSA CAN3-O86 or CAN3-O86.1.

.2 Do not regard blocking, strapping and other rough carpentry indicated as complete or exact. Provide rough carpentry items required for the installation of the Work of other Sections.

.3 Provide temporary bracing and anchorage required to hold members in place until permanently secured. Ensure member ends have sufficient bearing area.

.4 Install permanent bracing and bridging prior to application of any loads.

.5 Cutting and altering of prefabricated wood joists and composite structural lumber is not permitted without written permission of the Consultant.

.6 Timber to timber connections in the same plane shall be made with joist hangers or framing anchors.

.7 All details not otherwise indicated on the Drawings or specified shall conform to the OBC.

3. EXECUTION

3.1 Installation - Continued

.2 Panel Boards:

.1 Fabricate back boards for electrical panels and other equipment from Douglas Fir plywood, G1S.

.2 Mount boards on 2" x 2" (50mm x 50mm) or 2" x 4" (50mm x 100mm) bearers bolted to walls in accordance with requirements of Division 16 - Electrical.

.3 Sheathing:

.1 Securely fasten sheathing to steel furring channels using self-tapping steel screws which have been countersunk to face of sheathing.

.2 Apply sheets horizontally with end joints occurring at studs and a 1/8" (3mm) gap at all edges.

.3 H-Clips: install at all unsupported joints of roof sheathing, installing clips at midpoints of the spans.

.4 Moisture Barrier: Install horizontally over wall sheathing, lapping edges 4" (100mm) minimum. Seal all joints with tape.

.4 Provide all other rough carpentry required including, but not limited to blocking for all millwork, curtain tracks at all windows, provision for grab bars and accessories in all washrooms and for all equipment and fitments to be provided by the Owner.

Refer to the Drawings and all other Sections of the Specifications for location and requirements for blocking.

END OF SECTION

1. GENERAL

1.1 Description

.1 The Work of this Section **as indicated in the Drawings or Specifications** includes fabrication and erection of Prefabricated Wood Trusses.

.2 Related Work Specified Elsewhere:

.1 Structural Drawings and Specifications

.2 Section 01630 - Substitutions

.3 Section 06100 - Rough Carpentry

.4 All other Sections and Drawings to be reviewed

.3 Where provisions of this Section are at variance with Structural Drawings or Schedules, the latter shall prevail.

1.2 References

.1 Fabrication of wood trusses shall be in accordance with CAN/CSA-086-94, except where specified otherwise.

.2 Load test procedure of fabricated of wood trusses shall be in accordance with CSA S307-M1980.

2. PRODUCTS

2.1 Design Requirements

.1 Design wood trusses, bracing, bridging and connectors in accordance with CAN/CSA-086.1-94 'Engineering Design in Wood (Limit States Design)', to safely carry live loads as indicated, equipment loads, snow and drift loads for building locality as ascertained by NBC Supplement No. 1, 'Climatic Information for Building Design in Canada'.

.2 Where plaster or gypsum board ceilings are hung directly from trusses, limit live load deflection to 1/360th of the span.

.4 Limit live load deflections to 1/240th of span elsewhere.

2.2 Shop Drawings

.1 Submit shop drawings in accordance with Section 01340 - Shop Drawings And Product Data.

.2 Each Shop Drawing submitted shall bear the stamp of a qualified Engineer registered in Canada.

.3 Indicate species, sizes and stress grades of lumber used as truss members, pitch, span, camber configuration and spacing of trusses, connector types, thicknesses, sizes and locations, design value and bearing details.

2. PRODUCTS

2.2 Shop Drawings - Continued

.4 Submit stress diagram indicating design load on each truss member, special loads, allowable stress increase and deflection limits.

.5 Indicate arrangement of webs or other members to accommodate ducts and other specialties.

2.3 Quality Assurance

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

2.4 Delivery, Storage & Handling

.1 Store trusses on job site in accordance with the manufacturer's written instructions. Provide bearing supports and bracings to prevent bending or overturning of trusses during transit and storage.

2.1 Materials

.1 **Lumber**: SPF No. 2 minimum with maximum moisture content of 19% at time of fabrication and in accordance with the following standards:

.1 CSA 0141-91 Softwood Lumber.

.2 NLGA 'Standard Grading Rules for Canadian Lumber', 1996.

.3 Fastening: CAN/CSA-086.1-94 standards.

.4 Truss Plates: Conform to Truss Plate Institute standards.

3. EXECUTION

3.1 Fabrication

.1 Fabricate wood trusses in accordance with reviewed Shop Drawings.

.2 Cut truss members to accurate length, angle and size to assure tight joints for finished trusses.

.3 Assemble truss members in design configuration by securing tightly in jigs or with clamps.

.4 Provide for design camber when positioning truss members.

.5 Connect members using nuts, bolts and metal connector plates.

3.2 Erection

.1 Lifting points, as indicated, shall be used to hoist trusses into position.

.2 Exercise care to prevent out of plane bending of trusses.

.3 Install temporary horizontal and cross bracing to hold trusses plumb and in safe condition until permanent bracing is installed.

.4 Install permanent bracing and related components prior to application of loads to trusses.

.5 Trusses with loose connector plates are not acceptable.

.6 Restrict construction loads to prevent overstressing of truss members.

.7 Do not cut or remove any truss material.

.8 Use a 'strongback' or equivalent system to assure integrity and plumbness of long span trusses.

END OF SECTION

1. GENERAL

1.1 Description

.1 The Work of this Section **as indicated in the Drawings or Specifications** includes, provision of materials and application of Insulation, Vapour Retarder and Exterior Insulation Finish System and related Work.

.2 Related Work Specified Elsewhere:

- **.1** Section 01630 - Substitutions
- **.2** Section 04220 - Unit Masonry
- **.3** Section 06100 - Rough Carpentry
- **.4** Section 07620 - Flashing And Sheet Metal
- **.5** Section 07900 - Sealants, Gaskets And Barrier Membrane
- **.6** All other Sections and Drawings to be reviewed

1.2 Delivery, Storage & Handling

.1 Store packaged materials in original undamaged containers with manufacturer's labels and seals intact.

.2 Prevent damage to materials during handling, storing and erection. Damaged materials will be rejected.

1.2 Submittals

.1 Submit Sample and product literature for each insulation product to be used.

2. PRODUCTS

2.1 Material

.1 **Rigid & Sub-grade Insulation**: Extruded polystyrene conforming to CAN/ULC-S701-97 Type 4, Thermal Insulation, Polystyrene Boards and Pipe Coverings. Acceptable product: Styrofoam 'Cavitymate' or approved equal.

3. EXECUTION

3.1 Installation of Batt Insulation

.1 Install insulation to maintain minimum continuity of the thermal protection to the building elements and spaces.

.2 Fit insulation tight to mechanical and electrical services, and around doors, windows and protrusions.

.3 Cut and trim insulation neatly to fit spaces, insulation to be free of ripped edges. **Fill all voids**.

.4 Sound attenuation batts: install in interior partitions only.

.5 Attic Installation:

.1 Install preformed vent channels at all truss spaces above the exterior wall.

.2 Insulate and weatherstrip around the attic hatches.

3.2 Installation of Foam Insulation

.1 Install polyurethane foam insulation at the perimeter of all windows, doors and other exterior wall penetrations, in strict accordance with the manufacturers instructions.

.2 Ensure the continuity of the installation against air leakage.

.3 Ensure that frames or other items are not damaged or distorted by foam.

.4 Trim neatly flush with frame and other elements as required.

3.3 Installation of Vapour Retarder

.1 Unless otherwise indicated, apply polyethylene to the warm side of the exterior walls and ceilings wherever indicate on the Drawings or Notes.

.2 Make joints over solid bearing and lap 2" (50mm). **Do not seal**. Staple in position at not more than 8" (200mm) o.c. on all edges.

.3 Repair damaged or torn membrane with pressure sensitive tape recommended for the purpose by the polyethylene manufacturer.

3. EXECUTION

3.3 Installation of Vapour Retarder - Continued

.4 Cut polyethylene neatly around all openings in the exterior wall, fasten against the frame.

.5 Pipe Duct Shafts: install continuous polyethylene and gypsum board at exterior wall prior to enclosing the shaft.

.6 Ceilings:

.1 All joints in polyethylene to occur at framing members.

.2 All joints to be lapped 4" (100mm) minimum.

.3 Polyethylene to be continuous over the top plate of all interior partitions.

3.4 Installation of Sub-Grade Insulation

.1 Install insulation as shown on the Drawings, with boards tightly butted together.

.2 Ensure insulation is not displaced during construction.

END OF SECTION

1. GENERAL

1.1 Description

.1 The Work of this Section **as indicated in the Drawings or Specifications** includes provision of materials and application of Pre-Formed Metal Roofing, Continuous Ridge Vent, Ice Guards, Exterior and Interior Metal Siding Panels and related Work.

.2 Related Documents: Provisions established within General and Supplementary Conditions of the Contract, Division 1 - General Requirements, and the Drawings are collectively applicable to this Section.

1.2 Related Work

.1 Related Work Specified Elsewhere:

.1 Section 01630 - Substitutions

.2 Section 05100 - Structural Steel

.3 Section 07220 - Air Barrier/Insulation System

.4 Section 07620 - Flashing And Sheet Metal

.5 Section 07920 - Sealants And Caulking

.6 All other Sections and Drawings to be reviewed.

1.3 References

.1 ASTM A 792/A 792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.

1.4 Submittals

.1 Submit under provisions of Section 01300 - Submittals.

.2 Product Data: Submit manufacturer's product specifications, standard details, installation instructions and general recommendations, as applicable to materials and finishes for each component and for complete roofing and siding installation, under provisions of Section 01340 - Shop Drawings And Product Data.

.3 Shop Drawings: Submit complete Shop Drawings and erection details showing methods of erection, elevations and plans of roof and siding panels, sections and details, anticipated loads, flashings and all other accessories, interfaces with all related Work of other trades, and proposed identification of component parts and their finishes, under provisions of Section 01340 - Shop Drawings And Product Data.

.4 Selection Samples: Submit color chips for selection of finishes, under provisions of Section 01345 - Samples.

1. GENERAL

1.4 Submittals - Continued

.5 Verification Samples: Submit one sample of roof and siding panels, including clips and battens. Submit two color chip samples in color selected by Architect, under provisions of Section 01345 - Samples.

.6 Certifications: Submit certification by certified engineer, that roofing assembly meets specified loading requirements and has been pretested to provide specified resistance to wind uplift and air and water infiltration.

1.5 Quality Assurance

.1 Manufacturer: Minimum ten (10) years documented experience in manufacturing roof and siding panels similar to those required for this project.

.2 Installer: Minimum ten (10) years documented experience in installing roof and siding panels similar to those required for this project.

.3 Field Measurements: Where possible, take field measurements of structural framing and substrate to receive the roofing and siding, prior to fabrication of roof panels.

1.5 Delivery, Storage & Handling

.1 Delivery: Deliver roof and siding panels and all accessories to project site packaged to provide protection against transportation damage and adverse weather. Inspect roof panels upon arrival at site. Notify manufacturer of any damaged or stained material.

.2 Storage: Store all material and accessories above ground on well skidded platforms. Elevate one end of each skid to allow for moisture run-off. Store under waterproof covering. Provide proper ventilation to prevent condensation build-up between each roof and siding panel.

.3 Handling: Exercise extreme care in unloading, storing and erecting roof and siding panels to prevent bending, warping, twisting, and surface damage.

1. GENERAL - Continued

1.7 Warranty

.1 Material Warranty: Provide warranty issued by manufacturer to cover roof panel base metal against rupture, structural failure, or perforation due to exposure to normal atmospheric corrosion for a period of twenty (20) years.

.2 Weathertightness Warranty: Provide warranty issued by installer to cover roofing and siding against leaks arising out of or caused by ordinary wear and tear under normal weather and atmospheric conditions for a period of twenty (20) years.

.3 Paint Finish Warranty: Provide manufacturer's warranty to cover roof panel paint finish against cracking, checking, blistering, peeling, flaking, chipping, chalking, and fading under normal atmospheric conditions for a period of ten (10) years.

2. PRODUCTS

2.1 Roof Panels & Accessories

.1 Roof Panels, Ridge Vent, Flashings, and Accessories: Made of Galvalume sheet; aluminum-zinc alloy-coated steel sheet complying with ASTM A 792 by Agway Metal or approved alternate. Colour QC 28315 Tan.

.1 Coating weight, grade and thickness to suit panel manufacturer's standards.

.2 Profile: AR-38 - 1 1/2" standing seam, .762 thickness, 18"+/- panel width with stiffening flutes.

.3 Ridge Vent: #1200.

.4 Eave Flashing: G25 slope as indicated on the Drawings.

.5 Hip Cover: G37A.

.6 Soffit Panels: Prepainted 26 gauge steel, vented double row of round holes set 5" from fascia edge, 2" o.c.

2.2 Underlayment

.1 'Titanium' PSU30 modified rubberized asphalt membrane by Agway Metal or approved alternate.

2.3 Ice Guards

.1 Ice Guards shall be 2" Sno Gem clamp to seam snow retention system by Sno Gem or approved alternate.

2. PRODUCTS - Continued

2.4 Ceiling Panels

.1 **Type 1**: 22 gauge, 7/8“ corrugated panels 34 1/2” by longest available length.

.2 **Corner Trims, End Trims and Closer Trims**: Standard and custom profiles as shown in the Drawings by Vicwest in the same gauge and finish as ceiling material.

2.5 Fabrication

.1 Roll form continuous roof and siding panels, as detailed on approved Shop Drawings, in lengths up to manufacturer's maximum standard lengths.

.2 Fabricate trim, flashing and accessories, as detailed on approved Shop Drawings from same material as roof and siding panels.

3. EXECUTION

3.1 Examination

.1 Verify that substrates and adjacent Work are ready to receive the Work of this section. Do not proceed until unsatisfactory conditions have been corrected.

3.2 Installation

.1 Install roofing and siding panels so they are weathertight, allowing for expansion and contraction.

.2 Install roofing and siding panels in accordance with manufacturer's instructions and approved Shop Drawings.

.3 Install roofing and siding panels plumb, level, and straight, with seams and ribs/battens parallel, conforming to the design as indicated.

.4 At corners, mitre cut soffits and trim out neatly.

3. EXECUTION - Continued

3.3 Adjusting & Cleaning

.1 Dispose of excess materials and remove debris from site.

.2 Clean the Work in accordance with recommendations of roofing and siding panel manufacturer.

.3 Touch up minor scratches and abrasions with paint provided or approved by panel manufacturer.

.4 Protect the Work against damage. Replace any Work that becomes damaged prior to final acceptance.

END OF SECTION

1. GENERAL

1.1 Description

.1 The Work of this Section **as indicated in the Drawings or Specifications** includes provision of materials and application of Column Covers and related Work:

.1 Fiber cement lap siding, panels, shingle, trim, fascia, moulding and accessories, James Hardie HZ5 engineered for Climate Siding.

.2 Factory finished fiber cement lap siding, panels, single, trim, fascia, moulding and accessories, James Hardie HZ5 engineered for Climate Siding.

1.2 Related Work

.1 Related Work Specified Elsewhere:

.1 Section 01630 - Substitutions

.2 Section 03450 - Precast Concrete Units

.3 Section 06100 - Rough Carpentry

.4 Section 07210 - Insulation

.5 All other Sections and Drawings to be reviewed.

1.3 References

.1 ASTM C1186 - Standard Specification for Flat Fiber Cement Sheets.

.2 ASTM D3359 - Standard Test Method for Measuring Adhesion by Tape Test, Tool and Tape.

.3 ASTM E136 - Standard Test Method for Behaviour of Materials in a Vertical Tube Furnace at 750 degrees C.

1.4 Submittals

.1 Submit under provisions of 01340 - Shop Drawings & Submittals.

.2 Product Data: Manufacturer's data sheets on each product to be used, including:

.1 Preparation instructions and recommendations.

.2 Storage and handling requirements and recommendations.

.3 Installation methods.

1. GENERAL

1.4 Submittals - Continued

.3 Shop Drawings: Provide detailed Drawings of installation.

.4 Selection Samples: For each, two (2) complete sets of colour chips representing manufacturer's full range of available.

.5 Verification Samples: For each finish product specified, two (2) samples, minimum size 4" x 6" (100mm x 150mm), representing actual product, colour and patterns.

1.5 Quality Assurance

.1 Installer Qualifications: Minimum of two (2) years experience with installation of similar products.

.2 Mock Up: Provide a mock up for evaluation of surface preparation techniques and application workmanship.

- **.1** Finish areas designated by the Architect.
- **.2** Do not proceed with the remaining Work until the quality of Work, colour and sheen are approved by the Architect.
- **.3** Refinish mock up area as required to produce acceptable Work.

1.6 Delivery, Storage & Handling

.1 Store products in manufacturer's unopened packaging until ready for installation.

.2 Store siding on edge or lay flat on a smooth level surface. Protect edges and corners from chipping. Store sheets under cover and keep dry prior to installing.

.3 Store and dispose of solvent based materials, and materials used with solvent based materials, in accordance with requirements of local authorities having jurisdiction.

1.7 Project Conditions

.1 Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1. GENERAL - Continued

1.8 Warranty

.1 Product Warranty: Limited, product warranty:

.1 HardieTrim HZ and HZ5 boards for fifteen (15) years.

.2 Finish Warranty: Limited product warranty against manufacturing finish defects:

.1 When used for its intended purpose, properly installed and maintained according to James Hardie's published installation instructions, James Hardie's ColourPlus finish with ColourPlus Technology, for a period of fifteen (15) years from the date of purchase; will not peel; will not crack and will not chip. Finish warranty includes the coverage for labour and material.

.3 Workmanship Warranty: Application limited warranty for two (2) years.

2. PRODUCTS

2.1 Manufacturer

.1 Acceptable Manufacturer: James Hardie Building Products. Hardie Trim Boards 5/4 NT3 Smooth 1” thick, variable length and width as per the Drawing. Colour selection from full colour range.

.2 Requests for approval of equal substitutions will be considered.

2.2 Fasteners

.1 Wood Framing Fasteners:

.1 Wood Framing: 0.089" (2.2mm) shank by 0.221" (5.6mm) head by 2" (50mm) corrosion resistant siding nails, or as recommended by the manufacturer for this situation.

2.3 Finishes

.1 Factory Primer: Provide factory applied universal primer:

.1 Primer: Factory primed by James Hardie.

.2 Factory Finish: Refer to Exterior Finish Schedule:

.1 Product: ColourPlus Technology by James Hardie.

.2 Definition: Factory applied finish, defined as a finish applied in the same facility and company that manufactures the siding substrate.

2. PRODUCTS

2.3 Finishes - Continued

.3 Process:

.1 Factory applied finish by fiber cement manufacturer in a controlled environment within the fiber cement manufacturer's own facility utilizing a multi coat, heat cured finish within one manufacturing process.

.2 Each finish colour must have documented color match to delta E of 0.5 or better between product lines, manufacturing lots or production runs as measured by photospectrometer and verified by third party.

.4 Protection: Factory applied finish protection such as plastic laminate that is removed once siding is installed.

.5 Accessories: Complete finishing system includes pre-packaged touch up kit provided by fiber cement manufacturer. Provide quantities as recommended by manufacturer.

.3 Factory Finish Color for Trim, Soffit and Siding Colors:

.1 Siding: TBD.

.2 Trim: To Match.

3. EXECUTION

3.1 Examination

.1 Do not begin installation until substrates have been properly prepared.

.2 If framing preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

.3 Nominal 2" x 4" (50mm x 100mm) wood framing selected for minimal shrinkage and complying with local building codes, including the use of water resistive barriers or vapour barriers where required. Minimum 1 1/2" (38mm) face and straight, true, of uniform dimensions and properly aligned.

.1 Install water resistive barriers and claddings to dry surfaces.

.2 Repair any punctures or tears in the water resistive barrier prior to the installation of the Work.

.3 Protect the Work from other trades.

3. EXECUTION - Continued

3.2 Preparation

.1 Clean surfaces thoroughly prior to installation.

.2 Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

.3 Install over a water resistive self adhesive sheet barrier.

.4 The water resistive barrier must be appropriately installed with penetration and junction flashing in accordance with local building code requirements.

3.3 Installation

.1 Install materials in strict accordance with manufacturer's installation instructions.

.2 Fasten through trim into structural framing and blocking. Fasteners must penetrate minimum 3/4" (19mm) or full thickness of sheathing. Additional fasteners may be required to ensure adequate security.

.3 Place fasteners no closer than 3/4" (19mm) and no further than 2" (50mm) from side edge of trim board and no closer than 1" (25mm) from end. Fasten maximum 16" (400mm) on centre.

.4 Maintain clearance between trim and adjacent finished grade.

.5 Outside Corner Board Attach Trim on both sides of corner with 16 gauge corrosion resistant finish nail 1/2" (13mm) from edge spaced 16" (400mm) apart, weather cut each end spaced minimum 12" (300mm) apart.

3.4 Protection

.1 Protect installed products until completion of project.

.2 Touch up, repair or replace damaged products before Substantial Completion.

END OF SECTION

1. GENERAL

1.1 Description

.1 The Work of this Section includes the provision of all Metal Eavestroughs and Downspouts **as indicated in the Drawings or Specifications**.

.2 Related Work Specified Elsewhere:

.1 Section 01630 - Substitutions

.2 Section 07620 - Flashing And Sheet Metal

.3 All other Sections and Drawings to be reviewed

1.2 Applicable Standards

.1 CSA B111-1974 - Wire Nails, Spikes and Staples.

1.2 Submittals

.1 Comply with requirements of Division 1.

.2 Provide product data including dimensions, profiles, attachment methods, trim and related Work.

.3 Provide duplicate samples representative of materials, finishes, colours and profiles as specified for every item listed in 2. Products.

2. PRODUCTS

2.1 Eavestroughs & Downspouts

.1 **Eavestroughs**: Shall be .032 gauge aluminum, 6" (150mm) wide Alumipro by Royal Building Products or approved equal. **Colour to the Architect's Later Selection**.

.2 **Downspouts**: Shall be .032 gauge aluminum, 3" x 4" (75mm x 100mm) wide Alumipro by Royal Building Products or approved equal. **Colour to the Architect's Later Selection**.

2. PRODUCTS

2.1 Eavestroughs & Downspouts - Continued

.3 **Rainwater Leader**: Shall be 5" (125mm) diameter, PVC grey piping 2'-0" (600mm)+/- up the wall with angled joint and 4'-0" (1200mm) minimum horizontal pipe with level cut at end; all exposed edges to be ground down to leave no sharp edges, burrs, etc.

.4 Form eavestroughs and downspouts from pre-finished aluminum sheet metal.

.5 Form aluminum eavestroughs using continuous forming method. Pieced Work is not acceptable.

.6 Install to slope to downspouts.

.7 Sizes and profiles as indicated in the Drawings.

.8 Provide goosenecks, outlets and necessary fastenings.

.9 Apply sealant to all connections to prevent water leakage.

3. EXECUTION

3.1 Verification of Conditions

.1 Verify acceptability of substrates for soundness, dimensions and flatness.

.2 Verify flashings specified in Related Sections are installed.

.3 Verify all vapour barrier is completely and correctly installed.

3.2 Installation

.1 Eavestroughing shall be installed entire length of building eaves with downspouts at locations shown on the Drawings or at every change in elevation of finished floor.

.2 Where downspouts occur at any point along the face of the buildings, they will be situated at the separating privacy fence between units or, if at the front face of the building, at the location of demising wall between units.

3. EXECUTION

3.2 Installation - Continued

.3 Downspouts shall be located at the exterior corners of buildings and/or at any location along the length of the façade as shown on the Drawings and shall have 5” (125mm) diameter high impact PVC drainage pipe with a bevel cut and an upturn of at least 2’-0” (600mm) firmly attached to exterior wall; extensions of 4’-0” (1200mm) minimum to ensure water drains away from buildings to site drainage.

.4 Install eavestroughs and downspouts as indicated on the Drawings and as specified in complete accordance with manufacturer's written instructions.

END OF SECTION

1. GENERAL

1.1 Description

.1 The Work of this Section **as indicated in the Drawings or Specifications** includes supply and installation of flashings, accessories and materials for installation.

.2 Related Work Specified Elsewhere:

- **.1** Section 01630 - Substitutions
- **.2** Section 04220 - Unit Masonry
- **.3** Section 06100 - Rough Carpentry
- **.4** Section 07200 - Insulation
- **.5** Section 07900 - Sealants, Gaskets And Barrier Membrane
- **.6** All other Sections and Drawings to be reviewed

1.2 Quality Assurance

.1 Installer shall have at least five (5) years experience in the Work of this Section.

1.3 Extended Warranty

.1 Submit warranty in accordance with Section 01740 - Warranties covering materials and labour for a period of one (1) year from end of standard one (1) year warranty. Total warranty period: two (2) years.

1.4 Shop Drawings

.1 Submit Shop Drawings, in accordance with Section 01340 - Shop Drawings And Product Data, showing complete layout of flashing and copper Work; thicknesses, dimensions, spacing, fastenings and anchoring methods, and allowances for expansion and contraction.

1.5 Samples

.1 Submit samples of typical flashings, accessories and materials, in accordance with Section 01345 - Samples.

2. PRODUCTS

2.1 Materials

.1 Sheet steel: 28 gauge minimum thickness, commercial quality to ASTM A526-71(1975) with AZ150 designation zinc coating.

2.2 Fabrication

.1 Fabricate flashings and other sheet metal Work as indicated in the Drawing and details, and in accordance with OBC Part 9.

.2 Form pieces in 8'-0" (2400mm) maximum lengths. Make allowance for expansion joints.

.3 Hem exposed edges on underside 1/2" (12mm). Mitre and seal corners with sealant.

.4 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.

.5 Apply isolation coating material to metal surfaces to be embedded in concrete or mortar.

3. EXECUTION

3.1 Examination

.1 Examine the Work on which this Section is supported or comes into contact and do not proceed unless surfaces and conditions are acceptable.

.2 Commencement of the Work will denote acceptance of surfaces and conditions and any subsequent failure of installed Work of this Section will be rectified at no cost to the Owner.

3.2 Installation General

.1 Form sheet metals on a bending brake.

.2 Shaping, trimming and hand seaming shall be done on a bench where possible.

.3 Make angles of bends and folds, for interlocking metal, to allow for full expansion and contraction without buckling or fullness in metal.

.4 Partly formed metal to be fastened with cleats.

3. EXECUTION

3.2 Installation General - Continued

.5 Tightly close dry lock joints without solder to allow for adjustment of sheets but to remain weathertight .

.6 Watertight joints shall be cleaned, pre-tinned and soldered. Close clinch lock seams with block of wood and mallet, flux and fill with molten solder, using sufficient heat for solder to completely seal joint.

.7 Reinforce and solder lap joints with 1/8" (3mm) copper rivets at maximum 2" (50mm) spacing.

.8 Clean soldered joints by wiping and washing to remove all traces of acid flux immediately as joints are made.

.9 Caulk joints as required.

.10 Use concealed fastenings except where approved before installation.

.11 Provide underlay under sheet metal. Secure in place and lap joints 4" (100mm).

3.3 Installation Of Flashings

.1 Flashings shall be watertight under all service and weather conditions.

.2 Install underlay under sheet metal. Secure in place and lap joints 4" (100mm).

.3 Join 8'-0" (2400mm) long sheets by 3/4" (19mm) flat locked soldered seams.

.4 In exposed Work, provide expansion joints with 3" (75mm) loose locked seams filled with caulking compound.

.5 Do not form open joints or pockets that fail to drain water.

3. EXECUTION

3.3 Installation Of Flashings - Continued

.6 Through-wall flashings:

.1 Install where shown on the Drawings and/or the following locations:

- Around perimeter of windows.
- Around all exterior openings.
- At all openings in exterior walls.

.2 Form through-wall flashings with corrugations, ribs or crimps 3/16” (5mm) high and spaced 3” (75mm) apart, and formed to permit drainage and prevent lateral movement in both directions.

.3 Use one piece flashings at corners.

.4 Interlock end joints by overlapping corrugations or ribs 1 1/2” (38mm). Bed lap in sealant.

.5 Co-ordinate with Section 04220 - Unit Masonry for setting of through-wall flashings, and ensure that flashings are set in mortar bed, extend completely through wall to within 1/2” (12mm) of exterior face, bent up 1/4” (6mm) to roof side of wall and with 1/2” (12mm) drip. Turn cap flashings at least 4” (100mm) down face of wall and overlap base flashings at least 3” (75mm).

3.4 Cleaning

.1 Clean surfaces to remove protective oil film, finger prints and all marks, dirt and other deposits.

END OF SECTION

1. GENERAL

1.1 Description

.1 The Work of this Section **as indicated in the Drawings or Specifications** includes the supply and installation of sealants, gaskets and barrier membranes at all the following locations:

.1 Coverage of entire exterior walls with moisture barrier.

.2 Control joints in masonry.

.3 Perimeter of hollow metal frames on both interior and exterior sides of frames.

.4 Perimeter of insulated hollow metal door frames and screens in masonry only.

.5 Sealing of perimeter of all window and door openings at exterior with self-adhesive asphalt membrane to spunbond olefin moisture barrier.

.6 Junction between pipes, ducts and other items passing through floors, walls, ceilings and partitions.

.7 Perimeter of louvres, panels and similar items in exterior walls.

.8 Caulking under thresholds.

.9 Perimeter of washroom fixtures and adjacent surfaces.

.10 Where typically shown on Drawings or required to achieve weathertight joints or where not specified in other Sections.

.2 Related Work Specified Elsewhere:

.1 Section 01630 - Substitutions

.2 Section 04200 - Concrete Masonry Units

.3 Section 06100 - Rough Carpentry

.4 Section 07200 - Insulation

.5 Section 07620 - (Caulking of) Sheet Metal Flashing

.6 Section 09250 - (Acoustic Caulking in) Gypsum Board

.7 All other Sections and Drawings to be reviewed

1. GENERAL - Continued

1.2 Quality Assurance

.1 The Work to be performed by a recognized established caulking and sealing contractor having at least five (5) years experience and skilled mechanics thoroughly trained and competent in the use of caulking and sealing equipment and the specified materials.

.2 Arrange with the caulking and sealant manufacturers for visit at the job site by one of their technical representatives before beginning the caulking and sealing installation to discuss with the Contractor and the Consultant the procedures to be adopted, to analyze site conditions and inspect the surfaces and joints to be sealed, in order that recommendations may be made.

.3 Discuss the following:

.1 Weather conditions under which work will be done

.2 Anticipated frequency and extent of joint movement

.3 Joint design

.4 Suitability of durometer hardness and other properties of material to be used

.4 Application of sealants shall be done in strict accordance with manufacturer's printed directions, using pressure gun and equipment approved by the sealant manufacturer.

.5 In rated walls, sealant for fire rated penetrations to be installed by company specializing in this type of application.

.6 Submit Samples and product literature for each product listed/used.

1.3 Job Conditions

.1 Do not apply materials when ambient air temperature and surface temperature are below 5 degrees C.

.2 Where necessary to prevent contamination of adjacent surfaces, mask areas adjacent to joints with masking tape. Remove tape immediately when joint has been completed.

1. GENERAL - Continued

1.4 Extended Warranty

.1 Provide a three year extended warranty per Section 01740 - Warranties, definition to read:

.1 The caulking Work of Section 07900 Sealants, Gaskets And Air Barrier Membrane is guaranteed against leaking, cracking, crumbling, melting, shrinkage, running, loss of adhesion, staining adjacent surfaces or other failure, for a period of three (3) years from the date of Substantial Performance.

.2 Submit affidavit stating that all fire separations are integral complete with list of material used and ULC designation.

2. PRODUCTS

2.1 Materials

.1 **Sealants**:

.1 **Type 1 - Vertical Joint Sealant**: Epoxidized, polyurethane, terpolymer type conforming to CAN/CSGB 19.24-M80. Acceptable Product: Tremco “Dymeric” or approved equivalent.

.2 **Type 2 - Horizontal Joint Sealant**: Modified self-leveling urethane conforming to CAN/CGSB 19.24-M80 (example concrete floor joints) Acceptable Product: Tremco 'THC 900' or approved equal.

.3 **Type 3 - Painted Joint Sealant**: One part silicone rubber conforming to CAN/CGSB 19.18-M87. Acceptable Product: Dow Corning 8644 Paintable Silicone Rubber Sealant or approved equal.

.4 **Type 4 - Washroom and Shower Areas**: One part silicone conforming to CAN/CGSB 19.18-M87. Acceptable Product: Dow Corning 786 Mildew Resistant Silicone Sealant or approved equal.

.5 **Type 5 - For use with fire resistant joint filler**: One part intumescent elastomer, ULC listed. Acceptable Product: 3M CP-25 caulk.

.6 **Cladding Joint Sealant**: One component acrylic base, solvent curing compound that conforms to the standards set out in CAN/CGSB 19GP-5M.

2. PRODUCTS

2.1 Materials

.1 **Sealants**: - Continued

.7 **Cladding Movement Joint Sealant**: One-component elastomeric (urethane) chemical curing compound that conforms to the standards set out in CAN/CGSB 19.13-M87.

.8 **Interior Air-barrier Element Sealant**: One component elastomeric (urethane) chemical curing compound that conforms to the standards set out in CAN/CGSB 19.13-M87 (not for use on polyethylene).

.9 **Glazing Tape**: 100 per cent solid, cross-linked butyl performed sealant (non-shimmed).

2.2 Accessories

.1 **Primer**: Type and locations shall be as recommended by the sealant manufacturer.

.2 **Back-Up Material**: polyethylene, urethane, neoprene or vinyl foam:

.1 Extruded closed cell foam backer rod, oversized 30 to 50 per cent wider than joint with Shore A hardness and tensile strength of 138 kPa to 207 kPa. Acceptable Manufacturer: Dow Chemical Company of Canada Limited or approved equal.

.2 **Bond Breakers**: polyethylene tape which will not bond to sealant.

.3 **Cleaning Solvent**: coal tar naphtha, as recommended by the sealant manufacturer.

2.3 Gaskets

.1 **Sill Gasket**: Closed-cell polyethylene strip gasket sized to suit plate.

.2 **Air Barrier Component Gasket**: Closed cell polyvinylchloride (PVC) self-adhesive tape 1/2" x 1/4" (13mm x 6mm) thick or as shown (can only be used in clean, dry conditions).

.3 **Air Barrier Component Gasket**: Closed cell Ethylene Propylene Diene Monomer (EPDM) 5/16" (8mm) diameter hollow tubular gasket with stapling flange (For use when lumber is wet or in freezing weather or with the EASE system).

2. PRODUCTS - Continued

2.4 Membranes

.1 **Self-Adhesive Rubberized Asphalt Membranes**: Composite sheet of rubberized asphalt integrally bonded to a film of cross-laminated polyethylene that is a minimum of 1/32" (1mm) thick, for peel and stick application. Acceptable Manufacturer: Grace, IKO, Soprema or approved equivalent.

.2 **Primer and Mastic**: Type and location shall be as recommended by membrane manufacturer.

3. EXECUTION

3.1 Preparation

.1 Ensure that joint surfaces are structurally sound, free from contaminants which may adversely affect the adhesion of the sealing materials.

.2 Clean surfaces with a solvent or cleaner recommended by the manufacturer of the sealing materials.

.3 Before commencing with sealing, test materials for indication of staining or poor adhesion.

.4 Apply a primer to joint surfaces as recommended by sealant manufacturer.

3.2 Application

.1 Commence sealing only after adjacent surfaces scheduled to receive an applied finish have been completed.

.2 Install joint backing materials at locations as detailed or where required by sealant manufacturer's directions. Compress material not less than 30%.

.3 Ensure that the correct sealant depth is maintained.

.4 Tool all sealant surfaces to produce a smooth surface.

.5 Remove excess sealant or droppings which would set up or become difficult to remove from finished surfaces. Do not use chemicals, scrapers or other tools which affect the finished surface. Replace finished surfaces damaged due to this work to the Consultant's approval at no additional cost to the Owner.

3. EXECUTION

3.2 Application - Continued

.6 Use sealing materials of gun grade or tool grade consistency to suit joint condition. Use gun with proper size nozzle.

.7 Apply sealant to exterior joints from exterior of building.

.8 Gasket and Glazing Tape:

.1 Install gaskets and tape in accordance with the manufacturers written instructions.

.2 Staple the gasket or tape at 1'-0" (300mm) o.c. to maintain it in place while abutting materials are installed.

.3 Ensure that gasket or tape is compressed by the installation of abutting materials.

.9 Membrane:

.1 Install membranes where shown and in accordance with the manufacturer's written instructions.

3.3 Sealant Locations

.1 Use Type 1 sealant and polyethylene joint filler and bond breaker for all joints as follows:

.1 To exterior joints between window and door frames and adjacent building components around perimeter of every window or door opening.

.2 Between dissimilar materials or elsewhere as required to make building weathertight, except where specified otherwise.

.3 To masonry control joints at locations indicated, as detailed. (Joint filler not required.)

.4 To control joints and expansion joints between top of masonry walls and underside of concrete slabs and beams, both sides of wall. (Joint filler not required.)

.5 To all thresholds on two continuous beads of sealant.

3. EXECUTION

3.3 Sealant Locations - Continued

.2 Use Type 2 sealant to pour breaks in exposed interior concrete slabs on grade and control joints in interior quarry tile floors, full depth of joint.

.3 Use Type 3 sealant to interior joints between window and door frames and adjacent building components around perimeter of every window or door opening.

.4 Use Type 4 sealant to caulk ceramic tile edges and perimeter of washroom fixtures where indicated.

.5 Use Type 5 sealant to joints in fire rated walls, with fire resistive joint filler and bond breaker tape installed to one side of wall in strict accordance with manufacturer's directions.

.6 Use Type 5 sealant to all openings in fire rated walls and slabs around piping or conduit penetrating walls and slabs, with fire resistive joint filler installed in accordance with manufacturer's directions.

3.4 Adjust & Clean

.1 Do not use chemicals, scrapers or other tools which would damage surfaces of caulked materials when excess compounds or droppings are removed.

.2 Use materials recommended by sealant manufacturer.

END OF SECTION

1. GENERAL

1.1 Description

.1 The Work of this Section **as indicated in the Drawings or Specifications** includes provision of all Steel Doors, Security Doors, Frames and Screens and associated Hardware.

.2 Related Work Specified Elsewhere:

- **.1** Section 01630 - Substitutions
- **.2** Section 07920 - Sealants And Caulking
- **.3** Section 08700 - Finish Hardware
- **.4** Section 09900 - Painting
- **.5** All other Sections and Drawings to be reviewed

1.2 References

.1 ANSI Z97.1-1984 (R-1994) - Safety Performance Specifications and Methods of Testing for Safety Glazing used in buildings.

.2 ASTM A167-96 - Standard Specifications and Methods of Test for Safety Glazing used in buildings.

.3 ASTM A366M-96 - Specification for Steel Sheet, Carbon, Cold Rolled, Commercial Quality.

.4 ASTM A370-96 - Test Methods and Definition for Mechanical Testing of Steel Products.

.5 ASTM A653M-96 - Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc Iron Alloy Coated (Galvanized) by the Hot Dip Process (Metric).

.6 ASTM A569-96 - Specification for Steel, Carbon (0.15 maximum percent), Hot Rolled Sheet and Strip, Commercial Quality.

.7 ASTM A627-88 - Specification for Homogeneous Tool Resisting Steel Bars for Security Applications.

.8 ASTM A629-88 - Specification for Tool Resisting Steel Flat Bars and Shapes for Security Applications.

.9 ASTM A635-96 - Specifications for Steel Sheet, Zinc Coated (Galvanized) by the Hot Dipped Process, Commercial Quality.

.10 ASTM B117-95 - Method of Salt Spray (Fog) Testing.

1. GENERAL

1.2 References - Continued

.11 ASTM D256-93a - Standard Test methods for Impact Resistance of Plastics and Electrical Insulating Materials.

.12 ASTM D638-96 - Standard Test Methods for Tensile Properties of Plastics.

.13 ASTM D790-96 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

.14 ASTM D792-91 - Standard Test Methods for Specific Gravity (Relative Density) and Density of Plastics by Displacement.

.15 ASTM D1735-92 - Practice of testing Water Resistance of Coating Using Water Fog Application.

.16 ASTM D1929-96 - Standard Test Method for Ignition.

.17 ASTM E152-81a - Method of Fire Tests of Door Assemblies.

.18 ASTM F1233-95 - Standard Test Method for Security Glazing Materials and Systems.

.19 ASTM F-1450-92 - Standard Test Methods for Hollow Metal Swing Door Assemblies for Detention Centre.

.20 ASTM F-1577-95 - Standard Test Methods for Detention Locks for Swing Doors.

.21 CAN/CGSB-1.40-M89 - Primer, Structural Steel, Oil Alkyd Type.

.22 CAN/CGSB-12.1-M90 - Tempered or Laminated Safety Glass.

.23 CGSB 31-GP-105Ma - Zinc Phosphate Conversion Coatings for Paint Base.

.24 CSA A101-M83 - Thermal Insulation, Mineral Fibre for buildings.

.25 CAN/CGSB-G40.20-M92 - General Requirements for Rolled or Welded Structural Quality Steel.

.26 CAN/CGSB-G40.21-M92 - Structural Quality Steels.

.27 CSA W59-M89 / CAN4-S104-M80 (R1985) - Welded Steel Construction (Metal Arc Welding).

1. GENERAL

1.2 References - Continued

.28 NFPA 80 - Fire Doors and Windows.

.29 NFPA 252-95 - Standard Methods of Fire Tests of Door Assemblies.

1.3 Shop Drawings & Product Data

.1 In accordance with Section 01340 - Shop Drawings And Product Data:

.1 Submit manufacturer's product, fabrication and installation instructions to suit project requirements including Site conditions.

.2 Submit manufacturer's printed product information that includes physical properties and recommended installation and glazing procedures including edge engagement guidelines.

.3 Submit Shop Drawings showing actual plans, elevations and sections of each type of unit, complete with materials, core thickness, finishes, connection and joints, methods of anchorage, number of anchors, supports, reinforcement and accessories.

1.4 Operation & Maintenance Data

.1 Submit operating and maintenance data for all equipment supplied in accordance with Section 01730 - Operations And Maintenance Data.

1.5 Qualifications

.1 **Hollow Metal Doors**: Shall be WS Series by All Steel Doors or other alternate approved at Tender.

.2 **Hollow Metal Frames**: Shall be by qualified supplier with a minimum of 10 years experience in manufacture and supply of frames.

1. GENERAL - Continued

1.6 Quality Control

.1 Check and verify frame opening for tolerances. At masonry wall, check initial setting, masonry support and anchorage system and masonry grout including masonry placing around frame. Report any deficiencies to the General Contractor for correction prior to hanging doors or installing hardware. Failure to report deficiencies will result in the detention security Contractor being responsible to correct the frame installation.

1.7 Regulatory Requirements

.1 Fire rated door assemblies, including frame and hardware, shall comply with NFPA 80 and shall be tested, listed and labelled in accordance with CAN4-S104-M and shall carry label for fire rating indicated on Door Schedule. Marking shall be ULC Master label on each door, ULC Component label on each frame.

1.8 Warranty

.1 Warrant **all** doors and frames for a period of five (5) years covering labour and material for manufacturing and five (5) years for installation.

.2 Commence the warranty date as of Substantial Performance of the Work.

2. PRODUCTS

2.1 Materials

.1 **Steel**: CAN/CSA-G40.20M and CAN/CSA-G40.21-M, Grade 300W.

.2 **Hollow Structural Sections**: CAN/CSA-G40.20-M and CAN/CSA-G40.21-M, Grade 350W.

.3 **Sheet Steel**: Cold or hot rolled, commercial quality stretcher levelled carbon steel sheet galvanized ASTM B, A 40 (2F120) .4 oz/ft^2 coating:

2. PRODUCTS

2.1 Materials - Continued

Standard Steel Doors & Frames

	Gauge	*Coated (gsg)*	*Uncoated (msg)*
Door Frames:	(14)	2.84 (0.1084)	2.8 (0.1046)
Door Faces:	(16)	2.04 (0.0785)	2.8 (0.0747)
Top Bottom & Side Channels:	(6)	2.84 (0.1084)	2.8 (0.1046)
Horizontal Stiffeners:	(12)	2.84 (0.1084)	2.8 (0.1046)
Vertical Core Reinforcement:	(18)	0.49 (0.0217)	0.45 (0.0179)
Reinforcements for Hardware:	(18)	Manufacturer's standard to suit design requirements	
Glazing Stops:	Permanent or removable to suit design and as indicated on the Drawings		

.4 **Welding Materials**: CSA W59-M.

.5 **Door Fill**: Mineral wool, CSA A101-M or rigid fibreglass, minimum density 96kg/m^3 (6lb/cu ft).

.6 **Phosphatizing**: CGSB 31-GP-105Ma.

.7 **Prime Paint**: Epoxy based primer.

.8 **Metal Filler**: Polymer based filler.

.9 **Fastening Devices**:

.1 Exposed screws, bolts and nuts shall be security type. Fasteners in areas where not required to be removed and those on patient side of any construction shall be either flat or round head, having extra head which will twist off when fully secured, leaving main head flush or projected without slots.

.2 In areas where it is necessary to remove items, screws shall have holes with centre pins that require special security Torx tool for their removal and shall be such that standard tolls will not fit. Security Hex and security Phillips screws are not acceptable.

.3 Expansion shields for setting in concrete shall be by a recognized manufacturer. Each type of fastener shall be clearly indicated on the Shop Drawings.

2. PRODUCTS

2.1 Materials - Continued

.10 Reinforcements & Anchor Systems:

.1 Minimum thicknesses of hardware reinforcing plates shall be as follows:

Hinge & Pivot Reinforcements:	5mm x 38mm x 250mm (3/16" x 1 1/2" x 10") long
Strike Reinforcements:	5mm (3/16")
Closer Reinforcements:	5mm (3/16")
Flushbolt Reinforcements:	5mm (3/16")

.2 For electrically operated hardware, provide hardware enclosure and junction box interconnected using ULC approved conduits and connectors. Provide access plates of the same gauge as the frame and fastened with tamper resistant machine screws to facilitate installation of electrical wiring.

.3 Provide Floor Anchors of the same gauge as the frame with minimum 2 holes for fastening to floors and spot welded to the inside jamb. Provide adjustable floor anchors where requried to suit the design requirements.

.4 Provide strap and stirrup type adjustable jamb anchors from the same gauge as the frames. Stirrups shall be no less than 50mm x 250mm (2" x 10"). Number of anchors to suit design, spaced 450mm (1'-6") maximum between anchors. Provide additional anchors for fire rated doors in accordance with ULC requirements.

.5 Provide removable faces at jamb and 3/16" x 2" x 2" angle anchors 4" long, spaced as specified above. Provide embedded wall anchors 3/16" c 4" x 6" plate with 3/16" x 2" x 2" angle anchors 4" long welded in place at locations to match angle anchors in frames. Provide embedded plate with 2 #4 reinforcement bars wall anchors 10" long minimum with 2" x 90° turn down on ends continuously welded in place and spaced as described herein above. Secure angle anchors to jamb and to embedded plate with arc welding at each end of anchor. Complete anchorage system shall be such that jamb faces can be removed from frames on Site and frames be slid into opening until frames anchors contact and match embedded anchors. Field weld anchors and install jamb faces in place.

2. PRODUCTS

2.1 Materials

.10 **Reinforcements & Anchor Systems**: - Continued

.6 Prepare frames with countersunk hole for a 1/2" diameter bolt with welded spacer on unexposed surface of frame to wall. Counter sunk holes and welded spaces shall be spaced as specified herein above. After tightening of bolt sufficiently, weld bolt head to provide non-removable condition, grind dress and finish smooth welded head bolt.

2.2 Fabrication

.1 **General**:

.1 Metal shall be formed true to the Shop Drawings, free from defects impairing strength, durability and appearance.

.2 Components shall be fabricated with requried structural properties to safely withstand strain and stresses to which they will be subjected.

.3 Steel plates shall be free from buckles and waves.

.4 Fit and assemble the Work in the shop where possible. Where shop fabrication is not possible, make a trial assembly in the shop.

.5 Supply anchoring devices required for fabrication and erection of this Section.

.6 After fabrication, remove mill scale, scrape and clean all ferrous metals and apply one (1) coat of primer. Brush on and work well into crevices and interstices.

.2 **Welding**: CSA W59-M

.1 Grind exposed weld smooth and flush. Fill open joints, seams and depressions with filler or by continuous brazing or welding. Grind smooth to true sharp arrises and profiles and sand down to smooth, true, uniform finish.

.3 **Hardware Requirements**: Blank, mortise, reinforce, drill and tap doors and frames to receive templated hinges and other hardware as required. Check hardware lists for requirements.

2. PRODUCTS

2.2 Fabrication - Continued

.4 Frames for Doors & Screens:

.1 Fabricate frame to profiles indicated.

.2 Mitre corners of frame.

.3 Where site welding or splicing is required due to size of unit, location of field joints shall be indicated on the Shop Drawings and strictly adhered to.

.4 Fabricate frames with plates for anchorage to slabs.

.5 Provide tubular or solid stops for glazing and panels as indicated on the Drawings.

.6 Fabricate speaking port and special deal tray as integral part of partition as indicated on the Drawings. Provide safety lock for sliding top of deal tray, locking it at both open and closed positions.

.5 Door Fabrication:

.1 Fabricate door with face sheets both sides to overall thickness as indicated in the Schedules. Each face sheet shall be one (1) piece construction formed to corner and meet at middle of door thickness with continuous weld on edges.

.2 Fabricate doors using the same methods and materials as those tested and approved by the same manufacturer, to the standards referenced herein.

.3 Completely fill voids of core with specified filler.

.4 Close edges of door with steel channels welded to both faces of the door. Bevel the lock side of the stile 3mm (1/8").

.5 Weld continuous steel channels around observation port openings and around lock mounting boxes.

.6 Provide glazing stops; weld inner stop in position and affix outer stop with twist off security screws.

.7 Provide reinforcements to the inside of the door to receive security hinges.

2. PRODUCTS

2.2 Fabrication - Continued

.6 Prime Painting:

.1 Steel surfaces shall be shop painted as follows:

- Wipe coat galvanized and prime painted **or**
- Mill phosphatized and prime painted **or**
- Shop degreased, phosphatized and prime painted

3. EXECUTION

3.1 Inspection

.1 Inspect surface and conditions to which the Work is to be attached and report any deficiencies.

.2 Inspect frames prior to installation for size, swing, squareness, alignment, twist and plumbness. Tolerances shall not exceed the following:

1. Squareness ∀ 1.6mm (1/16") measured on a line 90° from one jamb, at upper corner of frame at other jamb.

2. Alignment ∀ 1.6mm (1/16") measured on a horizontal line parallel to plane of wall.

3. Twist ∀ 1.6mm (1/16") measured at face corners of jamb on parallel lines perpendicular to plane of wall.

4. Plumbness ∀ 1.6mm (1/16") measured on jamb at floor.

.3 Prior to installation, check and correct frames to permissible installation tolerances.

3.2 Preparation

.1 Take accurate field measurements of opening to receive the Work and make any required adjustments.

3.3 Installation

.1 Erect the Work square, plumb, straight and true, accurately fitted, with tight joints and intersections.

3. EXECUTION

3.3 Installation - Continued

.2 Secure door frames to existing structure with dowels, anchor clips, bolts, bar anchors, toggles and related fasteners as required.

.3 Install doors in frames, adjust to close without binding. Joint width between door shall be 3mm (1/8") maximum on each edge or as per hardware requirement.

.4 Touch up rivets, field welds, bolts and burnt or scratched surfaces with primer after completion of erection.

.5 Install glazing in the Work of this Section as scheduled. Conform to recommendation of Glazing Manual of GANA (formerly Flat Glass Marketing Association [FGMA]), for security glazing Work.

.6 Finished installation shall be rigidly sitting in place and free of movement upon impact. Surfaces shall be smooth and free from abrasive or sharp corners.

.7 Set, fit and adjust hardware according to manufacturer's directions as per the Shop Drawings. Hardware shall operate freely. Wherever practicable, obtain and mount security hardware on the Work furnished by this Section prior to delivery to the Site.

END OF SECTION

1. GENERAL

1.1 Description

.1 The Work of this Section **as indicated in the Drawings or Specifications** includes:

.1 Provision of Finish Hardware for interior and exterior doors.

.2 Provision of templates, information and all other requirements necessary for installation of hardware.

.2 Related Work Specified Elsewhere:

.1 Section 01630 - Substitutions

.2 Section 08315 - Steel Doors And Frames

.3 Division 16 - Electrical

.4 All other Sections and Drawings to be reviewed

1.2 Submittals

.1 Provide product data indicating dimensions, profiles, attachment methods, trim, and related work.

.2 Provide duplicate samples representative of materials, finishes, colours and profiles as specified for every item listed in 2. Products.

1.3 Hardware List

.1 Upon award of the Contract, check the Drawings, Specifications, Schedules and Addenda and submit a list of items to be supplied. Include the following information in that list:

.1 Degrees of opening of doors.

.2 Hands of doors are to be shown for all doors. In case of pairs of doors or banks of doors, active leaf or leaves must be noted.

.3 Any deviation from the Hardware Schedule included with the Specification.

.4 Complete legend of all abbreviations and catalogue numbered systems. Clearly identify hardware listed by manufacturers name, product catalogue number and finish.

1. GENERAL

1.3 Hardware List - Continued

.2 Submit Finishing Hardware schedule complete with catalogue cuts for approval by the Consultant prior to the ordering of any materials.

.3 Upon receipt of approved schedule reviewed by the Consultant, supply copies of the final schedule within two (2) weeks of approval date.

1.6 Samples

.1 When requested, submit samples of each type of hardware specified, showing type, function, colour and finish.

.2 Approved samples shall form minimum standards for the finished Work.

.3 Identify each sample by tag label indicating applicable schedule item number for sample, brand name, number, finish and building location.

.4 Substitute new samples for samples rejected by the Consultant.

.5 The Consultant will retain samples until completion of project, at which time samples shall be returned to the Supplier at their expense.

.6 Do not supply hardware to the Site until samples are approved.

1.7 Co-Ordination

.1 When preparing the Finishing Hardware schedule to submit for approval, it is the Hardware Supplier’s responsibility to review the Specifications and Drawings, confirming quantities and detailing, reporting any errors and/or omissions to the Consultant. 'Extras' will not be considered nor accepted for necessary changes as a result of the Hardware Supplier’s neglect.

.2 'Extras' will be invoiced at no more than 30% off Manufacturer’s current list price. 'Credits' will be issued at no less than 50% off Manufacturer’s current list price.

1.8 Delivery & Storage

.1 All Finishing Hardware shall be delivered to the Site in manufacturer’s original individual containers, with necessary screws, keys, instructions, installation templates and wiring diagrams. Each container to be clearly marked with the item definition and location shown on the list.

1. GENERAL

1.8 Delivery & Storage - Continued

.2 The Hardware Supplier shall be responsible for arranging time and date to the Site, or door manufacturer, of hardware so that Work may progress without delay or interruptions.

.3 The Hardware Supplier and the Installer together shall check, in detail, hardware delivered to the Site to prevent discrepancies. shortages or omissions. Receiving and laying out all hardware on shelving in a locked, clean and dry room provided by the Contractor.

.4 Be responsible for storage and protection of hardware.

.5 Maintain an inventory list with the Hardware Schedule.

.6 Any loss or damage shall be the Contractor's sole responsibility. Exercise close control over handling of hardware particularly the distribution of keys.

1.9 Maintenance Data

.1 Provide maintenance data, parts list and manufacturer's instructions for each type of hinge, locksets, door closers and door holders for incorporation into maintenance manual specified in Section 01730 - Operations and Maintenance Data.

.2 Supply two (2) sets of wrenches for locksets and door closers.

.3 Brief the Owner's maintenance staff regarding proper care of hardware such as lubrication of locksets and adjustments of door closers, cleaning and general maintenance.

1.10 Inspection & Certification

.1 Final inspection of hardware installation to be carried out by the Hardware Supplier and Product Representative. The representative shall provide written certification that hardware has been installed and adjusted as intended.

.2 After rectification of deficiencies, submit to the Consultant written certification that materials are accounted for, correctly installed and functioning normally.

1.11 Warranty

.1 Submit a written warranty in accordance with Section 01740 - Warranties. All hardware supplied under the approved hardware schedule will be guaranteed by the Manufacturer for a period of one (1) year after final acceptance of the project. Door closers will be guaranteed for ten (10) years.

1. GENERAL - Continued

1.12 Fastenings

.1 All hardware is to be installed using Manufacturers' supplied fasteners. Failure to comply may void warranties and applicable licensed labels. Self tapping/tek screws will not be acceptable on this project.

.2 Supply all screws, bolts, expansion shields and other fastening devices required for proper installation and operation of hardware.

.3 Exposed fastening devices to match the finish of the hardware.

.4 Kick plates shall be supplied with self adhesive tape, except where noted, then supply countersunk, oval head, flush mounting socket screws to suit door material.

2. PRODUCTS

2.1 Hinges

.1 Supply 1 1/2 pair per door leaf for doors up to 7'-4" (2200mm) in height. Supply one additional hinge for each additional 2'-6" (750mm) of height or fraction thereof. Doors, 1 3/4" (44mm) thickness, up to 3'-0" (900mm) in width, supply 4 1/2" (113mm) high hinges; over 3'-0" (900mm) to 4'-0" (1200mm), supply 5" (125mm) high hinges.

NRP - non-removable pin.
Hinges listed are by Hager. (Stanley equivalents are acceptable.)

Hager	**Stanley**
BB1168	FBB168
BB1191	FBB191
BB1199	FBB199
BB1279	FBB179

2.2 Continuous Hinges

.1 Continuous hinge shall be gear type full mortise, concealed edge mounted, but not extending fully across both the frame rebate and the edge of door thus reducing transfer of cold, heavy duty, no inset, minimum thirty-two thrust bearings, staggered screw holes. For exterior door application the length should be reduced to allow installation of the door sweep across full width of the exterior door face without interfering with the hinge knuckle.

Hager Roton continuous hinges 780-112HD series.

2. PRODUCTS - Continued

2.3 Locks & Latchsets

.1 Standard duty commercial cylindrical Schlage 'AL' series with Saturn (SAT) lever/rose design.

.2 Heavy duty mortise Schlage 'L' series with 06B lever/rose design.

2.4 Deadlatches

.1 Stanley-Best - Interchangeable core; Owner shall provide cores.

2.5 Kick Plates

.1 0.050" (1.27mm) stainless steel. Type 304. Bevelled edges. Height as noted **x** length to suit. Exact sizing to be confirmed before ordering. Self adhesive tape mounting, except where noted. Screws to suit door material and plates to be drilled and countersunk.

C.B.H.	Standard Metal	Gallery
903	K10A	80A

2.6 O/H Stops & Holders

.1 All listed degrees of hold open should be reviewed and confirmed before preparation and/or installation.

Glynn Johnson surface 90 series - no alternates.

2.7 Floor/Wall Stops

.1 Zinc die cast construction.

Wall stops to be secured with two (2) screws thru mounting back plate. Allen screw on side of rosette shall be inconspicuous. No screw hole shall be visible on face of bumper.

C.B.H.	Standard Metal
100	S100
110	S102
120	S120
130	S122

2. PRODUCTS - Continued

2.8 Abbreviations

LH	left hand
LHR	left hand reverse
RH	right hand
RHR	right hand reverse
INS. HMD	insulated hollow metal door
PSF	pressed steel frame
T.B. PSF	thermally broken pressed steel frame
WF	wood frame
SCWD	solid core wood door
HR/FR	hour/fire rated
MS	machine screw

2.9 Finishes

.1 Type and finish of hardware shall be equal in all respects to the samples of hardware and finishes approved by the Consultant.

.2 Metal finishes shall be free from defects, clean and unstained, and of a uniform colour.

Hinges	630	stainless steel, satin
Push & Kick Plates	630	stainless steel, satin
O/H Stops & Holders	630	stainless steel, satin

2.10 Keying

.1 The Hardware Supplier shall prepare a detailed keying schedule in co- operation with and to approval of the Owner and the Consultant.

.2 All locks shall be keyed into a new factory Schlage keying system as follows:
- construction keyed
- master keyed
- keyed alike or different as required

.3 Supply six (6) Construction Master Keys
Supply two (2) Extractor Keys
Supply three (3) Master Keys per group
Supply two (2) change keys per cylinder except where noted otherwise

.4 With the exception of the construction keys, which are to be given to the Contractor, all permanent keys are to be delivered directly to the Owner.

.5 The Hardware Supplier is to ensure all cylinders are supplied with cams/ tailpieces suitable for specified lock functions. Supply all compression rings, trim collars and blocking rings to suit.

.6 Supply one (1) lockable key cabinet complete with hooks, tags and index cards. Telkee RWC 25-S. Turnover to the Owner.

3. EXECUTION

3.1 Installation

.1 When requested, furnish metal door and frame manufacturer with complete instructions and templates for preparation of their Work to receive hardware.

.2 Only workers competent in the installation of Finishing Hardware shall be used for this purpose. Qualification would require a minimum five (5) years experience in commercial application. The installer shall adjust, clean and make good all installation of Finishing Hardware to the satisfaction of the Consultant.

.3 Kick plates are to be installed 1/16” (1.6mm) maximum up from the bottom edge of door push side, with the exception of doors where a lip threshold is being used. Then install kick plates to clear threshold not greater than 1/16” (1.6mm). On single doors install in centre of the door equally spaced to clear between the frame jamb stops and/or weatherstripping.

.4 The Contractor to ensure walls are properly blocked to prevent future damage wherever wall stops are to be used.

.5 Thresholds are to be extended from masonry opening to masonry opening and are to be coped around the pressed steel frames. Installer to caulk threshold base to ensure proper seal.

.6 Weatherstripping is not to be installed until final coat of paint has been applied to the door and frame and is completely dry.

.7 Door and frame supplier, when templating, must consider the surface mounted w/stripping W-20N which is 5/16” (7.8mm) thick. Parallel arm door closer brackets and surface overhead stop arm jamb bracket will mount on top of the w/stripping thus ensuring a continuous weather seal.

3.2 Mounting Heights

.1 Locksets: 40 5/16”

.2 Backsets for locksets: 2 3/4”

.3 Door Pulls: 3'-6”

.4 All installation heights to meet ANSI standards and be approved by the Consultant.

3.3 Hardware Schedule

.1 Refer to the Drawings for the Hardware List.

END OF SECTION

1. GENERAL

1.1 Description

.1 The Work of this Section **as indicated in the Drawings or Specifications** includes supply and installation of:

.1 Glazing of steel doors and interior steel screens (hollow metal)

.2 Glazing of wood doors and interior wood screens

.3 Mirrors - Non-adjustable

.2 Related Work Specified Elsewhere:

.1 Section 01630 - Substitutions

.2 Section 08200 - Flush Wood Doors

.3 All other Sections and Drawings to be reviewed

1.2 Quality Assurance

.1 The Work of this Section shall be executed by fully equipped, expert workers, highly skilled in the installation of glass and glazing with minimum of five (5) years experience.

.2 References:

.1 ASTM D412-87 'Test Method for Rubber Properties in Tension'.

.2 ASTM D1149-86 'Test Method for Rubber Deterioration Surface Ozone Cracking in a Chamber (Flat Specimen)'.

.3 ASTM D2240-86 'Test Method for Rubber Property - Durometer Hardness'.

.4 CAN/CGSB-12-1-M79 'Glass, Safety Tempered or Laminated'.

.5 CAN/CGSB-12-2-M76 'Glass, Sheet, Flat, Clear'.

.6 CAN/CGSB-12-3-M76 'Glass, Polished Plate or Float, Flat, Clear'.

.7 CAN/CGSB-19-13-M87 'Sealing Compound, One Component Elastomeric, Chemical Curing'.

.8 CAN/CGSB-19-24-M80 'Sealing Compound, Multi-Component, Chemical Curing'.

1. GENERAL - Continued

1.3 Protection

.1 Mark glazed openings immediately after glazing.

.2 Replace scratched or broken glass damaged due to faulty setting, careless handling or storage at no cost to the Owner.

1.4 Samples

.1 Submit samples of mirror fastenings and moulding as specified in Section 01300 - Submittals.

1.5 Warranty

.1 Mirrors: Provide written five (5) year warranty in accordance with Section 01740 - Warranties.

2. PRODUCTS

2.1 Glass

.1 **Safety Glass**: 1/4" (6mm) tempered conforming to CAN/CGSB -12-1-M90.

.2 **Spacer Shims**: Neoprene rubber, 40-60 Shore A hardness.

.3 **Setting Blocks**: Neoprene rubber, 70-90 Shore A hardness.

.4 **Glazing Tape**: Tremco ‘440 Tape’ manufactured by Tremco Canada or approved equal. **Colour: To the Architect’s Later Selection**.

.5 **Glazing Sealant**: One (1) part acrylic terpolymer, Tremco ‘Mono’ or other approved product, conforming to CGSB 19-GP-17M.

.6 **Mirrors**: Provide mirrors in all washrooms as indicated on the Drawings.

.1 Silvered mirror glass, conforming to CAN/CGSB-12-5-M86.

.2 Backing: sprayed on silvering, followed by galvanic copper coating and baked on backing paint.

.3 Edges: arrised and polished.

.4 Fastenings: Concealed vandal proof type. Use continuous chromed 'J' mould on rectangular mirrors.

.5 Adhesive: Compatible with mirror backing and recommended by mirror manufacturer.

3. EXECUTION

3.1 General

.1 Carefully remove glazing beads and replace after glazing without damaging stops.

.2 Remove excess or foreign materials or droppings which would set up or become difficult to remove from surrounding surfaces. Do not use chemicals, tools or methods which would affect surrounding surfaces.

.3 Collect glass cutting in boxes and remove when cleaning up debris.

3.2 Measurements

.1 Accurately measure openings and calculate light size based on manufacturer's installation tables, allowing for proper minimum edge engagement, rabbet width and depth and expansion.

3.3 Glazing

.1 Interior:

.1 Apply glazing tape to stops both sides of glass. Use tape of thickness to suit installation.

.2 Centre glass in opening, place on setting blocks and apply stops.

.3 Finish to neat appearance by trimming tape above sight line 1/32" (.8mm).

.2 Exterior:

.1 Apply 440 tape to fixed leg of frame, accurately cutting and butting joints at corners.

.2 Run a heal bead of caulking compound up jambs and along frame at bottom of glass rebate, lapping tape and frame to ensure weathertight seal.

.3 Remove protective paper cover from tape and apply setting blocks at 1/4 points and not more than 6" (150mm) from ends. Set glass in rebate and press firmly in place. Apply spacer shims to edges of glass maximum 2'-0" (600mm) apart and not more than 6" (150mm) from corners and secure glazing beads in place.

.4 Gun in glazing sealant, to fill void between glass and beads, trim off excess compound to a neat, even sightline bevelled approximately 1/16" (1.6mm) onto glass.

3. EXECUTION - Continued

3.4 Mirrors

.1 Install mirrors using pads of adhesive at 1'-0" (300mm) o.c. both directions and with continuous 'J' mould top and bottom.

.2 Methods of fixing must be approved by the Consultant and be in accordance with manufacturer's instructions.

.3 When installed, mirrors shall be provide flat surface, not rattle or vibrate due to outside sources and where made up of several sections be in exact same plane.

.4 Provide one (1) 32” x 38” mirror in each bathroom and one (1) 24” x 36” mirror in each powder room.

3.5 Cleaning

.1 Remove deposits which affect appearance of units on completion of installation.

.2 Clean surfaces by washing with clear water rinse or with water and soap or detergent, followed by a clear water rinse.

.3 Clean and restore stained metal surfaces in accordance with manufacturer's recommendations. Replace if cleaning is impossible.

.4 Clean glazing material with methods and materials recommended by glazing material manufacturer.

END OF SECTION

1. GENERAL

1.1 Description

.1 The Work of this Section **as indicated in the Drawings or Specifications and Schedules** includes surface preparation and field application of Epoxy Flooring.

.2 Related Work Specified Elsewhere:

.1 Section 01630 - Substitutions

.2 All other Sections and Drawings to be reviewed

1.2 Definitions

.1 The Work in this Section shall be executed by fully equipped, expert labourers, highly skilled in application of the specified material.

.2 The Work in this Section shall conform to ASTM D16 for interpretation of terms used in this Section.

1.3 Submittals

.1 Submit in accordance with all provisions of Section 01320 - Submittals.

.2 Submit 2'-0" x 2'-0" sample of flooring.

.3 Product Data: Provide data on all finishing products and special coatings.

.4 Manufacturer's Instructions: Indicate special surface preparation procedures and substrate conditions requiring special attention.

1.4 Qualifications

.1 Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum 10 years experience.

.2 Applicator: Company and on Site Supervisor specializing in performing the Work of this section with minimum 2 years experience, or provide factory supervision. Applicator **must** submit proof of satisfactory experience with full broadcast applications.

1.5 Regulatory Requirements

.1 All Work shall conform to all pertinent laws, ordinances and regulations of all Authorities Having Jurisdiction. Comply with applicable codes, rules, regulations and building and safety laws relating to construction, public health and safety.

1. GENERAL

1.5 Regulatory Requirements - Continued

.2 Contract Documents take precedence when they are more stringent than codes, ordinances, standards and statutes. Codes, ordinances, standards and statutes take precedence when they are more stringent or conflict with Drawings and Specifications. The following industry standards, Specifications and codes are minimum requirements, (latest issue as adopted by local jurisdiction as of date of the Contract):

.1 Applicable Federal, Provincial and Municipal laws and ordinances.

.2 Underwriter's Laboratories, Inc. Standards.

.3 Canadian Standards Association.

.4 American Society for Testing Materials Standards.

.5 National Fire Protection Association Standards.

.6 Occupational Safety and Health Act - the Owner intends to strictly enforce all OSHA requirements pertaining to Working in confined area.

.7 All Federal, Provincial and Municipal Occupational Safety and Health Act(s), laws, or regulations.

.8 Owner Contractor Safety Guidelines - the Owner requires every member of the Work crew and all Sub-Contractors read this manual and sign a statement attesting to the fact they have read, understand and concur with the guidelines.

.9 Owner Safety Department Guidelines.

.10 BOCA Code.

.13 Canadian Gas Association.

1.6 Field Samples

.1 The Contractor will be permitted to use the flooring application in the Linen Closet - Room 2-2036 as the Site sample by which all other rooms will be gauged.

1. GENERAL - Continued

1.7 Delivery & Storage

.1 Deliver, store, protect and handle products to the Site in accordance with provisions of Section 01600 - Material And Equipment.

.2 Deliver products to Site in sealed and labeled containers; inspect to verify acceptability.

.3 Container label to include manufacturer's name, type of coating, brand name, lot number, and instructions for mixing and reducing.

.4 Store paint materials at minimum ambient temperature of 10 degrees C (50 degrees F) and a maximum of 32 degrees C (90 degrees F), in ventilated area, and as required by manufacturer's instructions.

1.8 Job Conditions

.1 Minimum temperature for painting 10 degrees C (50 degrees F).

.2 Surfaces must be dry, clean free from dust, grease, oil or other contaminants which will affect the Work of this Section.

.3 Examine surfaces and conditions upon which the Work of this Section depends and do not proceed unless such surfaces and conditions are acceptable.

.4 Commencement of the Work will denote acceptance of surfaces and conditions.

1.9 Protection

.1 Use sufficient drop cloths and protective coverings to protect floors, furnishings and the Work of others not being painted.

.2 Areas assigned for storage and preparation of materials shall be fully protected.

.3 Keep waste rags in metal drums containing water and remove from building at end of each working day.

1.10 Warranty

.1 Submit a two (2) year warranty against defects in labour and materials of this Section.

2. PRODUCTS

2.1 Products

.1 **Epoxy Floors**: As indicated in the Drawings and Schedules shall be by Armourultra 3 layer industrial coating system, non-slip epoxy floor. **Colour Khaki Tan**.

2.2 Finishes

.1 Non-slip in all wet areas.

3. EXECUTION

3.1 Examination

.1 Verify Site conditions are satisfactory for proper application of coating materials.

.2 Verify that substrate conditions are ready to receive Work as instructed by the product manufacturer.

.3 Examine surfaces scheduled to be finished prior to commencement of Work. Report any condition that may potentially affect proper application to Consultant and Material Supplier/System Consultant.

3.2 Preparation

.1 Report defects and unclean surfaces which affect Work of this section, to the Consultant.

.2 Steel and Iron Surfaces: Remove existing coating by sandblasting down to bare white metal.

.3 Concrete surfaces - Abrasive clean as required to insure proper bonding.

.4 Material must be inspected and approved by a representative of the manufacturer before application can proceed.

3.3 Application

.1 Apply products in accordance with manufacturer's instructions to minimum 20mils with top coat.

.2 Protect all surfaces that are not to be coated (pipe opening, drains etc.).

.3 Apply primer coat or first coat as soon after surface prep as physically possible. This first application must be done to steel surfaces before flash rusting can occur. If flash rusting occurs, do not continue with coating until all flash rust has been removed.

3. EXECUTION

3.3 Application - Continued

.4 Do not apply finishes to surfaces that are not dry.

.5 Apply each coat to uniform finish.

.6 Allow applied coat to dry before next coat is applied.

.7 Re-coat within 24 hours of the previous coating. If more than 24 hours passes between coats the Manufacturer and/or the Consultant may direct the Contractor to roughen the last coat to insure proper bonding. If this happens the cost of this roughening and the cost of additional coating, plus all labor associated with this Work will be considered to be the sole responsibility of the Contractor.

.8 Ensure all floor surfaces and cove bases are properly coated.

3.4 Finishing Mechanical & Electrical Equipment

.1 Not Applicable.

3.5 Field Quality Control

.1 A coatings manufacturer's representative shall test the coating thickness as Work progresses.

.2 Testing Shall include:

.1 Wet Film Thickness Testing: The coating contractor may perform this test themselves.

3.6 Cleaning

.1 Collect waste material which may constitute a fire hazard, place in closed metal containers with appropriate labeling. Place in area designated by Owner's Project Co-Ordinator for removal by Owner.

3.7 Safety Precautions

.1 Follow the requirements of the products Canadian Hazardous Products Act documents.

.2 Comply with all Federal, Provincial, Municipal and Owner safety regulations.

END OF SECTION

1. GENERAL

1.1 Description

.1 The Work of this Section includes supply and application of paint finishes to areas and surfaces. **Note that all surfaces shall be painted unless otherwise indicated in the Drawings or Specifications and Schedules**.

.2 Related Work Specified Elsewhere:

- **.1** Section 01630 - Substitutions
- **.2** Section 06200 - Finished Carpentry And Millwork
- **.3** Division 15 - Mechanical
- **.4** All other Sections and Drawings to be reviewed

1.2 Quality Assurance

.1 The Work in this Section shall be executed by fully equipped, expert labourers, highly skilled in painting application.

.2 Painting shall be in accordance with CAN2-85-100-M81 - Painting.

1.3 Samples

.1 Provide samples as follows in accordance with Section 01345 - Samples.

- **.1** On panels of same materials on which finishes appear on job site.
- **.2** Show all coats.
- **.3** Panels to be minimum 1'-0" x 1'-0" (300mm x 300mm) except for masonry materials which shall be one unit.

1.4 Delivery & Storage

.1 Deliver packaged materials in original, unopened, labelled and sealed containers.

.2 Keep stored materials covered at all times and take necessary precautions against fire.

.3 Provide fire extinguisher (carbon dioxide type), minimum 20lbs (9kg) capacity, in storage area.

1. GENERAL - Continued

1.5 Job Conditions

.1 Minimum temperature for painting 10 degrees C.

.2 Surfaces must be dry, clean free from dust, grease, oil or other contaminants which will affect the Work of this Section.

1.6 Protection

.1 Use sufficient drop cloths and protective coverings to protect floors, furnishings and the Work of others not being painted.

.2 Areas assigned for storage and preparation of materials shall be fully protected.

.3 Keep waste rags in metal drums containing water and remove from building at end of each working day.

1.7 Warranty

.1 Submit a two (2) year warranty against defects in labour and materials of this Section.

2. PRODUCTS

2.1 Materials

.1 **Paints, Enamels, Fillers, Primers and Stains**: Standard interior semi-gloss latex paint shall be ICI Dulux Lifemaster in all areas; Density 11.51lbs/gal, VOC 0.00lbs/gal. **Colours**: **To the Architect's Later Selection**.

.1 The same brand of paint and stain chosen shall be used throughout, except where specified otherwise.

.2 Paint colours may be selected from any manufacturer's standard colouring system (e.g., paint sample chips, baked enamel colours) and shall be matched by the Paint Supplier.

.2 **Thinners, Cleaners**: Type and brand recommended by the paint manufacturer.

.3 **Epoxy**: 'Trueglaze' 4418 waterborne acrylic epoxy coating, tinted, by ICI-Devoe Coatings, applied in accordance with manufacturer's instructions.

3. EXECUTION

3.1 Inspection

.1 Check surfaces with electric moisture meter and do not proceed with paint application if meter reading is higher than 12 to 15 without written permission from the Consultant.

3.2 Preparation

.1 Concrete Block, Brick and Concrete:

.1 Wire brush surfaces. Treat surfaces which are highly glazed or where traces of form oil or parting compound are present, with solution of 1 part concentrated muriatic acid to 4 parts water and 1 part acid detergent. Thoroughly wash with water and allow to dry.

.2 If effluorescence is evident on masonry, wash with solution of 2.2lbs (1kg) zinc sulphate to 1gal (4.5 litres) of water, rinsed with clear water and allowed to dry.

.2 Metal:

.1 Neutralize zinc coated surfaces before painting with Lithoform or Galvaprep. Apply in strict conformance with manufacturer's printed directions.

.2 Touch up shop primed metal after first removing loose primer, rust, oil, grease and other contaminants.

.3 Feather edges to make touch up inconspicuous when applying new primer.

.4 Prime with zinc rich primer.

.5 Prime structural steel surfaces to receive A/D Firefilm III with primers approved by A/D Coatings. Refer to Approved Primers List; strictly follow primer manufacturer's written directions.

3. EXECUTION

3.2 Preparation - Continued

.3 General:

.1 Mask specification plates occurring on equipment, switch boxes and similar items requiring painting.

.2 Protect, remove and replace hardware, accessories, lighting fixtures and similar items.

.3 Paint interior of pipe spaces, ducts and similar areas visible through grilles in matte black, or other colour selected by the Consultant, finish to end of sight line, but in any case not less than 1'-6" (450mm).

.4 Conform with the Consultant's colour schedules and exactly match approved samples.

3.3 Application

.1 Finish and number of coats specified are intended to cover surfaces completely. If they do not, apply further coats until coverage is achieved to the Consultant's approval.

.2 Any areas exhibiting incomplete or unsatisfactory coverage shall have the entire plane painted. Patching will not be acceptable.

.3 Spraying will not be allowed without written permission.

.4 Arrange to have traffic barred from completed areas wherever possible.

.5 Apply materials in strict accordance with manufacturer's directions and specifications and be familiar with those directions and specifications. Do not use adulterants.

.6 Apply primer sealer coats by brush or roller method. Permit paint to dry before applying succeeding coats, touch up suction spots and sand between coats with No. 00 sandpaper.

.7 Where more than one (1) coat of the same paint is to be applied, tint each coat to differentiate from subsequent coats.

.8 Each coat must be completely dry (minimum 24 hours) before application of subsequent coats, and each coat is to be inspected

.9 After second coat, provide a sample wall of final coat for the Consultant's review. The Consultant may adjust intensity of final coat.

.10 Exterior paints shall be factory tinted to required colours.

3. EXECUTION

3.3 Application - Continued

.11 Apply final coats on smooth surfaces by roller or brush. Hand brush wood surfaces.

.12 Paint shall be uniform in sheen, colour and texture, free from brush or roller marks, sags, runs or other defects.

.13 Remove grilles, covers, access panels for mechanical and electrical systems from installed locations and paint separately if these items are not factory finished.

.14 Remove doors, paint edges including top and bottom. Rehang doors.

3.4 Surfaces To Be Painted

.1 All exposed surfaces unless otherwise **indicated in the Drawings or Specifications and Schedules**.

.2 Mechanical and Electrical services exposed to view including ductwork, diffusers and the like, electrical conduits, sprinkler and other piping.

.3 Interior and exterior metals, exposed to view including louvres and railings.

.4 All steel doors, frames and screens.

3.5 Adjust & Clean

.1 Cracks occurring in walls or ceilings requiring patching during Warranty Period shall be repainted in such a way that the patch is not visible at a distance of 5'-0" (1500mm).

.2 If patch painting is not acceptable repaint entire wall area.

.3 At completion, clean entire area of surplus materials and equipment.

3. EXECUTION - Continued

3.6 Paint Schedule

.1 Gloss values determined in accordance with ASTM D2523 -62T as follows:

.1 5 to 20 for flat.

.2 20 to 40 for eggshell.

.3 40 to 60 for semi-gloss.

.4 60 to 80 for gloss.

.2 Painted Concrete - Latex:

1st Coat: Latex Primer.

2nd Coat: Latex Undercoat, tinted 50%.

3rd Coat: Latex Enamel, Semi-Gloss.

.3 Ferrous Metal, Shop Primed and Unpainted:

1st Coat: Alkyd Primer.

2nd Coat: Alkyd Enamel, Gloss.

3rd Coat: Alkyd Enamel, Gloss
or Alkyd Enamel, Semi-Gloss
or Alkyd Enamel, Eggshell.

.4 Ferrous Metal, Galvanized:

1st Coat: Zinc Chromate Primer.

2nd Coat: Alkyd Enamel, Gloss.
or Alkyd Enamel, Semi-Gloss
or Alkyd Enamel, Eggshell.

END OF SECTION

1. GENERAL

1.1 Description

.1 The Work of this Section includes provision of Wall Louvres complete with bird screens and blank off panels at locations indicated and provision of open grille panels at rooftop mechanical area **as indicated in the Drawings or Specifications**.

.2 Related Work Specified Elsewhere:

- **.1** Section 01630 - Substitutions
- **.2** Section 05500 - Metal Fabrications
- **.3** Section 07300 - Asphalt Shingles
- **.4** All other Sections and Drawings to be reviewed

1.2 Shop Drawings

.1 Submit the Shop Drawings in accordance with Section 01340 - Shop Drawings And Product Data.

.2 Show full details of construction including sill, jamb and head members, structural supports, type and thickness of materials, all dimensions and all other items and accessories for a complete installation.

1.3 Samples

.1 Submit the Samples in accordance with Section 01345 - Samples.

.2 Submit the Samples to show frame including corner assembly, blades and bird screen, complete with all fastenings and accessories.

1.4 Delivery & Storage

.1 In addition to requirements of Section 01600 - Material And Equipment, brace units to prevent distortion or damage during shipment and protect finished surfaces by heavy wrappings.

.2 Store in protective wrapping until required for installation.

2. PRODUCTS

2.1 Manufacturer & Type

.1 **Triangular Louvre**: Model R5-5300 by C/S Group, or approved alternate. C/S Group (888) 895-8955.

2.2 Materials

.1 **Aluminum Extrusions**: Aluminum alloy 6063-T5.

.2 **Aluminum Sheet**: 38414.

.3 **Steel**: CAN/CSA-G40.20-M87.

.4 **Fastenings**: 300 or 400 series stainless steel.

.5 **Aluminum Extrusions**: Two part polysulphide as specified in Section 07920 - Sealants And Caulking.

.6 **Aluminum Finish**: Pre-finished to match roof colour.

.7 **Bird Screen**: 1/16” (1.6mm) intercrimped 5056H-38 wire, 1/2" (13mm) mesh with 3/32” (2mm) extruded aluminum frame to all active louvres. Screening shall be replaceable within frames.

.8 **Insect Screen**: .312mm o.d. wire 5056. Dimensions: **as indicated in the Drawings or Specifications**.

2.3 Fabrication - Louvres

.1 Fit and assemble in the shop.

.2 Provide for anticipated expansion and contraction of frames.

.3 Accurately fit elements plumb and level at intersections and joints.

.4 Isolate dissimilar metals, metal and concrete and metal and masonry with a heavy coat of bituminous paint.

.5 Fabricate blades, frame and sill from minimum 3/32” (2mm) thick storm proof type aluminum extrusions with reinforcing bosses.

.6 Support line up blades with extruded aluminum blade braces interlocked to each blade and secured to structural angles.

.7 Provide for structural supports as required.

2. PRODUCTS

2.3 Fabrication
- Louvres - Continued

.8 Provide all accessories and other items for a complete installation.

.9 Louvre areas shall provide 50% free area minimum.

.10 All components shall be free of scratches and blemishes.

.11 No patching, plugging, skimming or other such means of overcoming defects, discrepancies or errors shall be resorted to without written permission of the Architect.

.12 Head, sill and jamb frames shall be one piece construction with formed caulking slots and retaining beads.

3. EXECUTION

3.1 Examination

.1 Examine surfaces to which louvres are to be attached and do not commence the installation unless such surfaces are satisfactory.

.2 Commencement of the installation will denote acceptance of surfaces and conditions.

3.2 Installation

.1 Install louvres and bird screens plumb, true and in line.

.2 The installed units shall be free of rattle, vibration and distortion.

.3 Seal joints with materials and methods as specified in Section 07920 - Sealants And Caulking.

END OF SECTION

1. GENERAL

1.1 Description

.1 The Work of this Section **as indicated in the Drawings or Specifications** includes supply and installation of accessories for public and staff washrooms.

.2 Related Work Specified Elsewhere:

- **.1** Section 01630 - Substitutions
- **.2** Section 06200 - Finish Carpentry And Millwork
- **.3** Section 08200 - Flush Wood Doors
- **.4** Section 08800 - Miscellaneous Glass, Glazing And Mirrors
- **.5** Section 09300 - Ceramic Tile
- **.6** Section 09900 - Painting
- **.7** All other Sections and Drawings to be reviewed

1.2 Quality Assurance

.1 Supply and installation by sub-trade with minimum five (5) years experience in the Work of this Section.

1.3 Shop Drawings & Samples

.1 Submit manufacturer's product literature to the Consultant for review including complete list of items and quantities.

.2 Clearly indicate site dimensions, anchorage requirements and all other pertinent information.

.3 Submit one (1) sample of each item specified for review.

.4 All items are subject to the Consultant's approval before ordering.

1.4 Delivery & Storage

.1 Deliver all items to job site in original undamaged packaging with manufacturer's seals and labels intact and in accordance with Section 01600 - Material And Equipment.

.2 Place in locked storage until ready for use.

1. GENERAL - Continued

1.5 Warranty

.1 Submit a two (2) year warranty against defects in labour and materials of the Work of this Section.

2. PRODUCTS

2.1 Materials

.1 **Grab Bars, Hooks, Toilet Paper Dispensers, etc.**: This specification refers to equipment as supplied by Watrous. Products of equivalent quality and description as manufactured by Bobrick or Twin-Cee are equally acceptable. The Consultant will reject products proposed by manufacturers other than Watrous that are not equivalent to the product specified.

.1 **Stainless Steel**: AISI Type 302/304 with #4 finish.

.2 **Sheet Steel**: Cold rolled, commercial quality, ASTM A366. Surface preparation and pretreatment as required for applied finish.

.3 **Steel Mounting Devices**: Hot dip galvanized after fabrication, ASTM A386.

3. EXECUTION

3.1 Fabrication & Anchorage

.1 **Hooks, Toilet Paper Dispensers, etc.**:

.1 Provide steel anchor plates and anchor components to job site for installation.

.2 Back paint components where contact is made with building finishes to prevent electrolysis.

.3 Hot dip galvanize ferrous metal anchor and fastening devices which are not finished to match component.

.4 Shop assemble components and package complete with anchors and fittings.

.5 Deliver inserts to job site at appropriate time for building in. Provide templates and/or rough in measurements as required.

3. EXECUTION - Continued

3.2 Installation

.1 Install and secure fixtures rigidly in place to locations noted on the Drawings and in accordance with the manufacturer's recommendations using tamperproof head screws/bolts for fastener.

4. ITEM LIST

4.1 Product Description

.1	**GB1**	Grab Bar - Frost 30” x 30” x 1 1/4" diameter, L shape brushed stainless steel #1001.30.
.2	**GB2**	Grab Bar - Bobrick 30” x 1 1/4" diameter, satin finish, peened grip #B5806X30.
.3	**GB3**	Grab Bar - Bobrick 36” x 1 1/4" diameter, satin finish, peened grip #B5806X36.
.4	**SD**	Soap Dispenser - By Owner.
.5	**TD/WD**	Towel Dispenser/Waste Disposal - Bobrick surface mount #B-3909, classic series, satin stainless steel.
.6	**SND**	Sanitary Napkin Disposal - Bobrick surface mount #B-254, satin stainless steel.
.7	**CH**	Coat Hook - Richelieu #51128, 170 finish.
.8	**TD**	Tissue Dispenser - Bobrick Contura surface mount #B-4288, satin stainless steel.
.9	**M1**	Mirror - Bobrick #B-290 to be installed centred, 5” above sink.
.10	**M2**	Mirror - Bobrick #B-290-2430 (Barrier Free Washroom).
.11	**BCS**	Baby Changing Station - KB200 by Koala Kare.
.12	**HD**	Automatic Hand Dryer - Shall be ___ sprayed nickel.

END OF SECTION

1. GENERAL

1.1 Requirements

.1 The Work of this Section shall conform to Division 1, General Requirements and all documents referred to therein.

.2 Related Work Specified Elsewhere:

.1 Section 01630 - Substitutions

.2 All other Sections and Drawings to be reviewed

.3 Products listed in this Section may or may not require installation by the manufacturer (supplier).

1.2 Work Included

.1 Provide manufactured specialties **as indicated in the Drawings or Specifications**.

1.3 Shop Drawings & Samples

.1 Submit the detailed the Shop Drawings and or manufacturer's brochures to the Consultant for approval. Where it is not usual to submit the Shop Drawings for a manufactured item, submit Installation Drawings for proper installation.

1.4 Delivery & Storage

.1 Deliver all items to job site in original undamaged packaging with manufacturer's seals and labels intact and in accordance with Section 01600 - Material And Equipment.

.2 Handle and store materials in accordance with manufacturer's printed instructions.

.3 Replace promptly, all items verified as received in damaged condition.

1.5 Quality Assurance

.1 Where a component, device, item or part of material is referred to in the singular number, such reference shall mean consistent quality for as many as are required to complete the Work of this Section.

1.6 Warranty

.1 Submit a two (2) year warranty against defects in labour and materials of the Work of this Section.

2. PRODUCTS

2.1 Materials

.1 Manufactured items shall be shop fabricated in accordance with the best shop practice and shall be finished according to manufacturer's literature unless stated otherwise herein.

.2 Fit and assemble the Work in the shop where possible. Execute the Work according to details and the approved Shop Drawings/Brochures. Where shop fabrication is not possible, make a trial assembly in the shop.

.3 Trademarks and/or labels will not be permitted on exposed finished surfaces.

3. EXECUTION

3.1 Installation

.1 Fabricate and erect the Work true to dimensions, square, plumb, level and free from distortion or defects detrimental to appearance and performance.

.2 Provide adequate reinforcing and anchorage to ensure a rigid installation to the approval of the Consultant.

.3 Where fastenings or anchors have to be built in by other trades, supply same with necessary templates, instructions and supervision to ensure satisfactory installation. Supply anchoring devices.

.4 Co-ordinate with all Sections of Division 9, Finishes where this Work is attached to or recessed in finished walls.

.5 Secure masonry walls by lead plugs and non-corrosive type screws or fastening to suit the load with a safety factor of three (3).

.6 Isolate all metal in contact with other metals, masonry, concrete or mortar to prevent corrosion. Method of isolation shall be approved by the Consultant.

.7 Surplus welding material shall be ground off and exposed internal and external corners shall have sharp lines. Remove grind marks on exposed surfaces to the approval of the Consultant.

.8 All components and items shall be fastened securely.

3. EXECUTION - Continued

3.2 Isolation

.1 Backpaint all aluminum surfaces in contact with cement, concrete, masonry or dissimilar metals with heavy coat of non-staining alkali resistant bituminous paint of type(s) approved by the Consultant.

3.3 Clean-Up

.1 Promptly as the Work proceeds and on completion, remove all rubbish and debris from the building and site resulting from the Work of this Section.

4. PRODUCT LIST

.1 **Wall Mount Bench**: Size as noted on the Drawings. Recycled plastic seat (Colour: Sand), painted steel supports (Colour: Black), stainless steel hardware and wall anchors; ten (10) year warranty; Nordesco 68.130X series or approved equivalent; specified model available through Sports System of Almonte, Ontario.

END OF SECTION

OAA/OGCA Take-Over Procedures

FOR USE ON PROJECTS UNDER THE CONSTRUCTION ACT, R.S.O. 1990, c C.30

Ontario Association of Architects

ONTARIO GENERAL CONTRACTORS ASSOCIATION

RECOMMENDED PROCEDURES

CONCERNING SUBSTANTIAL PERFORMANCE

OF CONSTRUCTION CONTRACTS AND COMPLETION TAKE-OVER OF PROJECTS

OAA/OGCA Document No. 100-2018

July 1, 2018

Reissued January 8, 2019

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A vertical bar in the right margin indicates a paragraph which have been changed for this issue.

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RECOMMENDED PROCEDURES CONCERNING SUBSTANTIAL PERFORMANCE OF CONSTRUCTION CONTRACTS AND COMPLETION TAKE-OVER OF PROJECTS

Short Title: This Document may be referred to as "OAA/OGCA TAKE-OVER PROCEDURES (CA)"

APPLICATION

This document covers procedures under the *Construction Act* for projects which *DO NOT* meet the following transition rules:

a) A contract was entered into before July 1, 2018, regardless of when any subcontract under the contract was entered into;

b) A procurement process, if any, was commenced before July 1, 2018 by the owner of the premises; or

c) In the case of a premises that is subject to a leasehold interest that was first entered into before July 1, 2018, a contract for the improvement was entered into or a procurement process for the improvement was commenced on or after July 1, 2018 and before the day subsection 19 (1) of Schedule 8 to the *Restoring Trust, Transparency and Accountability Act, 2018* came into force.

(2) For greater certainty, clauses (1)(a) and (c) apply regardless of when any subcontract under the contract was entered into.

Examples of the commencement of a procurement process includes the making of a request for qualifications, request for proposals, or a call for tenders.

INTRODUCTION

The purpose of this document is to recommend standard procedures to facilitate the closing stages of a construction *contract* and the take-over of the project by the Owner from the Contractor.

These procedures have been prepared jointly by the Ontario Association of Architects and the Ontario General Contractors Association (the "Associations") and have been approved by their governing bodies. This document is meant to be an educational treatise for all the stakeholders in the project (including the Owner, Consultants, Contractors and Subcontractors); however, the Associations recommend the use of these procedures by their respective members and Owners/clients.

The Associations also recommend that these procedures be coordinated with and form a part of the *contract* documents from the outset by reference to Document No. 100-2018.

Where a *contract* is in progress which does not provide such procedures, the Associations recommend that the *contract* be amended by agreement between the contracting parties to include these procedures to facilitate the orderly take-over of the project in the interests of all stakeholders.

GENERAL NOTES

The procedures outlined herein have been prepared in relation to the Construction Act, latest edition, hereinafter referred to as the C.A.[1], and apply to all construction *contracts*. These procedures are therefore primarily applicable to lienable projects but they may be readily adapted for use in relation to non-lienable projects.

[1] All references are to the Construction Act, R.S.O. 1990, c C.30 and the Regulations thereunder as amended by the Restoring Trust, Transparency and Accountability Act, 2018, S.O. 2018, c. 17.

DEFINITIONS

Except for Owner, Consultant, Contractor and Subcontractor which are defined in the *contract* as appropriate, all other terms and concepts used in this document that are defined in the C.A. are italicized for convenience.

Construction Trade Newspaper

The definition of the term "*construction trade newspaper*" appears in Section 1 of O. Reg. 304/18 to the C.A. latest edition, which reads as follows:

> ""construction trade newspaper" means a newspaper
>
> (a) that is published either in paper format with circulation generally throughout Ontario or in electronic format in Ontario,
>
> (b) that is published at least daily on all days other than Saturdays and holidays,
>
> (c) in which calls for tender on construction contracts are customarily published, and
>
> (d) that is primarily devoted to the publication of matters of concern to the construction industry."

Contract

The definition of the term "*contract*" appears in Section 1(1) of the C.A. latest edition, which reads as follows:

> ""contract" means the contract between the owner and the contractor, and includes any amendment to that contract; "

Contract Price

The definition of the term “price” appears in Section 1(1) of the C.A. latest edition, which reads as follows:

> ""price" means,
>
> (a) the contract or subcontract price,
>
> (i) agreed on between the parties, or
>
> (ii) if no specific price has been agreed on between them, the actual market value of the services or materials that have been supplied to the improvement under the contract or subcontract, and
>
> (b) any direct costs incurred as a result of an extension of the duration of the supply of services or materials to the improvement for which the contractor or subcontractor, as the case may be, is not responsible; "

Payment Certifier

The definition of the term "*payment certifier*" appears in Section 1(1) of the C.A. latest edition, which reads as follows:

> ""payment certifier" means an architect, engineer or any other person upon whose certificate payments are made under a contract or subcontract."

SIGNIFICANT STATUTORY REQUIREMENTS

a) The concept of "*basic holdback*" is set out in Section 22(1) of the C.A. latest edition which reads as follows:

> "22(1) Each payer upon a contract or subcontract under which a lien may arise shall retain a holdback equal to 10 per cent of the price of the services or materials as they are actually supplied under the

contract or subcontract until all liens that may be claimed against the holdback have expired or been satisfied, discharged or otherwise provided for under this Act."

b) The concept of "*substantial performance*" and "*substantially performed*" is set out in subsection (1) of Section 2 of the C.A. latest edition which reads as follows:

"(1) For the purposes of this Act, a contract is substantially performed,

(a) when the improvement to be made under that contract or a substantial part thereof is ready for use or is being used for the purposes intended; and

(b) when the improvement to be made under that contract is capable of completion or, where there is a known defect, correction, at a cost of not more than,

(i) 3 per cent of the first $1,000,000 of the contract price,

(ii) 2 per cent of the next $1,000,000 of the contract price, and

(iii) 1 per cent of the balance of the contract price."

c) Attention is drawn to subsection (2) of Section 2 of the C.A. latest edition which reads as follows:

"(2) For the purposes of this Act, where the improvement or a substantial part thereof is ready for use or is being used for the purposes intended and the owner and the contractor agree not to complete the improvement expeditiously, the price of the services or materials remaining to be supplied and required to complete the improvement shall be deducted from the contract price in determining substantial performance."

d) The concept of "*separate holdback for finishing work*" is set out in Section 22(2) of the C.A. latest edition which reads as follows:

"22(2) Where the contract has been certified or declared to be substantially performed but services or materials remain to be supplied to complete the contract, the payer upon the contract, or a subcontract, under which a lien may arise shall retain, from the date certified or declared to be the date of substantial performance of the contract, a separate holdback equal to 10 per cent of the price of the remaining services or materials as they are actually supplied under the contract or subcontract, until all liens that may be claimed against the holdback have expired or been satisfied, discharged or otherwise provided for under this Act."

e) The concept of "*completed*" is set out in subsection (3) of Section 2 of the C.A. latest edition which reads as follows:

"(3) For the purposes of this Act, a contract shall be deemed to be completed and services or materials shall be deemed to be last supplied to the improvement when the price of completion, correction of a known defect or last supply is not more than the lesser of,

(a) 1 per cent of the contract price; and

(b) $5,000."

f) Multiple improvements under a contract are considered in Section 2 of the C.A. latest edition which reads as follows:

"(4) If more than one improvement is to be made under a contract and each of the improvements is to lands that are not contiguous, then, if the contract so provides, each improvement is deemed for the purposes of this section to be under a separate contract."

STAGE 1 CONTRACT SUBMISSIONS

1.1 Submit all documentation required under the *contract*.

SUBSTANTIAL PERFORMANCE

STAGE 2 CONTRACTOR'S INSPECTION FOR *SUBSTANTIAL PERFORMANCE*

2.1 When the Contractor is of the opinion that the requirements of substantial performance as defined in the C.A. and as set out above have been met, the Contractor shall make arrangements for an inspection of the Work to be undertaken at the earliest opportunity, giving written notice of this to the Consultant and/or *payment certifier* for information only.

2.2 The inspection team shall be comprised of:

(a) the Contractor and/or the Contractor's representative(s)

(b) the prime mechanical and electrical Subcontractors and/or their representative(s)

(c) any other Subcontractors and/or Subcontractors' representative(s) whose participation may be required by the Contractor in order to fully determine the Work to be completed.

2.3 Upon completion of this inspection a list of all uncompleted and unsatisfactory work which is identified during the inspection shall be prepared by the Contractor and shall be issued to all members of the inspection team and the Consultant and/or *payment certifier*.

2.4 Contractors that elect not to go through Stages 2 and 3 for substantial performance certification and publication of same, and apply for *contract* completion as defined, shall proceed to Stage 6 provided requirements under 3.2(b) have been provided; and in this case there shall be only one lien period for only one certification for *basic holdback* release. Where no certificate for substantial performance is obtained and published, the time for preserving liens will run from the date upon which the *contract* is deemed *completed* by the *payment certifier* or Owner and Contractor and certification for the purpose of the release of the basic and finishing holdback shall occur upon the expiry of the 60 day lien period which commences on the day of completion. This section applies in circumstances where the *contract* has not been abandoned or terminated earlier.

STAGE 3 CONTRACTOR'S APPLICATION FOR CERTIFICATE OF *SUBSTANTIAL PERFORMANCE*

3.1 When the Contractor has carried out the steps in Stage 2 and has determined that the requirements for substantial performance of the *contract* have been met, the Contractor shall then make a written application to the Consultant and/or *payment certifier* for a certificate of substantial performance. If there is no *payment certifier*, the Owner and the Contractor shall make the determination jointly and shall both sign the certificate of substantial performance.

3.2 This application shall include:

(a) A statement to the Owner through the Consultant and/or *payment certifier* to the effect that:

(i) the *contract* is *substantially performed*, and

(ii) the phase of the performance of the balance of the *contract* is in process and completion is scheduled for the ..... day of ....., 20..... Where the balance of the *contract*, or a part or parts thereof, cannot be performed forthwith, as has been agreed by Owner and Contractor, the Contractor's statement shall contain a completion date for each phase of the balance of the *contract*.

(b) the submission of all documentation required under the *contract*.

(c) A statement of completion with the cost values of:

(i) Work to be completed including correction of unsatisfactory work;

(ii) Outstanding items referred to in 3.2(b);

(iii) Work which the Owner and the Contractor agree in writing is to be deferred to a later date.

(d) An invoice showing the amount of *basic holdback* monies due for release and payment following the issue of the certificate of substantial performance.

(e) A Statutory Declaration and Workplace Safety & Insurance Board (WSIB) Certificate of Clearance are required before the payment covering the release of *basic holdback* can be released.

3.3 (a) Within 10 calendar days of the receipt of the Contractor's completed application, the Consultant and/or *payment certifier* shall carry out a review and assessment of the work, to determine whether the *contract* has been *substantially performed*. The Owner may take part in the review but the determination as to whether the *contract* has been *substantially performed* is to be made by the Consultant and/or *payment certifier*.

(b) Within 7 calendar days of the Consultant and/or *payment certifier*'s review and assessment, the Consultant and/or *payment certifier* shall notify the Contractor of its determination as to whether or not the *contract* has been *substantially performed*. In the event that the Consultant and/or *payment certifier* determines that the *contract* has not been *substantially performed*, the Consultant and/or *payment certifier* shall so notify the Contractor in writing within 7 calendar days of the review and assessment, and shall also provide the Contractor with a detailed explanation as to why such determination has been made.

(c) In the event that the Contractor's application for substantial performance is not accepted by the Consultant and/or *payment certifier*, the Contractor shall complete the work necessary to achieve substantial performance of the *contract* as previously defined and the Contractor shall submit a subsequent application for substantial performance thereafter.

3.4 The Contractor's application for substantial performance and the Contractor's application for the release of *basic holdback* shall be separate from the applications for regular monthly progress payments and the latter shall continue to be made in the ordinary course throughout the duration of the *contract*.

STAGE 4 CERTIFICATE OF *SUBSTANTIAL PERFORMANCE*

4.1 If the Consultant and/or *payment certifier* determines that the *contract* has been *substantially performed*, the Consultant and/or *payment certifier* (or where there is no *payment certifier*, the Owner and Contractor jointly) shall certify the substantial performance of the *contract* by preparing and signing a certificate in Form 9 prescribed by the C.A., a copy of which may be found in Appendix A hereto. The Consultant and/or *payment certifier* or the Owner and Contractor jointly, as the case may be, shall set out in the certificate the date on which the *contract* was *substantially performed*. The Consultant and/or *payment certifier* shall give a copy of the certificate to the Owner and to the Contractor within 7 days of signing it.

4.2 The Contractor shall publish a copy of the certificate of substantial performance once in a *construction trade newspaper* and shall provide the *payment certifier* with proof of the date of publication. The day following the date of publication shall be the date of commencement of the 60 day period prior to release of the *basic holdback* monies.

4.3 The Contractor's and Contractor's Subcontractors' forces shall continue to work towards completion during the 60 day period mentioned in Stage 4.2.

(NOTE: See Appendix A hereto for sample of the prescribed form of the certificate of substantial performance.)

STAGE 5 CERTIFICATE FOR PAYMENT OF *BASIC HOLDBACK* MONIES

5.1 The Consultant and/or *payment certifier* shall prepare the certificate for payment of the *basic holdback* monies and promptly upon receipt of the application for payment and the documentation as listed in 4.2 and 3.2(d) above, required for release of these monies, issue the certificate to the Owner, with a copy to the Contractor. The certificate shall be dated for payment one day after the date of expiry of the prescribed 60-day period for the preservation of liens.

5.2 Upon issuing the certificate for payment of the *basic holdback* monies, the Consultant and/or *payment certifier* shall advise the Owner to verify that no liens have been preserved as at the end of the 60-day period.

5.3 The Consultant and/or *payment certifier* shall simultaneously notify the Owner that, provided no liens exist, payment of *basic holdback* shall be due and payable one day after the date of expiry of the prescribed 60-day period for the preservation of liens.

5.4 The Consultant and/or *payment certifier*'s certificate for the payment of the *basic holdback* monies shall be in the amount shown in the Contractor's application, as approved by the Consultant and/or *payment certifier*, for the certificate of substantial performance.

5.5 Before the expiry of the 60-day period, the Consultant and/or *payment certifier* shall advise the Owner and the Contractor to review all forms of insurance to ensure adequate coverage for all parties.

5.6 The release of any monies which are due and payable after the release of the *basic holdback* shall occur in accordance with the terms of the *contract* and the provisions of the C.A. In the case of the latest edition of CCDC 2, CCDC 3, and CCDC 5B forms of contract, the Owner may be asked by the Contractor to place the *basic holdback* in a separate bank account in the joint names of the Owner and the Contractor 10 days prior to the expiry of the 60-day period unless previously placed in a separate trust account.

STAGE 6 CONTRACTOR'S COMPLETION OF THE CONTRACT

6.1 (a) When the Contractor is satisfied that the *contract* is *completed* as defined in subsection (3) of Section 2 of the C.A., and after making an inspection, the Contractor shall forward the inspection report and make a written request to the Consultant and/or *payment certifier* for a review and assessment of the work. The Consultant and/or *payment certifier* shall, in turn, notify the Owner of the Contractor's request. The Contractor's request shall include a statement as to the amount of monies for the *separate holdback for finishing work* due for release and payment upon expiry of the 60-day period from the date the *contract* is *completed*. This review and assessment by the Consultant and/or *payment certifier* shall be carried out within 10 calendar days of the Contractor's request and shall constitute the review and assessment which is a precondition to the issuance of the statement of completion and issuance of the certificate for payment for the work performed to the date of the completion.

(b) The Contractor shall submit to the Consultant and/or *payment certifier* for review and approval the balance of the documents required under Stage 1.

(c) The Contractor shall submit to the Consultant and/or *payment certifier* an invoice for the finishing holdback.

(d) The Contractor shall submit to the Consultant and/or *payment certifier*, a Statutory Declaration listing outstanding accounts and monies paid and Workplace Safety & Insurance Board (WSIB) Certificate of Clearance with the invoice before the payment covering the release of the finishing holdback can be released.

6.2 The final review of the work for the purpose of issuing a statement of completion shall be conducted by:

(a) the Consultant and/or *payment certifier* and such Consultants as he may require

(b) the Contractor, and any Subcontractors deemed necessary by the Contractor

(c) the Owner, at his option

6.3 Within 7 calendar days of the review and assessment, the Consultant and/or *payment certifier* shall notify the Contractor of approval of the Contractor's application by issuance of a statement of completion which will establish the date of completion. In the event that the Consultant and/or *payment certifier* does not determine the *contract* to be complete, the Consultant and/or *payment certifier* shall so notify the Contractor in writing within 7 calendar days of the review and shall provide to the Contractor in writing the reasons for such determination.

6.4 If, as a result of its review and assessment of the work, the Consultant and/or *payment certifier* determines that there are deficiencies in the work performed by the Contractor or its Subcontractors, the Consultant and/or *payment certifier* shall provide to the Contractor a list of such deficiencies. In the event that the Contractor's application for a statement of completion is accepted, such list shall constitute the final deficiency list, for the purpose of acceptance of the work under the *contract*. If the Contractor's application for a statement of completion is not accepted, the Consultant and/or *payment certifier* may issue a final list of deficiencies upon subsequently accepting a further application for a statement of completion.

6.5 Deficiencies shall be corrected by a date mutually agreed upon between the Consultant and/or *payment certifier* and the Contractor, unless a specific date is otherwise required by the *contract*. Upon rectification of the deficiencies, a further review and assessment by the Consultant and/or *payment certifier* shall be called for by the Contractor and such review and assessment shall take place within 7 calendar days from the date of the Contractor's request.

(NOTE: See Appendix B hereto for sample of the prescribed form of the Statement of Contract Deemed Completed)

STAGE 7 CERTIFICATE FOR PAYMENT OF MONIES FOR FINISHING HOLDBACK

7.1 Upon receipt of documentation under 6.1 above, and issuance of the Consultant and/or *payment certifier*'s statement of completion, the Consultant and/or *payment certifier* shall prepare the certificate for payment of the monies retained as a *separate holdback for finishing work*. This certificate shall be dated one day after the expiry of the 60-day period which commences on the day following the date the *contract* is determined to have been *completed*.

7.2 Upon issuing the certificate for payment of monies retained as a *separate holdback for finishing work*, the Consultant and/or *payment certifier* shall advise the Owner to verify that no liens have been preserved as at the end of the 60-day period.

7.3 The Consultant and/or *payment certifier* shall simultaneously notify the Owner that, provided no liens have been preserved, payment of the monies for the *separate holdback for finishing work* is due and shall be payable one day after termination of the 60-day period.

7.4 The Consultant and/or *payment certifier*'s certificate for payment of the monies retained as a *separate holdback for finishing work* shall be in the amount requested in the Contractor's application, for a statement of completion, as approved by the Consultant and/or *payment certifier*.

STAGE 8 FINAL PAYMENT CERTIFICATE

8.1 At the completion of Stage 6, when the Consultant and/or *payment certifier* is satisfied that all deficiencies and uncompleted work, as established under Stage 6.4, have been corrected, and upon receipt of the Contractor's invoice for final payment, the Consultant and/or *payment certifier* shall issue to the Owner, with a copy to the Contractor, a final certificate for payment for the remaining monies due to the Contractor under the *contract*.

8.2 Final payment shall be made to the Contractor as stipulated in the certificate, no later than five days after its issuance or as provided in the *contract*.

STAGE 9 WARRANTY-GUARANTEE PERIOD(S)

9.1 The warranty-guarantee period(s) for the *contract* shall commence on the date of substantial performance (i.e. not necessarily the date of publication of the certificate) or as stipulated otherwise in the *contract* documents.

9.2 In the event that a certificate of substantial performance was not issued and *contract* documents do not stipulate otherwise, the warranty-guarantee period(s) shall commence on the date of completion.

9.3 The Owner shall give prompt notice, in writing to the Contractor and Consultant and/or *payment certifier* of any defects (as defined by the *contract*) noted during the one year warranty-guarantee period.

9.4 Prior to the completion of the one year warranty period, the Consultant and/or *payment certifier* and such Consultants as the Consultant and/or *payment certifier* may require will carry out a review of the work for any defects or deficiencies including those that have been observed by the Owner during the warranty period and will notify the Contractor in writing of those items requiring attention by the Contractor to complete the terms of the *contract*.

APPENDIX A

FORM 9

CERTIFICATE OF SUBSTANTIAL PERFORMANCE OF THE CONTRACT UNDER SECTION 32 OF THE ACT

Construction Act

……

(County/District/Regional Municipality/Town/City in which premises are situated)

……

(street address and city, town, etc., or, if there is no street address, the location of the premises)

This is to certify that the contract for the following improvement:

……

(short description of the improvement)

to the above premises was substantially performed on ……

(date substantially performed)

Date certificate signed: ……

…….. ……

(payment certifier where there is one) (owner and contractor, where there is no payment certifier)

Name of owner: ……

Address for service: ……

Name of contractor: ……

Address for service: ……

Name of payment certifier (where applicable): ……

Address: ……

(Use A or B, whichever is appropriate)

☐ A. Identification of premises for preservation of liens:

……

(if a lien attaches to the premises, a legal description of the premises, including all property identifier numbers and addresses for the premises)

☐ B. Office to which claim for lien must be given to preserve lien:

……

(if the lien does not attach to the premises, the name and address of the person or body to whom the claim for lien must be given)

APPENDIX B

NOTE User to complete info shown in RED. Change font colour to Black. DELETE THIS NOTE.

Date

Owner's Company Name
Street Address
Suite number
City, Province or State
Postal Code
Country

Attn: Owner or Owner's Agent

Re: **Statement of Deemed Completion of a Contract**
For the Purposes of the Construction Act
Project Description
Project Location

Proj No: nn.nnnnn.nn

Building Permit No: XXXXXXX

Dear Owner or Owner's Agent,

Based on our general review of the project, in our opinion, to the best of our knowledge, information and belief, the construction contract for the above referenced project has been deemed complete pursuant to the provisions under Section 2(3) of the Construction Act, R.S.O. 1990.

The date of deemed completion of the contract was determined to be yyyy mm dd.

Accordingly, the Construction Act provides that outstanding lien holdback monies may be released to the contractor on the day following the conclusion of the sixty (60) day period next following the date the contract was "deemed completed", provided no liens exist relative to this contract.

A Certificate for Payment and accompanying documentation is being prepared for the outstanding lien holdback monies.

We trust that the above is understood. Should you have any questions with regard to the above, or have any information that would alter our determination please contact the undersigned.

Yours Truly,

Architectural Firm Name
per:

Your Name
Working Title
Officer Status

cc: Contractor's Rep, Contractor's Company Name