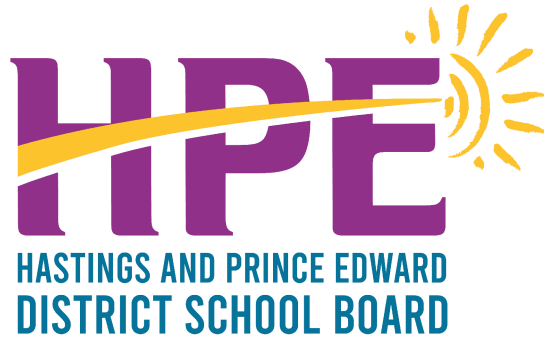


NORTH HASTINGS HIGH SCHOOL DUST COLLECTOR REPLACEMENT

14 Monck St, Bancroft, Ontario K0L 1C0



HASTINGS AND PRINCE EDWARD DISTRICT SCHOOL BOARD

ARCHITECTURAL SPECIFICATIONS

PROJECT MANUAL VOLUME 1

MOFFET & DUNCAN ARCHITECTS INC.
Prime Consultant

SAB Engineering Inc.
Mechanical & Electrical Consultant

VOLUME 1 ARCHITECTURAL SPECIFICATIONS

Professional Seals

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS

Section 00 01 15 List of Drawing Sheets

Section 00 20 00 Supplementary Instructions for Procurement

Section 00 31 00 Available Project Information

Supplementary Conditions to CCDC2- 2020 are included in North Hastings and Prince Edward District School Board's Request for Tender document

DIVISION 01 - GENERAL REQUIREMENTS

Section 01 10 00 General Instructions

Section 01 24 00 Valuation of Changes

Section 01 30 00 Administrative Requirements

Section 01 50 00 Temporary Facilities and Controls

Section 01 70 00 Execution and Closeout Requirements

DIVISION 02 - EXISTING CONDITIONS

Section 02 40 00 Demolition and Alterations

DIVISION 03 - CONCRETE

Section 03 30 00 Concrete

DIVISION 04 - MASONRY

Section 04 01 00 Repair and Restoration of Unit Masonry

DIVISION 05 - METALS

Section 05 52 00 Metal Fabrications

DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES

Section 06 10 00 Rough Carpentry

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

Section 07 26 00 Vapour Barrier

Section 07 44 50 Fibre Reinforced Cementitious Panels

Section 07 51 00 Built-Up Bituminous Membrane Roofing

Section 07 62 00 Sheet Metal Flashing and Trim

Section 07 92 00 Joint Sealants

DIVISION 09 - FINISHES

Section 09 90 00 Painting

DIVISION 31 - EARTHWORK

Section 31 20 00 Earth Moving
Section 32 31 00 Fences and Gates

VOLUME 2 **MECHANICAL & ELECTRICAL SPECIFICATIONS**

Section 01 33 23 Shop Drawings, Product Data, and Samples
Section 01 79 00 Demonstration and Training
Section 02 41 00 Demolition

Division 22 Mechanical
Division 23 Mechanical

Division 26 Electrical

SUPPLEMENTARY INFORMATION

1. Hazardous Building Materials Assessment by Pinchin, File: 200584.030 dated March 1, 2018.
2. Asbestos Reassessment by Pinchin, File: 200584.059 dated September 24, 2020.

LIST OF DRAWINGS

.1 ARCHITECTURAL DRAWINGS

A1.0 Plans, Elevations, Sections & Details

.2 MECHANICAL & ELECTRICAL DRAWINGS

M-1 Symbols List, Equipment Schedules & Control Diagrams - Mechanical
M-2 Carpentry Shop 112 - Existing & Demolition Work - Mechanical
M-3 Carpentry Shop 112 & Part of Roof Layout - New Work - Mechanical
M-4 Mechanical Details

E-1 Equipment Wiring Schedule, Legend, Wiring Diagram & General Notes - Electrical
E-2 Carpentry Shop 112 Power Plan - Existing & Demolition Work - Electrical
E-3 Carpentry Shop 112 Power Plan - New Work - Electrical
E-4 New Power Layout - Electrical

Architectural

Moffet & Duncan Architects Inc.



Mechanical & Electrical

SAB Engineering Inc.



The seals above pertain to the specification sections bearing the name of the relevant consultant at the bottom of each page.

1.1 GENERAL

- .1 The drawings listed below are included on a large format sheet. The drawings form part of the Contract documents.
- .2 Existing drawings, by others, are included as Supplementary Information; refer to Section 00 31 00.

1.2 ARCHITECTURAL DRAWINGS

A1.0 Plans, Elevations, Sections & Details

1.3 MECHANICAL & ELECTRICAL DRAWINGS

M-1 Symbols List, Equipment Schedules & Control Diagrams - Mechanical
M-2 Carpentry Shop 112 - Existing & Demolition Work - Mechanical
M-3 Carpentry Shop 112 & Part of Roof Layout - New Work - Mechanical
M-4 Mechanical Details

E-1 Equipment Wiring Schedule, Legend, Wiring Diagram & General Notes - Electrical
E-2 Carpentry Shop 112 Power Plan - Existing & Demolition Work - Electrical
E-3 Carpentry Shop 112 Power Plan - New Work - Electrical
E-4 New Power Layout - Electrical

END OF SECTION

1.1 **SUMMARY**

- .1 The purpose of this Contract is to replace a dust collector and all mechanical work associated with dust collector installation including ductwork / controls at all supports / enclosures, at an existing two storey school located at 14 Monck St., Bancroft, Ontario KOL 1C0.
 - .1 The Contract will include selective demolition and alterations, concrete slab, masonry repairs, vapour barrier installation, exterior wall panel modifications, painting, new bollards, electrical work, minor regrading, fencing and other related work.
 - .2 Owner has procured the dust collector unit directly from the manufacturer and will pay for the unit. The Contractor will receive the unit and will be responsible for handling the unit upon receipt on site and for building the unit into the work.
- .2 Access to the building will be provided on **July 2, 2025**.
- .3 The Contract shall be subject to the requirements of the General Conditions of Stipulated Price Contract CCDC 2 - 2020 and the Board's Supplementary General Conditions herein.

1.2 **TENDERS**

- .1 Refer to the Hastings and Prince Edward District School Board's Request for Tender for bidding requirements.
- .2 Submit stipulated sum tenders to Hastings and Prince Edward District School Board, per the instructions included in the Board's Request for Tender documents. Tender shall be submitted on forms provided.
- .3 Tenders will be accepted only from prequalified General Contractors.
- .4 Tender submission must include a completed **Bid Bond** and an **Agreement to Bond**, as well as additional forms or documents as may be required by the Contract Documents and any addenda thereto.
- .5 All blanks in the form of tender and supplementary forms of tender shall be filled in or the tender may be invalidated. The Forms shall be signed by the appropriate officers of the Contractor's firm. Incorporated companies shall affix their corporate seal under the hands of their authorized officers.
- .6 These instructions for tendering must be FOLLOWED IMPLICITLY. An informal tender, not complying, may be thrown out and not considered.
- .7 Tenders shall be valid for **sixty (60) days** from the date of closing above.
- .8 Incomplete tenders may be considered informal.

1.3 **PHASING AND COMPLETION DATES**

- .1 Contractor will meet Substantial Performance date of **August 29, 2025**.

- .2 Materials and equipment with long delivery times must be ordered as soon as possible on award of Contract.
- .3 Heating and ventilation of existing spaces is to be maintained throughout construction period.

1.4 SCOPE OF WORK

- .1 Each proposal shall include the complete work, as called for by drawings and the Specifications issued for the project. The Contractor must include for connection of the Owners equipment. Where manufactured items are noted "N.I.C." they are not included in tender but they must be set in place and connected to services after being supplied to site by the Owner's forces.
- .2 In submitting a tender, the bidder agrees to all of the requirements noted in the tender documents.

1.5 ALTERNATE PRODUCTS

- .1 Tenders shall be based on materials, construction etc. exactly as specified. No products other than those listed in the Contract Documents will be accepted without the WRITTEN approval of the Consultant.
- .2 The Contractor may list any alternates he proposes to use under "Alternate Prices" on the Supplementary Form of Tender, stating the extra or credit to base material, construction, scope of work, etc. The Contractor must be responsible for insuring that any alternative product he proposes conforms to the intention of the specification, will fit in the allotted space, meets required ratings, and will interface with other building components. Alternate Prices must include all work associated with the proposed substitution, including adjustments or changes to adjacent Work and Consultant's fees for any design changes which may be required.
- .3 Upon award of Contract, the Contractor shall submit data for the evaluation of proposed alternates, which the Owner may consider, to the Consultant for review.

1.6 TAXES AND DUTIES

- .1 Include in the tender amount all applicable provincial sales tax, excise taxes, customs duties, freight charges, monetary exchange and all other charges which are in effect or are known to be coming into effect during the course of the Work of this Contract, **except for H.S.T.**
- .2 The successful bidder must provide their H.S.T. registration number and this number must be indicated on each application for payment along with the amount of H.S.T. payable for the billing period.

1.7 PRE-BID MEETING

- .1 Before tendering, the tenderer shall examine the site, the Drawings and Project Manuals and the supplementary information provided in the Tender Documents and shall ascertain the extent and nature of the work. A pre-bid meeting for General Contractors is scheduled.

- .2 Proposals shall include the cost imposed by existing conditions and limitations of site and the accepted proposal shall be held to have included such costs. NO ALLOWANCES WILL BE MADE FOR FAILURE TO EXAMINE THE EXISTING SITE. Notify the Consultant, in writing, of any conditions which are at variance with the tender documents.
- .3 The information shown on the drawings is furnished in good faith for the guidance of the Contractor, but shall in no way relieve him of the responsibility of ascertaining to his own satisfaction the nature of all conditions at the site.
- .4 Any tenderer undertaking on-site investigative work must return the site to the original condition. Tenderers are responsible for all damages caused by such investigation.
- .5 The Contractor shall not be entitled to extra payment and/or performance time for work which is required and which is reasonably inferable from the site examination as being necessary.

1.8 CONTRACT DOCUMENTS

- .1 The Contract shall be subject to the requirements of the General Conditions of Standard Construction Document CCDC 2 - 2020 and the Supplementary General Conditions. Successful bidder must sign Stipulated Price Contract using this document, the Project Manuals and the accompanying drawings, including any addenda issued prior to close of tender period, promptly upon notification of award.
- .2 All Contractors will be held to have examined and made themselves familiar with the various articles of these Standard Forms and the amendments contained in the Supplementary General Conditions, and the same shall be as binding for all branches of the following specifications as though written in full therein.

1.9 ENQUIRY AND INSTRUCTION

- .1 All correspondence, enquiries, instructions, etc. in connection with the work shall be made **in writing** through the Bids & Tenders e-bidding site, per the instructions in the Owner's Request for Tender.
- .2 Any revisions noted during the tender period will be clarified by means of written Addenda, which will be posted and distributed through **Bids & Tenders**. Such Addenda shall form part of the contract.
- .3 Bidders, including Subcontractors, finding discrepancies in, or omissions from, the drawings or specifications or other contract documents, or having any doubt as to the intent or meaning of any part thereof, shall notify the Owner through **Bids & Tenders**. A clarification or explanation of the enquiry, if necessary, will be issued by addendum through **Bids & Tenders**.
- .4 No oral instructions will be valid.

1.10 REJECTION OF PROPOSALS

- .1 The Owner reserves the right to reject any or all proposals submitted, without explanations, and to waive any informalities in same. The lowest or any tender shall not necessarily be accepted.

1.11 FINAL ACCEPTANCE

- .1 It must be clearly understood that final acceptance of this contract is subject to approvals of the Owner and other bodies and these may delay final approval. There will be no adjustments in the tendered price for a period of **sixty (60) days** from receipt of tenders due to delays resulting from obtaining necessary approvals.

1.12 ERRORS IN TENDER

- .1 The Owners shall not entertain requests for gratuitous payments arising from errors alleged to have been made in a tender which the Owners have accepted.

1.13 SUBCONTRACTORS

- .1 The selection of Subcontractors shall be acceptable to the Owner and to the Consultant. If the required substitution of a Subcontractor affects the sub-tender price, an adjustment will be made to the Contract Price by the amount only of the difference in sub-tenders, without additional overhead or profit to the Contractor. THERE SHALL BE NO CHANGE IN ANY SUB-TRADES LISTED IN THE TENDER AND SUPPLEMENTARY TENDER FORMS WITHOUT THE WRITTEN CONSENT OF THE OWNER.
- .2 If the Tenderer proposes to do the Work with persons directly employed by him and not subcontract them he shall insert the words "By Own Forces" provided he can submit proof that his forces have had previous experience in this field.
- .3 Subcontractors shall be actually engaged as their own recognized business, in the line of the Work required by the specifications and shall carry out themselves the work for which they may be awarded by subcontract. They shall not be permitted to re-subcontract their work or portions thereof to other contractors. This includes shop drawings.

1.14 PREQUALIFIED SUBCONTRACTORS

- .1 Bidders to include Tenders only from the following prequalified Subcontractors:

- .1 **Roofing Subcontractor**

- .1 Dafoe Roofing
291 Maitland Street,
Belleville, ON K8N 4Z5
Phone: 613-968-4305

- .2 **Cementitious Panels Subcontractors**

- .1 OSTIM Ltd.
94 Kenhar Drive
North York, ON M9L 1L4
Phone: 416-741-7555

- .3 **Controls Subcontractor**

- .1 Energy Management Control Systems
280 Jameson Bone Rd., Unit 1, P.O. Box 713
Belleville, ON K8N 5S8
Phone: 877-811-3627

1.15 FAIR WAGE AND LABOUR

- .1 Rate of wages, hours and conditions of the Work shall be in accordance with Provincial codes and as generally recognized and accepted in the locality.
- .2 Since this project will be a major construction project in the Trenton / Belleville area, it is expected that Contractors and Subcontractors will make every effort to employ local labour, trades, and suppliers.
- .3 Labour forces employed on the site shall have compatible affiliation with any labour organization. Union contract itself is not a prerequisite.

1.16 ASBESTOS ABATEMENT

- .1 The successful respondent will not be responsible for the asbestos abatement work. The Owner has retained the following Contractor:
 - .1 D&F Insulation
799 O'Brien Drive, Unit 4
Peterborough ON K9J 6X7
Phone: 705-745-1389
Contact: John O'Brien

The Abatement Contractor has been retained by the Owner for the necessary abatement work throughout the project.

- .2 As abatement needs are identified, the Contractor and subcontractors must work with D&F Insulation and the Board's Abatement Consultant (Pinchin) for all scheduling requirements.

1.17 UNIT PRICES

- .1 Unit rates have not been requested on the tender forms. Unit rates may be negotiated prior to the signing of the Contract if requested by the Owner.
- .2 Unit rates for extras to the Contract will not exceed those for credits to the Contract by more than 25%.
- .3 If a change involves an extra/credit of more than **\$10,000.00**, then the Owner and Contractor must negotiate the unit rates to reflect a fair rate considering the volume of work involved.

END OF SECTION

**SUPPLEMENTARY CONDITIONS & AMENDMENTS TO STANDARD CONSTRUCTION DOCUMENT
CCDC2 -2020 STIPULATED PRICE CONTRACT**

(the “Supplementary Conditions”)

AGREEMENT, DEFINITIONS, AND

GENERAL CONDITIONS

The Standard Construction Document CCDC 2 2020 for a Stipulated Price Contract, English version, consisting of the Agreement Between *Owner* and Contractor, Definitions and General Conditions of the Stipulated Price Contract, Parts 1 to 13 inclusive, governing same, together with the changes with the new *Construction Act* is hereby made part of these *Contract Documents*, with the following amendments, additions and modifications:

AGREEMENT BETWEEN OWNER AND CONTRACTOR

SC1 ARTICLE A-1 – THE WORK

SC1.1	A-1.3	<p><u>Amend</u> Article A-1.3 by <u>deleting</u> all of the words after “<i>Contract Documents</i>” and <u>replace</u> them with the following”</p> <p>“attain</p> <p>.1 <i>Substantial Performance of the Work</i> by the 7th day of January in the year 2024, and</p> <p>.2 <i>Ready-for-Takeover</i> by the 14th day of January in the year 2024”</p>
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SC2 ARTICLE A-3 – CONTRACT DOCUMENTS

SC2.1	A-3.1	<p><u>Add</u> the following documents to the list of <i>Contract Documents</i> in Article A-3.1:</p> <ul style="list-style-type: none"> • <i>Supplementary Conditions & Amendments to Standard Construction Document CCDC2-2020 Stipulated Price Subcontract, May 2022 Version,</i> • <i>RFQ Document - Appendix D – Section A & B</i> • <i>Consultant Drawings</i> • <i>Consultant Specifications</i> • <i>HPEDSB provided Designated Substance Report</i> • <i>Addendums</i> • <i>Performance Bond (Form 32 -Performance Bond under Section 85.1 of the Act)</i> • <i>Labour and Material Payment Bond (Form 31 – Labour and Material Payment Bond under Section 85.1 of the Act)</i> • <i>Proof of Insurance</i> • <i>WSIB</i>
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SC3 ARTICLE A-4 – CONTRACT PRICE

SC3.1	A-4.4	<p><u>Delete</u> Article A-4.4 and <u>replace</u> it with the following:</p> <p>“4.4 The <i>Contract Price</i> shall remain fixed for the duration of the <i>Contract Time</i>, subject only to adjustments as provided for in the <i>Contract Documents</i>. For certainty, and without limiting the general application of the preceding sentence, the <i>Contractor</i> assumes all risks in connection with cost increases for overhead, <i>Products, Labour, and Construction Equipment</i> prescribed by the <i>Contract Documents</i> for the performance of the <i>Work</i>, and the <i>Contractor</i> assumes all responsibility for liabilities and additional costs that may arise as a result of the <i>Contractor’s</i> inclusion of any</p>
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		<i>Product, Construction Equipment, Supplier, or Subcontractor</i> in its calculation of the <i>Contract Price</i> .”
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SC4 ARTICLE A-5 – PAYMENT

SC4.1	A-5.1	<p><u>Delete</u> Article A- 5.1 in its entirety including all subparagraphs and <u>replace</u> it with the following:</p> <p>“5.1 Subject to the provisions of the <i>Contract Documents</i> and the <i>Construction Act</i>, the <i>Owner</i> shall:</p> <ul style="list-style-type: none"> .1 make progress payments to the <i>Contractor</i> on account of the <i>Contract Price</i> when due together with such <i>Value Added Taxes</i> as may be applicable to such payments, .2 upon <i>Substantial Performance of the Work</i> as certified by the <i>Consultant</i>, and on the 61st day after the publication of the certificate of <i>Substantial Performance of the Work</i>, in accordance with the <i>Construction Act</i>, there being no claims for lien registered against the title to the <i>Place of the Work</i> and no written notices of lien delivered to the <i>Owner</i>, pay the <i>Contractor</i> the unpaid balance of the holdback, together with such <i>Value Added Taxes</i> as may be applicable to such payment, less any amount stated in the <i>Owner’s Notice of Non-Payment</i>. .3 after <i>Ready-for-Takeover</i> has been achieved in accordance with the <i>Contract Documents</i> and the <i>Work</i> is complete, there being no claims for lien registered against the title to the <i>Place of the Work</i> and no written notices of lien delivered to the <i>Owner</i>, pay the <i>Contractor</i> any unpaid balance of the <i>Contract Price</i> in accordance with GC 5.5 – FINAL PAYMENT, together with such <i>Value Added Taxes</i> as may be applicable to such payment.”
SC 4.2	A-5.2.1	<p><u>Delete</u> subparagraph 5.2.1 in its entirety and <u>replace</u> it with the following:</p> <p>“.1 Should either party fail to make payments as they become due under the terms of the <i>Contract</i> or in an award by arbitration or court, interest shall also become due and payable on such unpaid amounts at the prejudgment interest rate prescribed by the <i>Courts of Justice Act</i> (Ontario), as it may change from time to time.”</p>

SC5 *NEW* ARTICLE A-9 – CONFLICT OF INTEREST

SC5.1	A-9	<p><u>Add</u> new ARTICLE A-9 CONFLICT OF INTEREST as follows:</p> <p>“ARTICLE A-9 CONFLICT OF INTEREST</p> <ul style="list-style-type: none"> 9.1 The <i>Contractor, Subcontractors</i> and <i>Suppliers</i> and any of their respective advisors, partners, directors, officers, employees, agents, and volunteers shall not engage in any activity or provide any services where such activity or the provision of such services creates a conflict of interest (actually or potentially, in the sole opinion of the <i>Owner</i>) with the provision of the <i>Work</i> pursuant to the <i>Contract</i>. The <i>Contractor</i> acknowledges and agrees that a conflict of interest, as described in this Article A-9, includes, but is not limited to, the use of <i>Confidential Information</i> where the <i>Owner</i> has not specifically authorized such use. 9.2 The <i>Contractor</i> shall disclose to the <i>Owner</i>, in writing, without delay, any actual or potential situation that may be reasonably interpreted as either a conflict of interest or a potential conflict of interest, including the retention of any <i>Subcontractor</i> or <i>Supplier</i> that is directly or indirectly affiliated with or related to the <i>Contractor</i>. 9.3 The <i>Contractor</i> covenants and agrees that it will not hire or retain the services of any employee or previous employee of the <i>Owner</i> where to do so constitutes a breach by
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		<p>such employee or previous employee of the <i>Owner's</i> conflict of interest policy, as it may be amended from time to time, until after completion of the <i>Work</i> under the <i>Contract</i>.</p> <p>9.4 It is of the essence of the <i>Contract</i> that the <i>Owner</i> shall not have direct or indirect liability to any <i>Subcontractor or Supplier</i>, and that the <i>Owner</i> relies on the maintenance of an arm's-length relationship between the <i>Contractor</i> and its <i>Subcontractors and Suppliers</i>. Consistent with this fundamental term of the <i>Contract</i>, the <i>Contractor</i> will not enter into any agreement or understanding with any <i>Subcontractor or Supplier</i>, whether as part of any contract or any written or oral collateral agreement, pursuant to which the parties thereto agree to cooperate in the presentation of a claim for payment against the <i>Owner</i>, directly or through the <i>Contractor</i>, where such claim is, in whole or in part, in respect of a disputed claim by the <i>Subcontractor or Supplier</i> against the <i>Contractor</i>, where the payment to the <i>Subcontractor or Supplier</i> by the <i>Contractor</i> is agreed to be conditional or contingent on the ability to recover those amounts or a portion thereof from the <i>Owner</i>, failing which the <i>Contractor</i> shall be saved harmless from all or a portion of those claims. The <i>Contractor</i> acknowledges that any such agreement would undermine the required arm's-length relationship and constitute a conflict of interest. For greater certainty, the <i>Contractor</i> shall only be entitled to advance claims against the <i>Owner</i> for amounts pertaining to <i>Subcontractor or Supplier</i> claims where the <i>Contractor</i> has actually paid or unconditionally acknowledged liability for those claims or where those claims are the subject of litigation or binding arbitration between the <i>Subcontractor or Supplier</i> and the <i>Contractor</i> has been found liable for those claims.</p> <p>9.5 Notwithstanding paragraph 7.1.2 of GC 7.1 - OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK, OR TERMINATE THE CONTRACT, a breach of this Article A-9 by the <i>Contractor</i>, any of the <i>Subcontractors</i>, or any of their respective advisors, partners, directors, officers, employees, agents, and volunteers shall entitle the <i>Owner</i> to terminate the <i>Contract</i>, in addition to any other rights and remedies that the <i>Owner</i> has in the <i>Contract</i>, in law, or in equity."</p>
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SC6 *NEW* ARTICLE A-10 TIME OF THE ESSENCE

SC6.1	Article A-10	<p><u>Add</u> the following new Article A-10 as follows:</p> <p>"ARTICLE A-10 TIME OF THE ESSENCE</p> <p>10.1 It is agreed that one of the reasons the <i>Contractor</i> was selected by the <i>Owner</i> for this <i>Contract</i> is the <i>Contractor's</i> representation and covenant that it will attain <i>Substantial Performance, Occupancy</i> (if applicable), and <i>Ready-for-Takeover</i> within the <i>Contract Time</i> stated in Article A-1 of this <i>Contract</i>.</p> <p>10.2 The <i>Contractor</i> acknowledges and agrees that it is responsible to marshal its resources and those of its <i>Subcontractors and Suppliers</i> in a manner which will permit timely attainment of <i>Substantial Performance, Occupancy</i> (if applicable), and <i>Ready-for-Takeover</i>. The <i>Contractor</i> agrees that time is of the essence of this <i>Contract</i>."</p>
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SC7 DEFINITIONS

Revisions to Existing Definitions		
SC7.1	Consultant	<u>Amend</u> the definition of "Consultant" by <u>adding</u> the following to the end of the definition:

		“For the purposes of the <i>Contract</i> , the terms “ <i>Consultant</i> ”, “ <i>Architect</i> ” and “ <i>Engineer</i> ” shall be considered synonymous.”
SC7.2	Payment Legislation/Construction Act	<p><u>Delete</u> the Definition of <i>Payment Legislation</i> and replace it with “Construction Act” as follows:</p> <p>“Construction Act</p> <p><i>Construction Act</i> means the <i>Construction Act</i>, R.S.O. 1990, c. C.30, as amended, including all regulations passed under it that are enforceable as of the date of execution of this <i>Contract</i>. For certainty, the first procurement process for the <i>Project</i> (i.e., the “improvement” as that term is defined in the <i>Construction Act</i>) was commenced on or after October 1, 2019.”</p>
SC7.3	Ready-for-Takeover	<u>Amend</u> the Definition of <i>Ready-for-Takeover</i> by deleting all the words after “as verified” and replacing them with “and approved by the <i>Owner</i> .”
New Definitions		
SC7.4	Adjudication	<p><u>Add</u> the following definition:</p> <p>“Adjudication</p> <p><i>Adjudication</i> means construction dispute interim adjudication as defined under the <i>Construction Act</i>.”</p>
SC7.5	Close-Out Documentation	<p><u>Add</u> the following new definition:</p> <p>“Close-Out Documentation</p> <p><i>Close-Out Documentation</i> has the meaning given to it under GC 5.4.2.”</p>
SC7.6	Confidential Information	<p><u>Add</u> the following definition:</p> <p>“Confidential Information</p> <p><i>Confidential Information</i> means all the information or material of the <i>Owner</i> that is of a proprietary or confidential nature, whether it is identified as proprietary or confidential or not, including but not limited to information and material of every kind and description (such as drawings and move-lists) which is communicated to or comes into the possession or control of the <i>Contractor</i> at any time, but <i>Confidential Information</i> shall not include information that:</p> <ol style="list-style-type: none"> .1 is or becomes generally available to the public without fault or breach on the part of the <i>Contractor</i>, including without limitation breach of any duty of confidentiality owed by the <i>Contractor</i> to the <i>Owner</i> or to any third party, but only after that information becomes generally available to the public; .2 the <i>Contractor</i> can demonstrate to have been rightfully obtained by the <i>Contractor</i> from a third party who had the right to transfer or disclose it to the <i>Contractor</i> free of any obligation of confidence; .3 the <i>Contractor</i> can demonstrate to have been rightfully known to or in the possession of the <i>Contractor</i> at the time of disclosure, free of any obligation of confidence; or .4 is independently developed by the <i>Contractor</i> without use of any <i>Confidential Information</i>.”
SC7.7	Construction Schedule	<p><u>Add</u> the following definition:</p> <p>“Construction Schedule</p> <p><i>Construction Schedule</i> means the schedule for the performance of the <i>Work</i> provided by the <i>Contractor</i>, and approved by the <i>Owner</i>, pursuant to GC 3.4.1,</p>

		including any amendments to the <i>Construction Schedule</i> made pursuant to the <i>Contract Documents</i> .”
SC7.8	Construction Schedule Update	<p><u>Add</u> the following definition:</p> <p>“Construction Schedule Update</p> <p><i>Construction Schedule Update</i> means an update to the <i>Construction Schedule</i> by the <i>Contractor</i> using Microsoft Project (or other approved scheduling software) that accurately depicts the progress of the <i>Work</i> relative to the critical path established in the <i>Construction Schedule</i> approved in GC 3.5.1 (or any approved successor <i>Construction Schedule</i>), aligns with the currently approved date for <i>Substantial Performance of the Work</i>, shows up-to-date projected major activity sequences and durations, and shows any changes or delays in anticipated completion dates of major activities in the <i>Work</i> relative to the last <i>Construction Schedule Update</i>, and includes the following minimum deliverables:</p> <p>(a) a record version of the updated <i>Construction Schedule</i> in .pdf format;</p> <p>(b) an editable copy of the updated original digital file of the <i>Construction Schedule</i> (e.g., .mpp format files for Microsoft Project).”</p>
SC7.9	Direct Costs	<p><u>Add</u> the following definition:</p> <p>“Direct Costs</p> <p><i>Direct Costs</i> are the reasonable costs of performing the contract or subcontract including costs related to the additional supply of services or materials (including equipment rentals), insurance and surety bond premiums, and costs resulting from seasonal conditions, that would not have been incurred, but do not include indirect damages suffered, such as loss of profit, productivity or opportunity, or any head office overhead costs.”</p>
SC7.10	EFT	<p><u>Add</u> the following definition:</p> <p>“EFT</p> <p><i>EFT</i> has the definition given to it under GC 5.3.2.”</p>
SC7.11	Excess Soil	<p><u>Add</u> the following definition:</p> <p>“Excess Soil</p> <p><i>Excess Soil</i> means “excess soil” as that term is defined under section 3 of the <i>Excess Soil Regulation</i>.”</p>
SC7.12	Excess Soil Regulation	<p><u>Add</u> the following Definition:</p> <p>“Excess Soil Regulation</p> <p><i>Excess Soil Regulation</i> means O. Reg. 406/19: On-Site and Excess Soil Management to the <i>Environmental Protection Act</i>, R.S.O. 1990, c. E.19.”</p>
SC7.13	Final Pre-Invoice Submission Meeting	<p><u>Add</u> the following ne definition:</p> <p>“Final Pre-Invoice Submission Meeting</p> <p><i>Final Pre-Invoice Submission Meeting</i> has the meaning given to it in GC 5.5.1.”</p>

SC7.14	Force Majeure	<p><u>Add the following definition:</u></p> <p>“Force Majeure</p> <p><i>Force Majeure</i> means any cause, unknown at the effective date of the <i>Contract</i> and beyond either party’s control, other than financial difficulties, bankruptcy or insolvency, which prevents the performance by a party, or both, of any of their respective obligations under the <i>Contract</i> and the event of <i>Force Majeure</i> did not arise from a party’s default and could not be avoided or mitigated by the exercise of reasonable effort or foresight. <i>Force Majeure</i> includes <i>Labour Disputes</i>; fire; unusual delay by common carriers or unavoidable casualties; delays in obtaining third-party licences, permits, agreements, or approvals (excluding approvals of any <i>Subcontractors</i> or <i>Suppliers</i> of any tier); civil disturbance; emergency acts, orders, legislation, regulations or directives of any government or other public authority; acts of a public enemy; war; riot; sabotage; blockage; embargo; lightning; earthquake; adverse weather conditions but only if substantially beyond the weather norms of the <i>Place of the Work</i>; acts of God; or declared epidemic or pandemic outbreak or other public health emergency (e.g. SARS, COVID-19).”</p>
SC7.15	Install	<p><u>Add the following definition:</u></p> <p>“Install</p> <p><i>Install</i> means install and connect. <i>Install</i> has this meaning whether or not the first letter is capitalized.”</p>
SC7.16	Labour Dispute	<p><u>Add the following definition:</u></p> <p>“Labour Dispute</p> <p><i>Labour Dispute</i> means any lawful or unlawful labour problems, work stoppage, labour disruption, strike, job action, slow down, lock-outs, picketing, refusal to work or continue to work, refusal to supply materials, cessation or work or other labour controversy which does, or might, affect the <i>Work</i>.”</p>
SC7.17	Notice of Non-Payment	<p><u>Add the following definition:</u></p> <p>“Notice of Non-Payment</p> <p><i>Notice of Non-Payment</i> means a notice of non-payment of holdback (Form 6) or a notice of non-payment (Form 1.1) under the <i>Act</i>, as applicable to the circumstances.”</p>
SC7.18	OHSA	<p><u>Add the following definition:</u></p> <p>“OHSA</p> <p><i>OHSA</i> means the <i>Occupational Health and Safety Act</i>, R.S.O. 1990, c. O.1, as amended, including all regulations thereto.”</p>
SC7.19	Overhead	<p><u>Add the following definition:</u></p> <p>“Overhead</p> <p><i>Overhead</i> means all site and head office operations and facilities, all site and head office administration and supervision; all duties and taxes for permits and licenses required by the authorities having jurisdiction at the <i>Place of the Work</i>; all requirements of Division 1, including but not limited to submittals, warranty, quality control, calculations, testing and inspections; meals and accommodations; and, tools, expendables and clean-up costs.”</p>
SC7.20	Payment Period	<p><u>Add the following definition:</u></p>

		<p>“Payment Period</p> <p><i>Payment Period</i> has the definition given to it under GC 5.2.1.”</p>
SC7.21	Pre-Invoice Submission Meeting	<p><u>Add</u> the following definition:</p> <p>“Pre-Invoice Submission Meeting</p> <p><i>Pre-Invoice Submission Meeting</i> has the definition given to it under GC 5.2.1.”</p>
SC7.22	Proper Invoice	<p><u>Add</u> the following definition:</p> <p>“Proper Invoice</p> <p><i>Proper Invoice</i> means a “proper invoice” as that term is defined in Section 6.1 of the <i>Act</i>, including the minimum requirements set out in Appendix “1” of the Supplementary Conditions.”</p>
SC7.23	Proper Invoice Submission Date	<p><u>Add</u> the following definition:</p> <p>“Proper Invoice Submission Date</p> <p><i>Proper Invoice Submission Date</i> has the definition given to it under GC 5.2.2.1.”</p>
SC7.24	Request for Information (RFI)	<p><u>Add</u> the following definition:</p> <p>“Request for Information (RFI)</p> <p><i>Request for Information</i> or <i>RFI</i> means written documentation sent by the <i>Contractor</i> to the <i>Owner</i> or to the <i>Owner’s</i> representative or the <i>Consultant</i> requesting written clarification(s) and/or interpretation(s) of the <i>Drawings</i> and/or <i>Specifications</i>, <i>Contract</i> requirements and/or other pertinent information required to complete the <i>Work</i> of the <i>Contract</i> without applying for a change or changes to the <i>Work</i>.”</p>
SC7.25	Restricted Period	<p><u>Add</u> the following definition:</p> <p>“Restricted Period</p> <p><i>Restricted Period</i> means the (inclusive) period of time between December 1 to January 8 and August 15 to September 15 of any given year throughout the duration of the <i>Contract</i>.”</p>

GENERAL CONDITIONS OF THE STIPULATED PRICE CONTRACT

Where a General Condition or paragraph of the General Conditions of the *Contract* is deleted by these amendments, the numbering of the remaining General Conditions or paragraphs shall remain unchanged, unless stated otherwise herein, and the numbering of the deleted item will be retained, unused.

PART 1 GENERAL PROVISIONS

SC8 GC 1.1 CONTRACT DOCUMENTS

SC8.1	1.1.3	<p><u>Delete</u> GC 1.1.3 in its entirety and <u>replace</u> it with the following:</p> <p>“1.1.3 The <i>Contractor</i> shall review the <i>Contract Documents</i> and shall report promptly to the <i>Consultant</i> any error, inconsistency, or omission the <i>Contractor</i> may discover. Such review by the <i>Contractor</i> shall be undertaken with the standard of care described in GC 3.13.1. Except for its obligation to make such review and report the result, the <i>Contractor</i> does not assume any responsibility to the <i>Owner</i> or to the <i>Consultant</i> for the accuracy of the <i>Contract Documents</i>. Provided it has exercised the degree of care and skill described in this GC 1.1.3, the <i>Contractor</i> shall not be liable for damage or costs resulting from such errors, inconsistencies, or omissions in the <i>Contract</i>”</p>
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		<i>Documents</i> , which the <i>Contractor</i> could not reasonably have discovered through the exercise of the required standard of care.”
SC8.2	1.1.4	<u>Delete</u> GC 1.1.4 in its entirety and <u>replace</u> it with the following: “1.1.4 Except for the obligation to complete the review prescribed in GC 1.1.3, and report the results as set out in this GC 1.1.4, the <i>Contractor</i> is not responsible for errors, omissions or inconsistencies in the <i>Contract Documents</i> . If there are errors, omissions or inconsistencies discovered by or made known to the <i>Contractor</i> as part of its review under GC 1.1.3 or at any time during the performance of the <i>Work</i> , the <i>Contractor</i> shall immediately notify the <i>Consultant</i> , and request instructions, a <i>Supplemental Instruction</i> , <i>Change Order</i> , or <i>Change Directive</i> , as the case may require, and shall not proceed with the <i>Work</i> affected until the <i>Contractor</i> has received corrected or additional information from the <i>Consultant</i> . The <i>Contractor</i> shall not be liable for damage or costs resulting from such errors, inconsistencies, or omissions in the <i>Contract Documents</i> , which the <i>Contractor</i> could not reasonably have discovered through the exercise of care and skill described in GC 3.13.”
SC8.3	1.1.5.1	<u>Delete</u> GC 1.1.5.1 and <u>replace</u> with the following: “.1 the order of priority of documents, from highest to lowest, shall be: .1 Supplementary Conditions; .2 the Agreement between the Owner and the Contractor; .3 the Definitions; .4 the General Conditions; .5 Division 01 of the <i>Specifications</i> .6 technical <i>Specifications</i> ; .7 material and finishing schedules; and .8 the <i>Drawings</i> .
SC8.4	1.1.5.5	<u>Delete</u> GC 1.1.5.5 and <u>replace</u> with the following: “.5 Noted materials and annotations on the <i>Drawings</i> shall govern over the graphic representation of the <i>Drawings</i> .”
SC8.5	1.1.5.6 to 1.1.5.8	<u>Add</u> the following new GC 1.1.5.6 to 1.1.5.8 as follows: “.6 Finishes in the room finish schedules shall govern over those shown on the <i>Drawings</i> . .7 Architectural drawings shall have precedence over structural, plumbing, mechanical, electrical and landscape drawings insofar as outlining, determining and interpreting conflicts over the required design intent of all architectural layouts and architectural elements of construction, it being understood that the integrity and installation of the systems designed by the <i>Consultant</i> or its sub- <i>Consultants</i> are to remain with each of the applicable drawing disciplines. .8 Should reference standards contained in the <i>Specifications</i> conflict with the <i>Specifications</i> , the <i>Specifications</i> shall govern. Should reference standards and <i>Specifications</i> conflict with each other or if certain requirements of the <i>Specifications</i> conflict with other requirements of the <i>Specifications</i> , the more stringent requirements shall govern.”
SC8.6	1.1.9	<u>Add</u> the following to the end of GC 1.1.9: “The <i>Specifications</i> 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 <i>Contract Documents</i> will be construed to place responsibility on the <i>Owner</i> or the <i>Consultant</i> to settle disputes

		among the <i>Subcontractors</i> and <i>Suppliers</i> with respect to such divisions. The <i>Drawings</i> are, in part, diagrammatic and are intended to convey the scope of the <i>Work</i> and indicate general and appropriate locations, arrangements and sizes of fixtures, equipment, outlets and other elements. The <i>Contractor</i> shall obtain more accurate information about the locations, arrangements and sizes from study and coordination of the <i>Drawings</i> , including <i>Shop Drawings</i> and shall become familiar with conditions and spaces affecting those matters before proceeding with the <i>Work</i> . Where site conditions require reasonable minor changes where the change requires only the additional labour two hours or less, the <i>Contractor</i> shall make such changes at no additional cost to the <i>Owner</i> . Similarly, where known conditions or existing conditions interfere with new installation and require relocation, the <i>Contractor</i> shall include such relocation in the <i>Work</i> . The <i>Contractor</i> shall arrange and install fixtures and equipment in such a way as to conserve as much headroom and space as possible. The schedules are those portions of the <i>Contract Documents</i> , wherever located and whenever issued, which compile information of similar content and may consist of drawings, tables and/or lists.”
SC8.7	1.1.12	<p><u>Add</u> new paragraphs 1.1.12 and 1.1.13 as follows:</p> <p>“1.1.12 The <i>Consultant</i>, on behalf of the <i>Owner</i> shall provide the <i>Contractor</i> without charge, twelve (12) copies of the <i>Contract Documents</i>, exclusive of those required by jurisdictional authorities and the executed <i>Contract Documents</i>. Additional copies can be purchased by the <i>Contractor</i> at the <i>Consultant’s</i> cost of reproduction, handling and sales tax.</p> <p>1.1.13 The <i>Contractor</i> shall keep one copy of the current <i>Contract Documents</i>, <i>Supplemental Instructions</i>, contemplated <i>Change Orders</i>, <i>Change Orders</i>, <i>Change Directives</i>, cash allowance disbursement authorizations, reviewed <i>Shop Drawings</i>, submittals, reports and records of meeting at the <i>Place of the Work</i>, in good order and available to the <i>Owner</i> and <i>Consultant</i>.”</p>

SC9 GC 1.3 RIGHTS AND REMEDIES

SC9.1	1.3.2	<p>In paragraph 1.3.2 <u>delete</u> the word “No” from the beginning of the paragraph and <u>replace</u> it with the words:</p> <p>“Except with respect to the requirements set out in paragraphs 6.4.1, 6.5.4, 6.6.1 and 8.3.2, no...”</p>
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SC10 *NEW* GC 1.5 EXAMINATION OF DOCUMENTS AND SITE

SC10.1	1.5	<p><u>Add</u> new GC 1.5 – EXAMINATION OF DOCUMENTS AND SITE as follows:</p> <p>“GC 1.5 EXAMINATION OF DOCUMENTS AND SITE</p> <p>1.5.1 The <i>Contractor</i> declares and represents that in tendering for the <i>Work</i>, and in entering into a Contract with the <i>Owner</i> for the performance of the <i>Work</i>, it has investigated for itself the character of the <i>Work</i> to be done, based on information generally available from a visit to the <i>Place of the Work</i> and to the standard set out under GC 3.14.1 and further represents and warrants and acknowledges that it considered and took into account in the <i>Contract Price</i> all reasonably known impacts and restrictions arising from the COVID-19 pandemic, including without limitation corresponding legislative changes that may impact performance of the <i>Project</i>, various weather conditions that may affect the <i>Work</i>, the availability of supplies and labour or other conditions or risks that the <i>Contractor</i> knew about or reasonably ought to have known about prior to the date of the <i>Contract</i>. The <i>Contractor</i> has assumed and does hereby assume all risk of known conditions now existing or arising in the course of the <i>Work</i> which might or could make the <i>Work</i>, or any items</p>
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		<p>thereof more expensive in character, or more onerous to fulfil, than was contemplated or known when the tender was made or the <i>Contract</i> signed.</p> <p>1.5.2 The <i>Contractor</i> also declares that prior to commencement of the <i>Work</i>, where in tendering for the <i>Work</i> and in entering into this <i>Contract</i>, the <i>Contractor</i> relied upon information furnished by the <i>Owner</i> or any of its agents or servants respecting the nature or confirmation of the ground at the site of the <i>Work</i>, the <i>Contractor</i> shall review to the standard specified in GC 3.14.1, the accuracy of the information furnished by the <i>Owner</i>. If a condition is materially different than what is stated in the information furnished by the <i>Owner</i>, the <i>Contractor</i> shall, no later than five (5) <i>Working Days</i> after the first observation of such condition(s), deliver to the <i>Owner</i> and to the <i>Consultant</i> a <i>Notice in Writing</i> specifying the materially different condition and the <i>Contractor</i> shall not proceed with the affected part of the <i>Work</i> until receiving written direction from the <i>Owner</i> or the <i>Consultant</i>. Where the <i>Contractor</i> fails to provide prompt <i>Notice in Writing</i> in accordance with this GC 1.5.2, the <i>Contractor</i> expressly waives and releases the <i>Owner</i> from all claims with respect to the said information with respect to the <i>Work</i>.</p>
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PART 2 ADMINISTRATION OF THE CONTRACT

SC11 GC 2.2 ROLE OF THE CONSULTANT

SC11.1	2.2.4	<p><u>Delete</u> paragraph 2.2.4 and <u>replace</u> it with the following:</p> <p>“2.2.4 Upon receipt of an application for payment that satisfies the requirement of a <i>Proper Invoice</i>, based on the <i>Consultant’s</i> observations and evaluation of the <i>Contractor’s</i> application for payment, the <i>Consultant</i> will determine the amounts owing to the <i>Contractor</i> under the <i>Contract</i> and will issue certificates for payment as provided in Article A-5 - PAYMENT, GC 5.3 - PAYMENT, GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK, and GC 5.5 - FINAL PAYMENT. If the <i>Consultant</i> determines that the amount payable to the <i>Contractor</i> differs from the amount stated in a <i>Proper Invoice</i>, the <i>Consultant</i> shall notify the <i>Owner</i> as provided in GC 5.3.1.2 and prepare a draft of the applicable <i>Notice of Non-Payment</i> for the amount in dispute.”</p>
SC11.2	2.2.6	<p>In the first sentence of paragraph 2.2.6, <u>delete</u> the words “Except with respect to GC 5.1 – FINANCING INFORMATION REQUIRED OF THE OWNER”.</p>
SC11.3	2.2.12	<p>At paragraph 2.2.12, <u>insert</u> the following at end of that paragraph:</p> <p>“If, in the opinion of the <i>Contractor</i>, the <i>Supplemental Instruction</i> involves an adjustment in the <i>Contract Price</i> or in the <i>Contract Time</i>, it shall, within ten (10) <i>Working Days</i> of receipt of a <i>Supplemental Instruction</i>, provide the <i>Consultant</i> with a notice in writing to that effect. Failure to provide written notification within the time stipulated in this paragraph 2.2.12 shall be deemed an acceptance of the <i>Supplemental Instruction</i> by the <i>Contractor</i>, without any adjustment in the <i>Contract Price</i> or <i>Contract Time</i>.”</p>

SC12 GC 2.3 REVIEW AND INSPECTION OF THE WORK

SC12.1	2.3.2	<p><u>Amend</u> paragraph 2.3.2 by <u>adding</u> the words “and <i>Owner</i>” after the words “<i>Consultant</i>” in the second and third lines.</p>
SC12.2	2.3.3	<p><u>Delete</u> paragraph 2.3.3 in its entirety and <u>replace</u> it with the following:</p> <p>“2.3.3 The <i>Contractor</i> shall furnish promptly two copies to the <i>Consultant</i> and one copy to the <i>Owner</i> of all certificates and inspection reports relating to the <i>Work</i>.”</p>

SC12.3	2.3.4	In paragraph 2.3.4 <u>add</u> the word “review” after the word “inspections” in the first and second lines of paragraph 2.3.4.
SC12.4	2.3.5	In paragraph 2.3.5 in the first line after the word “ <i>Consultant</i> ”, <u>add</u> “or the <i>Owner</i> ”.
SC12.5	2.3.8	<u>Add</u> a new paragraph 2.3.8 as follows: “2.3.8 The <i>Consultant</i> will conduct periodic reviews of the <i>Work</i> in progress, to determine general conformance with the requirements of the <i>Contract Documents</i> . Such reviews, or lack thereof, shall not give rise to any claims by the <i>Contractor</i> in connection with construction means, methods, techniques, sequences and procedures, nor in connection with construction safety at the <i>Place of Work</i> , responsibility for which belongs exclusively to the <i>Contractor</i> .”

SC13 GC 2.4 DEFECTIVE WORK

SC13.1	2.4.1	<u>Amend</u> GC 2.4.1 by inserting “, the <i>Owner</i> and/or its agent” in the first sentence following “rejected by the <i>Consultant</i> ”.
SC13.2	2.4.1.1 to 2.4.1.2	<u>Add</u> new paragraphs 2.4.1.1 and 2.4.1.2 as follows: “2.4.1.1 The <i>Contractor</i> shall rectify, in a manner acceptable to the <i>Consultant</i> and to the <i>Owner through the Consultant</i> all defective work and deficiencies throughout the <i>Work</i> , whether or not they are specifically identified by the <i>Consultant</i> . 2.4.1.2 The <i>Contractor</i> shall prioritize the correction of any defective work, which, in the sole discretion of the <i>Owner through the Consultant</i> , adversely affects the day to day operations of the <i>Owner</i> or which, in the sole discretion of the <i>Consultant</i> , adversely affects the progress of the <i>Work</i> .”
SC13.3	2.4.2	<u>Delete</u> paragraph 2.4.2 in its entirety and <u>replace</u> it with the following: “2.4.2 The <i>Contractor</i> shall promptly pay the <i>Owner</i> for costs incurred by the <i>Owner</i> , the <i>Owner’s</i> own forces or the <i>Owner’s</i> other contractors, for work destroyed or damaged or any alterations necessitated by the <i>Contractor’s</i> removal, replacement or re-execution of defective work.”
SC13.4	2.4.4	<u>Add</u> new paragraph 2.4.4 as follows: “2.4.4 Neither acceptance of the <i>Work</i> by the <i>Consultant</i> or the <i>Owner</i> , nor any failure by the <i>Consultant</i> or the <i>Owner</i> to identify, observe or warn of defective <i>Work</i> or any deficiency in the <i>Work</i> shall relieve the <i>Contractor</i> from the sole responsibility for rectifying such defect or deficiency at the <i>Contractor’s</i> sole cost, even where such failure to identify, observe or warn is negligent.”

PART 3 EXECUTION OF THE WORK

SC14 GC 3.1 CONTROL OF THE WORK

SC14.1	3.1.2	Amend paragraph 3.1.2 by <u>inserting</u> the words “Construction Schedule” after the word “sequences”.
SC14.2	3.1.3 & 3.1.4	<u>Add</u> new paragraphs 3.1.3 and 3.1.4 as follows: “3.1.3 Prior to commencing individual procurement, fabrication and construction activities, the <i>Contractor</i> shall verify at the <i>Place of the Work</i> , all relevant measurements and levels necessary for proper and complete fabrication, assembly and installation of the <i>Work</i> and shall further carefully compare such field measurements and conditions

		<p>with the requirements of the <i>Contract Documents</i>. Where dimensions are not included or exact locations are not apparent, the <i>Contractor</i> shall immediately notify the <i>Consultant</i> in writing and obtain written instructions from the <i>Consultant</i> before proceeding with any part of the affected <i>Work</i>.</p> <p>3.1.4 Notwithstanding the provisions of paragraphs 3.1.1 and 3.1.2, the <i>Owner</i> shall have access to the site at all times to monitor all aspects of construction. Such access shall in no circumstances affect the obligations of the <i>Contractor</i> to fulfill its contractual obligations.”</p>
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SC15 GC 3.2 CONSTRUCTION BY OWNER OR OTHER CONTRACTORS

SC15.1	3.2.2.1	<u>Delete</u> subparagraph 3.2.2.1 and <u>replace</u> it with “[Intentionally left blank]”.
SC15.2	3.2.3.2	<p><u>Delete</u> subparagraph 3.2.3.2 and <u>replace</u> it with the following:</p> <p>“.2 co-ordinate and schedule the activities and work of other contractors and the <i>Owner’s</i> own forces, including where other contractors or the <i>Owner’s</i> own forces are used after the <i>Owner</i> and the <i>Contractor</i> cannot reach agreement on the value of a change, with the <i>Work</i> of the <i>Contractor</i> and connect as specified or shown in the <i>Contract Documents</i>.”</p>
SC15.3	3.2.3.4	<u>Delete</u> the period at the end of subparagraph 3.2.3.4 and <u>replace</u> it with a semi-colon.
SC15.4	3.2.3.5	<p><u>Add</u> new subparagraph 3.2.3.5 as follows:</p> <p>“.5 Subject to GC 9.4 CONSTRUCTION SAFETY, for the <i>Owner’s</i> own forces and for other contractors, assume overall responsibility for compliance with all aspects of the applicable health and safety legislation in force at the <i>Place of the Work</i>, including all of the responsibilities of the “constructor”, pursuant to the <i>OHSA</i>.”</p>

SC16 GC 3.3 TEMPORARY WORK

SC16.1	3.3.2	In paragraph 3.3.2, in the second line after the words “where required by law”, insert “or by the <i>Consultant</i> ”.
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SC17 GC 3.4 CONSTRUCTION SCHEDULE

SC17.1	3.4.1	<p><u>Delete</u> GC 3.4.1 in its entirety and <u>replace</u> it with the following:</p> <p>“3.4.1 The <i>Contractor</i> shall:</p> <p>1 within five (5) calendar days of receiving written confirmation of the award of the <i>Contract</i>, prepare and submit to the <i>Owner</i> and the <i>Consultant</i> for their review and approval, a construction schedule in the format indicated below that indicates the timing of the activities of the <i>Work</i> and provides sufficient detail of the critical events and their inter-relationship to demonstrate the <i>Work</i> will be performed in conformity with the <i>Contract Time</i> and in accordance with the <i>Contract Documents</i>. Such schedule is to include a delivery schedule for <i>Products</i> whose delivery is critical to the schedule for the <i>Work</i> or are required by the <i>Contract</i> to be included in a <i>Products</i> delivery schedule. The <i>Contractor</i> shall employ construction scheduling software, being the latest version of “Microsoft Project”, that permits the progress of the <i>Work</i> to be monitored in relation to the critical path established in the schedule. The <i>Contractor</i> shall provide such schedule and any successor or revised schedules in both original digital file format (e.g., .mpp format for Microsoft Project), portable data file (PDF) format, and hard copy. Once accepted by the <i>Owner</i> and the <i>Consultant</i>,</p>
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		<p>the construction schedule submitted by the <i>Contractor</i> shall become the baseline “Construction Schedule”;</p> <p>.2 provide the expertise and resources, such resources including manpower and equipment, as are necessary on a best efforts basis to maintain progress under the accepted baseline <i>Construction Schedule</i> or revised construction schedule accepted by the <i>Owner</i> pursuant to GC 3.4 CONSTRUCTION SCHEDULE, which includes without limitation, the <i>Contractor’s</i> use of all possible and, if necessary, extraordinary measures, to bring the progress of the <i>Work</i> into compliance with the <i>Construction Schedule</i>, such as (i) increasing the presence of its own forces at the <i>Place of the Work</i>; (ii) directing any <i>Subcontractors</i> or <i>Suppliers</i> to increase their labour forces and equipment; (iii) working overtime and extra shifts; and (iv) providing any additional supervision and coordination of the <i>Project</i>, all at the <i>Contractor’s</i> own cost and expense save and except where GC 6.5.1, 6.5.2, or 6.5.3 apply; and,</p> <p>.3 monitor the progress of the <i>Work</i> on a weekly basis relative to the baseline <i>Construction Schedule</i>, or any revised <i>Construction Schedule</i> accepted by the <i>Owner</i> pursuant to GC 3.4 CONSTRUCTION SCHEDULE, deliver a <i>Construction Schedule Update</i> to the <i>Consultant</i> and <i>Owner</i> with each application for payment, at a minimum, or as may be reasonably required by the <i>Consultant</i> and advise the <i>Consultant</i> and the <i>Owner</i> weekly in writing of any variation from the baseline or slippage in the schedule; and,</p> <p>.4 if after applying the expertise and resources required under paragraph 3.4.1.2, the <i>Contractor</i> forms the opinion that the slippage in schedule reported in paragraph 3.4.1.3 cannot be recovered by the <i>Contractor</i>, it shall, in the same notice provided under paragraph 3.4.1.3, indicate to the <i>Consultant</i> if the <i>Contractor</i> intends to apply for an extension of <i>Contract Time</i> as provided in PART 6 —CHANGES IN THE WORK; and,</p> <p>.5 ensure that the <i>Contract Price</i> shall include all costs required to phase or stage the <i>Work</i>.”</p>
SC17.2	3.4.2	<p><u>Add</u> new GC 3.4.2 and GC 3.4.3 as follows:</p> <p>“3.4.2 If, at any time, it should appear to the <i>Owner</i> or the <i>Consultant</i> that the actual progress of the <i>Work</i> is behind schedule or is likely to become behind schedule, or if the <i>Contractor</i> has given notice of such to the <i>Owner</i> or the <i>Consultant</i> pursuant to GC 3.4.1.3, the <i>Contractor</i> shall, either at the request of the <i>Owner</i> or the <i>Consultant</i>, or following giving notice pursuant to GC 3.4.1.3, take appropriate steps to cause the actual progress of the <i>Work</i> to conform to the schedule or minimize the resulting delay. Within 5 calendar days of the request by the <i>Owner</i> or the <i>Consultant</i> or the notice being given pursuant to GC 3.4.1.3, the <i>Contractor</i> shall produce and present to the <i>Owner</i> and the <i>Consultant</i> a plan demonstrating how the <i>Contractor</i> will recover the performance of the <i>Work</i> to align with the currently approved <i>Construction Schedule</i>.</p> <p>3.4.3 The <i>Contractor</i> shall not amend the <i>Construction Schedule</i> without the prior written consent of the <i>Owner</i>.. Any revisions to the <i>Construction Schedule</i> approved by the <i>Owner</i> shall not be deemed to be an extension of the <i>Contract Time</i>. All requests by the <i>Contractor</i> for a revision to the <i>Construction Schedule</i> that include an extension to the <i>Contract Time</i> must be approved by the <i>Owner</i> through an executed <i>Change Order</i>.”</p>

SC18 GC 3.5 SUPERVISION

SC18.1	3.5.1	<p><u>Delete</u> GC 3.5.1 and <u>replace</u> it with the following:</p> <p>“3.5.1 The <i>Contractor</i> shall employ a competent full-time superintendent, acceptable to the <i>Owner</i> and <i>Consultant</i>, who shall be in full time attendance at the <i>Place of the Work</i> while the <i>Work</i> is being performed. The superintendent shall not be changed by the <i>Contractor</i> without valid reason which shall be provided in writing and shall not be</p>
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		<p>changed without prior consultation with and agreement by the Owner and the <i>Consultant</i>. The <i>Contractor</i> shall replace the superintendent within 7 <i>Working Days</i> of the <i>Owner's</i> written notification, if the superintendent's performance is not acceptable to the <i>Owner</i>. The <i>Contractor</i> shall provide the <i>Owner</i> and the <i>Consultant</i> with the names, addresses and telephone numbers of the superintendent referred to in this GC 3.5.1 and other responsible persons who may be contacted for emergency and other reasons during non-working hours. ."</p>
SC18.2	3.5.2	<p><u>Delete</u> GC 3.5.2 and <u>replace</u> it with the following:</p> <p>"3.5.2 The superintendent, and any project manager appointed by the <i>Contractor</i>, shall represent the <i>Contractor</i> at the <i>Place of the Work</i> and shall have full authority to act on written instructions given by the <i>Consultant</i> and/or the <i>Owner</i>. Instructions given to the superintendent or the project manager shall be deemed to have been given to the <i>Contractor</i> and both the superintendent and any project manager shall have full authority to act on behalf of the <i>Contractor</i> and bind the <i>Contractor</i> in matters related to the <i>Contract</i>."</p>
SC18.3	3.5.3 to 3.5.6	<p><u>Add</u> new GC 3.5.3, 3.5.4, 3.5.5 and 3.5.6 as follows:</p> <p>"3.5.3 The <i>Owner</i> may, at any time during the course of the <i>Work</i>, request the replacement of the appointed representative(s). Immediately upon receipt of the request, the <i>Contractor</i> shall make arrangements to appoint an acceptable replacement, which is approved by the <i>Owner</i>.</p> <p>3.5.4 The supervisory staff assigned to the <i>Project</i> shall also be fully competent to implement efficiently all requirements for scheduling, coordination, field engineering, reviews, inspections and submittals defined in the <i>Specifications</i>, and have a minimum 5 years documented "Superintendent/Project Management" experience.</p> <p>3.5.5 The <i>Consultant and Owner</i> shall reserve the right to review the record of experience and credentials of supervisory staff assigned to the <i>Project</i> prior to commencement of the <i>Work</i>.</p> <p>3.5.6 A superintendent assigned to the <i>Work</i> shall be "Gold Seal Certified" as per the Canadian Construction Association; or a superintendent that can demonstrate the requisite experience and success related to the <i>Project</i> to the sole satisfaction of the <i>Owner</i>."</p>

SC19 GC 3.6 SUBCONTRACTORS AND SUPPLIERS

SC19.1	3.6.1.1	<p>In paragraph 3.6.1.1 <u>add</u> to the end of the second line the words "including any warranties and service agreements which extend beyond the term of the <i>Contract</i>."</p>
SC19.2	3.6.1.2	<p>In subparagraph 3.6.1.2 after the words "the <i>Contract Documents</i>" <u>add</u> the words "including any required surety bonding".</p>
SC19.3	3.6.2	<p><u>Delete</u> paragraph 3.6.2. in its entirety and <u>replace</u> it with the following:</p> <p>"3.6.2 The substitution of any <i>Subcontractor</i> and/or <i>Suppliers</i> after submission of the <i>Contractor's</i> bid will not be accepted unless a valid reason is given in writing to and approved by the <i>Owner</i>, whose approval may be arbitrarily withheld. The reason for substitution must be provided to the <i>Owner</i> and to the original <i>Subcontractor</i> and/or <i>Supplier</i> and the <i>Subcontractor</i> and/or <i>Supplier</i> shall be given the opportunity to reply to the <i>Contractor</i> and <i>Owner</i>. The <i>Contractor</i> shall be fully aware of the capability of each <i>Subcontractor</i> and/or <i>Supplier</i> included in its bid, including but not limited to technical ability, financial stability and ability to maintain the proposed construction schedule."</p>

SC19.4	3.6.7, 3.6.8, 3.6.9 & 3.6.10	<p><u>Add</u> new paragraphs 3.6.7, 3.6.8, 3.6.9, and 3.6.10 as follows:</p> <p>“3.6.7 The <i>Contractor</i> represents and warrants that it has confirmed the availability of its <i>Subcontractors</i> for the <i>Project</i> and, in particular, for the performance of their respective portions of the <i>Work</i> to ensure completion of the <i>Project</i> within the <i>Contract Price</i> and the <i>Contract Time</i>.</p> <p>3.6.8 The <i>Consultant</i> or the <i>Owner</i>, acting reasonably, may from time to time require the <i>Contractor</i> to remove from the <i>Project</i> any personnel of the <i>Contractor</i>, including project managers, superintendents or <i>Subcontractors</i>. Such persons shall be replaced by the <i>Contractor</i> in a timely fashion to the satisfaction of the <i>Consultant</i> or the <i>Owner</i>, as the case may be, at no cost to the <i>Owner</i>.</p> <p>3.6.9 Where provided in the <i>Contract</i>, the <i>Owner</i> may assign to the <i>Contractor</i>, and the <i>Contractor</i> agrees to accept, any contract procured by the <i>Owner</i> for <i>Work</i> or services required on the <i>Project</i> that has been pre-tendered or pre-negotiated by the <i>Owner</i>, and upon such assignment, the <i>Owner</i> shall have no further liability to any party for such contract.</p> <p>3.6.10 The <i>Contractor</i> covenants that each subcontract or supply contract which the <i>Contractor</i> enters into for the purpose of performing the <i>Work</i> shall expressly provide for the assignment thereof to the <i>Owner</i> (at the option of the <i>Owner</i>) and the assumption by the <i>Owner</i> of the obligations of the <i>Contractor</i> thereunder, upon the termination of the <i>Contract</i> and upon written notice by the <i>Owner</i> to the other parties to such subcontracts or supply contracts, without the imposition of further terms or conditions; provided, however, that until the <i>Owner</i> has given such notice, nothing herein contained shall be deemed to create any contractual or other liability upon the <i>Owner</i> for the performance of obligations under such subcontracts or supply contracts and the <i>Contractor</i> shall be fully responsible for all of its obligations and liabilities (if any) under such subcontracts and supply contracts.”</p>
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SC20 GC 3.7 LABOUR AND PRODUCTS

SC20.1	3.7.1	<p><u>Amend</u> paragraph 3.7.1 by <u>adding</u> the words, “..., agents, <i>Subcontractors</i> and <i>Suppliers</i>...” after the word “employees” in the first line.</p>
SC20.2	3.7.2	<p><u>Delete</u> paragraph 3.7.2 and <u>substitute</u> with the following:</p> <p>“3.7.2 <i>Products</i> provided shall be new and shall conform to all current applicable specifications of the Canadian Standards Association, Canadian Standards Board or General Standards Board, ASTM, National Building Code, provincial and municipal building codes, fire safety standards, and all governmental authorities and regulatory agencies having jurisdiction at the <i>Place of the Work</i>, unless otherwise specified. <i>Products</i> which are not specified shall be of a quality consistent with those specified and their use acceptable to the <i>Consultant</i>. <i>Products</i> brought on to the <i>Place of the Work</i> by the <i>Contractor</i> shall be deemed to be the property of the <i>Owner</i>, but the <i>Owner</i> shall be under no liability for loss thereof or damage thereto arising from any cause whatsoever. The said <i>Products</i> shall be at the sole risk of the <i>Contractor</i>. Workmanship shall be, in every respect, first class and the <i>Work</i> shall be performed in accordance with the best modern industry practice.”</p>
SC20.3	3.7.4 to 3.7.8	<p><u>Add</u> new paragraphs 3.7.4, 3.7.5, 3.7.6, 3.7.7, and 3.7.8 as follows:</p> <p>“3.7.4 Upon receipt of a <i>Notice in Writing</i> from the <i>Owner</i>, the <i>Contractor</i> shall immediately remove from the <i>Place of the Work</i>, tradesmen and labourers or anyone whose conduct jeopardizes the safety of the <i>Owner’s</i> operations or who are considered by the <i>Owner</i> or the <i>Consultant</i> to be unskilled or otherwise objectionable. Immediately upon receipt of the request, the <i>Contractor</i> shall make arrangements to appoint an acceptable replacement.</p>

		<p>3.7.5 The <i>Contractor</i> shall cooperate with the <i>Owner</i> and its representatives and shall take all reasonable and necessary actions to maintain stable and harmonious labour relations with respect to the <i>Work</i> at the <i>Place of the Work</i>, including cooperation to attempt to avoid <i>Work</i> stoppages, trade union jurisdictional disputes and other <i>Labour Disputes</i>. Any costs arising from labour disputes shall be at the sole expense of the <i>Contractor</i>.</p> <p>3.7.6 The cost for overtime required beyond the normal <i>Working Day</i> to complete individual construction operations of a continuous nature, such as pouring or finishing of concrete or similar work, or <i>Work</i> that the <i>Contractor</i> elects to perform at overtime rates without the <i>Owner</i> requesting it, shall not be chargeable to the <i>Owner</i>.</p> <p>3.7.7 All manufactured <i>Products</i> which are identified by their proprietary names or by part or catalogue number in the <i>Specifications</i> shall be used by the <i>Contractor</i>. No substitutes for such specified <i>Products</i> shall be used without the written approval of the <i>Owner</i> and the <i>Consultant</i>. Substitutes will only be considered by the <i>Consultant</i> when submitted in sufficient time to permit proper review and investigation. When requesting approval for the use of substitutes, the <i>Contractor</i> shall include in its submission any proposed change in the <i>Contract Price</i>. The <i>Contractor</i> shall use all proprietary <i>Products</i> in strict accordance with the manufacturer's directions. Where there is a choice of proprietary <i>Products</i> specified for one use, the <i>Contractor</i> may select any one of the <i>Products</i> so specified for this use.</p> <p>3.7.8 Materials, appliances, equipment and other <i>Products</i> are sometimes specified by reference to brand names, proprietary names, trademarks or symbols. In such cases, the name of a manufacturer, distributor, <i>Supplier</i> or dealer is sometimes given to assist the <i>Contractor</i> to find a source <i>Supplier</i>. This shall not relieve the <i>Contractor</i> from its responsibility from finding its own source of supply even if the source names no longer supplies the <i>Product</i> specified. If the <i>Contractor</i> is unable to obtain the specified <i>Product</i>, the <i>Contractor</i> shall supply a substitute product equal to or better than the specified <i>Product</i>, as approved by the <i>Consultant</i> with no extra compensation. Should the <i>Contractor</i> be unable to obtain a substitute <i>Product</i> equal to or superior to the specified <i>Product</i> and the <i>Owner</i> accepts a different <i>Product</i>, the <i>Contract Price</i> shall be adjusted accordingly, as approved by the <i>Consultant</i>."</p>
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SC21 GC 3.8 SHOP DRAWINGS

SC21.1	3.8.1	<p><u>Delete</u> paragraph 3.8.1 in its entirety and <u>replace</u> with the following:</p> <p>"3.8.1 The <i>Contractor</i> shall provide shop drawings as described in the <i>Contract Documents</i> and as the <i>Consultant</i> may reasonably request."</p>
SC21.2	3.8.3	<p><u>Delete</u> paragraph 3.8.3 and <u>replace</u> it with the following:</p> <p>"3.8.3 The <i>Contractor</i> shall prepare a <i>Shop Drawings</i> schedule acceptable to the <i>Owner</i> and the <i>Consultant</i> prior to the first application for payment. A draft of the proposed <i>Shop Drawings</i> schedule shall be submitted by the <i>Contractor</i> to the <i>Consultant</i> and the <i>Owner</i> for approval. The draft <i>Shop Drawings</i> schedule shall clearly indicate the phasing of <i>Shop Drawings</i> submissions. The <i>Contractor</i> shall periodically re-submit the <i>Shop Drawings</i> schedule to correspond to changes in the <i>Construction Schedule</i>."</p>
SC21.3	3.8.5	<p><u>Delete</u> paragraph 3.8.5 in its entirety and <u>substitute</u> the following:</p> <p>"3.8.5 At the time of providing <i>Shop Drawings</i>, the <i>Contractor</i> shall advise the <i>Consultant</i> in writing of any deviations in <i>Shop Drawings</i> from the requirements of the <i>Contract Documents</i>. The <i>Consultant</i> shall indicate the acceptance of such deviation expressly in writing. Where manufacturers' literature is submitted in lieu of scaled</p>

		drawings, it shall be clearly marked in ink, to indicate the specific items for which review is requested.”
SC21.4	3.8.8 to 3.8.12	<p><u>Add</u> new paragraphs 3.8.8, 3.8.9, 3.8.10, 3.8.11, and 3.8.12 as follows:</p> <p>“3.8.8 Reviewed <i>Shop Drawings</i> shall not authorize a change in the <i>Contract Price</i> and/or the <i>Contract Time</i>.</p> <p>3.8.9 Except where the parties have agreed to a different <i>Shop Drawings</i> schedule pursuant to paragraph 3.10.3, the <i>Contractor</i> shall comply with the requirements for <i>Shop Drawings</i> submissions stated in the <i>Specifications</i>.</p> <p>3.8.10 The <i>Contractor</i> shall not use the term “by others” on <i>Shop Drawings</i> or other submittals. The related trade, <i>Subcontractor</i> or <i>Supplier</i> shall be stated.</p> <p>3.8.11 Certain <i>Specifications</i> sections require the <i>Shop Drawings</i> to bear the seal and signature of a professional engineer. Such professional engineer must be registered in the jurisdiction of the <i>Place of the Work</i> and shall have expertise in the area of practice reflected in the <i>Shop Drawings</i>.</p> <p>3.8.12 The <i>Consultant</i> will review and return <i>Shop Drawings</i> and submittals in accordance with the schedule agreed upon in paragraph 3.10.3, The <i>Contractor</i> shall allow the <i>Consultant</i> a minimum of 10 <i>Working Days</i> to review <i>Shop Drawings</i> from the date of receipt. If resubmission of <i>Shop Drawings</i> is required, a further 10 <i>Working Day</i> period is required for the <i>Consultant’s</i> review.”</p>

SC22 *NEW* GC 3.9 USE OF THE WORK

SC22.1	GC 3.9	<p><u>Add</u> new GC 3.9 – USE OF THE WORK as follows:</p> <p>“GC 3.9 USE OF THE WORK</p> <p>3.9.1 The <i>Contractor</i> shall confine <i>Construction Equipment</i>, <i>Temporary Work</i>, storage of <i>Products</i>, waste products and debris, and operations of employees and <i>Subcontractors</i> to limits indicated by laws, ordinances, permits, by the direction of the <i>Owner</i> or the <i>Consultant</i>, or the <i>Contract Documents</i> and shall not unreasonably encumber the <i>Place of the Work</i>.</p> <p>3.9.2 The <i>Contractor</i> shall not load or permit to be loaded any part of the <i>Work</i> with a weight or force that will endanger the safety of the <i>Work</i>.</p> <p>3.9.3 The <i>Owner</i> shall have the right to enter or occupy the <i>Place of the Work</i> in whole or in part for the purpose of placing fittings and equipment, or for other use before <i>Substantial Performance of the Work</i>, if, in the opinion of the <i>Consultant</i>, such entry and occupation does not prevent or substantially interfere with the <i>Contractor</i> in the performance of the <i>Contract</i> within the <i>Contract Time</i>. Such entry or occupation shall neither be considered as acceptance of the <i>Work</i> or in any way relieves the <i>Contractor</i> from its responsibility to complete the <i>Contract</i>.”</p>
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SC23 *NEW* GC 3.10 CUTTING AND REMEDIAL WORK

SC23.1	GC 3.10	<p><u>Add</u> new GC 3.10 – CUTTING AND REMEDIAL WORK as follows:</p> <p>“GC 3.10 CUTTING AND REMEDIAL WORK</p> <p>3.10.1 The <i>Contractor</i> shall perform the cutting and remedial work required to make the affected parts of the <i>Work</i> come together properly. Such cutting and remedial work</p>
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		<p>shall be performed by specialists familiar with the <i>Products</i> affected and shall be performed in a manner to neither damage nor endanger the <i>Work</i>.</p> <p>3.10.2 The <i>Contractor</i> shall coordinate the <i>Work</i> to ensure all cutting and remedial work required is kept to a minimum.</p> <p>3.10.3 Unless specifically stated otherwise in the <i>Specifications</i>, the <i>Contractor</i> shall do all cutting and making good necessary for the proper installation and performance of the <i>Work</i>.</p> <p>3.10.4 To avoid unnecessary cutting, the <i>Contractor</i> shall lay out its work and advise the <i>Subcontractors</i>, when necessary, where to leave holes for installation of pipes and other work.”</p>
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SC24 *NEW* GC 3.11 CLEAN UP

SC24.1	3.11.1, 3.11.2, 3.11.3, 3.11.4, 3.11.5 & 3.11.6	<p>Add new paragraphs 3.11.1, 3.11.2, 3.11.3, 3.11.4, 3.11.5, and 3.11.6 as follows:</p> <p>“3.11.1 The <i>Contractor</i> shall maintain the <i>Work</i> in a safe and tidy condition and free from the accumulation of waste products and debris, other than that caused by the <i>Owner</i>, other contractors or their employees. The <i>Contractor</i> shall remove accumulated waste and debris at least once a week as a minimum or as required by the nature of the <i>Work</i>.</p> <p>3.11.2 Before applying for <i>Substantial Performance of the Work</i>, the <i>Contractor</i> shall remove waste products and debris, other than that resulting from the work of the <i>Owner</i>, other contractors or their employees, and shall leave the <i>Place of the Work</i> clean and suitable for use or occupancy by the <i>Owner</i>. The <i>Contractor</i> shall remove products, tools, materials, <i>Construction Equipment</i>, and <i>Temporary Work</i> not required for the performance of the remaining work.</p> <p>3.11.3 As a condition precedent to submitting its application for final payment, the <i>Contractor</i> shall remove any remaining products, tools, materials, <i>Construction Equipment</i>, <i>Temporary Work</i>, and waste products and debris, other than those resulting from the work of the <i>Owner</i>, other contractors or their employees.</p> <p>3.11.4 The <i>Contractor</i> shall clean up garbage during and after construction and maintain the <i>Place of the Work</i> in a neat and orderly condition on a daily basis. Prior to leaving the <i>Place of the Work</i> and following completion of the <i>Work</i>, the <i>Contractor</i> shall make good all damage to the building and its components caused by the performance of the <i>Work</i> or by any <i>Subcontractor</i> or <i>Supplier</i>. The <i>Contractor</i> shall leave the <i>Place of the Work</i> in a clean and finished state; remove all <i>Construction Equipment</i> and materials; remove all paint, stains, labels, dirt, etc. from the <i>Place of the Work</i>; and touch up all damaged painted areas (if applicable). The <i>Contractor</i> shall be responsible for restoring those areas of the <i>Place of the Work</i>, impacted by the <i>Work</i>, to their original condition.”</p> <p>3.11.5 Without limitation to or waiver of the <i>Owner’s</i> other rights and remedies, the <i>Owner</i> shall have the right to back charge to the <i>Contractor</i> the cost of damage to the site caused by transportation in and out of the <i>Place of the Work</i> by the <i>Contractor</i>, <i>Subcontractors</i> or <i>Suppliers</i>, if not repaired before final payment.</p> <p>3.11.6 The <i>Contractor</i> shall dispose of debris at a location and in a manner acceptable to the <i>Owner</i> (and to the authorities having jurisdiction at the <i>Place of the Work</i> and at the disposal area) and the <i>Contractor</i> shall cover containers with tarpaulins.”</p>
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SC25 *NEW* GC 3.12 EXCESS SOIL MANAGEMENT

SC25.1	GC 3.12	<p><u>Add</u> new GC 3.12 – EXCESS SOIL MANAGEMENT as follows:</p> <p>“GC 3.12 EXCESS SOIL MANAGEMENT</p> <p>3.12.1 The <i>Contractor</i> shall be solely responsible for the proper management of all <i>Excess Soil</i> at the <i>Place of the Work</i> and for performance of the <i>Work</i> in compliance with the rules, regulations and practices required by the <i>Excess Soil Regulation</i> until such time as <i>Ready-for-Takeover</i> is achieved. Without restricting the generality of the previous sentence, the <i>Contractor’s</i> responsibility under this GC 3.12 includes the designation, transportation, tracking, temporary and/or final placement, record keeping, and reporting of all <i>Excess Soil</i> in connection with the <i>Work</i> all in compliance with the <i>Excess Soil Regulation</i>.</p> <p>3.12.3 The <i>Contractor</i> shall indemnify and save harmless the <i>Owner</i>, their agents, officers, directors, administrators, employees, consultants, successors and assigns from and against the consequences of any and all health and safety infractions committed directly by the <i>Contractor</i>, or those for whom it is responsible at law, under the <i>Excess Soil Regulation</i>, or any environmental protection legislation, including the payment of legal fees and disbursements on a substantial indemnity basis. Such indemnity shall apply to the extent to which the <i>Owner</i> is not covered by insurance.”</p>
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SC26 *NEW* GC 3.13 CONTRACTOR STANDARD OF CARE

SC26.1	3.13	<p><u>Add</u> a new GC 3.13 – CONTRACTOR STANDARD OF CARE as follows:</p> <p>“GC 3.13 CONTRACTOR STANDARD OF CARE</p> <p>“3.13.1 In performing its services and obligations under the <i>Contract</i>, the <i>Contractor</i> shall exercise the standard of care, skill and diligence that would normally be provided by an experienced and prudent contractor supplying similar services for similar projects. The <i>Contractor</i> acknowledges and agrees that throughout the <i>Contract</i>, the performance of the <i>Contractor’s</i> obligations, duties and responsibilities shall be interpreted in accordance with this standard. The <i>Contractor</i> shall exercise the same standard of care, skill and diligence in respect of any <i>Products</i>, personnel or procedures which it may recommend to the <i>Owner</i> or employ on the <i>Project</i>.</p> <p>3.13.2 The <i>Contractor</i> further represents, covenants and warrants to the <i>Owner</i> that:</p> <ul style="list-style-type: none">.1 the personnel it assigns to the <i>Project</i> are appropriately experienced;.2 it has a sufficient staff of qualified and competent personnel to replace any of its appointed representatives, subject to the <i>Owner’s</i> approval, in the event of death, incapacity, removal or resignation; and.3 there are no pending, threatened or anticipated claims, liabilities or contingent liabilities that would have a material effect on the financial ability of the <i>Contractor</i> to perform its work under the <i>Contract</i>.”
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PART 4 ALLOWANCES

SC27 GC 4.1 CASH ALLOWANCES

SC27.1	4.1.3	In GC 4.1.3 <u>delete</u> the words “through the <i>Consultant</i> ” and <u>replace</u> them with “in writing.”
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SC27.2	4.1.4	<p><u>Delete</u> GC 4.1.4 in its entirety and <u>replace</u> it with the following:</p> <p>"4.1.4 Where the actual cost of the <i>Work</i> under any cash allowance exceeds the amount of the allowance, any unexpended amounts from other cash allowances shall be reallocated, by the <i>Consultant</i> at the <i>Owner's</i> direction, to cover the shortfall, and, in that case, there shall be no additional amount added to the <i>Contract Price</i> for overhead and profit. Only where the actual cost of the <i>Work</i> under all cash allowances exceeds the total amount of all cash allowances shall the <i>Contractor</i> be compensated for the excess incurred and substantiated, plus an amount for overhead and profit on the excess only, as set out in the <i>Contract Documents</i>."</p>
SC27.3	4.1.5	<p><u>Delete</u> GC 4.1.5 in its entirety and <u>replace</u> it with the following:</p> <p>"4.1.5 The net amount of any unexpended cash allowances, after providing for any reallocations as contemplated in paragraph 4.1.4, shall be deducted from the <i>Contract Price</i> by <i>Change Order</i> without any adjustment for the <i>Contractor's</i> overhead and profit on such amount."</p>
SC27.4	4.1.8 and 4.1.9	<p><u>Add</u> new GC 4.1.8 and 4.1.9 as follows:</p> <p>"4.1.8 The <i>Owner</i> reserves the right to call, or to have the <i>Contractor</i> call, for competitive bids for portions of the <i>Work</i> to be paid for from cash allowances.</p> <p>4.1.9 Cash allowances cover the net cost to the <i>Contractor</i> of services, <i>Products</i>, <i>Construction Equipment</i>, freight, unloading, handling, storage, installation, provincial sales tax, and other authorized expenses incurred in performing any <i>Work</i> stipulated under the cash allowances but does not include any <i>Value Added Taxes</i> payable by the <i>Owner</i> and the <i>Contractor</i>."</p>

PART 5 PAYMENT

SC28 GC 5.1 FINANCING INFORMATION REQUIRED OF THE OWNER

SC28.1	5.1	<p><u>Delete</u> GC 5.1 – FINANCING INFORMATION REQUIRED OF THE OWNER and all paragraphs thereunder, including any reference to GC 5.1 throughout the <i>Contract</i>.</p>
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SC29 GC 5.2 APPLICATIONS FOR PAYMENT

SC29.1	5.2.1	<p><u>Delete</u> GC 5.2.1 and <u>replace</u> it with the following:</p> <p>"5.2.1 Upon execution of the <i>Contract</i>, and in any event prior to the <i>Contractor</i> submitting its first application for payment, the <i>Owner</i> shall issue a purchase order to the <i>Contractor</i> for the performance of the <i>Contract</i>. The number indicated on such purchase order must be clearly identifiable on all applications for payment. Applications for payment shall be dated the last day of each month or an alternative day of each month agreed to in writing by the parties, with each month representing one payment period under the <i>Contract</i> (each a "Payment Period"). Within 3 calendar days of the end of each <i>Payment Period</i>, the <i>Contractor</i> will submit a draft application for payment to the <i>Owner</i> and the <i>Consultant</i>. Upon receipt of the draft application for payment, and within 7 calendar days, a representative of each of the <i>Contractor</i>, <i>Owner</i>, and the <i>Consultant</i> shall attend a meeting to discuss and review the work completed during the <i>Payment Period</i>, including quantities, if applicable (the "Pre-Invoice Submission Meeting"). In the event that the scheduled date for the <i>Pre-Invoice Submission Meeting</i> is not a <i>Working Day</i>, the <i>Pre-Invoice Submission Meeting</i> shall occur on the next <i>Working Day</i>. The <i>Contractor</i> shall bring with it to the <i>Pre-Invoice Submission Meeting</i> the following:</p> <p>.1 a copy of the draft application for payment;</p>
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		<p>.2 any documents the <i>Contractor</i> is required to bring to the <i>Pre-Invoice Submission Meeting</i> as stipulated in the <i>Contract Documents</i> or as reasonably requested by the <i>Owner</i>; and</p> <p>.3 any other documents reasonably requested, in advance, by the <i>Owner</i> or the <i>Consultant</i>.”</p>
SC29.2	5.2.2	<p><u>Delete</u> GC 5.2.2 in its entirety and <u>replace</u> it with the following:</p> <p>“5.2.2 Applications for payment shall be given in accordance with the following requirements:</p> <p>.1 Within 5 calendar days following the <i>Pre-Invoice Submission Meeting</i>, the <i>Contractor</i> shall deliver its application for payment to the <i>Owner</i> and to the <i>Consultant</i> for <i>Work</i> performed during the <i>Payment Period</i> (“Proper Invoice Submission Date”) subject to the following:</p> <p>.1 if the fifth calendar day following the <i>Pre-Invoice Submission Meeting</i>, to which an invoice relates falls on a day that is not a <i>Working Day</i>, the <i>Proper Invoice Submission Date</i> shall be deemed to fall on the next <i>Working Day</i>.</p> <p>.2 The application for payment must be delivered to the <i>Owner</i> and to the <i>Consultant</i> in the same manner as a <i>Notice in Writing</i> during the hours of 9:00 am to 4:00pm (EST) on the <i>Proper Invoice Submission Date</i>. Delivery to the <i>Owner</i> shall be to the following email address or as otherwise instructed by the <i>Owner</i>:</p> <p style="text-align: center;">accounting.services@hpedsb.on.ca</p> <p>.3 If an application for payment is received after 4:00 p.m. (EST) on the applicable <i>Proper Invoice Submission Date</i>, the application for payment will not be considered or reviewed by the <i>Owner</i> and <i>Consultant</i> until the next <i>Proper Invoice Submission Date</i>. Notwithstanding the foregoing, the <i>Owner</i> in its sole and absolute discretion may elect to accept an application for payment submitted after 4:00 p.m. on the applicable <i>Proper Invoice Submission Date</i>; however, such acceptance shall not be construed as a waiver of any of its rights or waive or release the <i>Contractor</i>’s obligations to strictly comply with the requirements prescribed in this subparagraph 5.2.2.3.</p> <p>.4 No applications for payment shall be accepted by the <i>Owner</i> prior to the <i>Proper Invoice Submission Date</i>.</p> <p>.5 All applications for payment shall include all of the requirements for a <i>Proper Invoice</i> prescribed by the <i>Construction Act</i> and this <i>Contract</i> and be dated the last day of the applicable <i>Payment Period</i>.”</p>
SC29.3	5.2.3	<p><u>Delete</u> GC 5.2.3 and <u>replace</u> it with the following:</p> <p>“5.2.3 The amount claimed shall be for the value, proportionate to the amount of the <i>Contract</i>, of <i>Work</i> performed and <i>Products</i> delivered and incorporated into the <i>Work</i> as of the last date of the applicable <i>Payment Period</i>. Materials may also be deemed to be supplied to an improvement, for payment purposes, when, in the <i>Owner</i>’s opinion, they are placed and properly secured on the land on which the improvement is made, or placed upon land designated by the <i>Owner</i> or agent of the <i>Owner</i>, but placing the materials on the land so designated does not, of itself, make that land subject to a lien. No amount claimed shall include products delivered and incorporated into the work, unless the products are free and clear of all security interests, liens and other claims of third parties. No amount claimed shall include</p>

		<i>Products delivered to the Place of the Work unless the Products are free and clear of all security interests, liens, and other claims of third parties."</i>
SC29.4	5.2.4	After the word " <i>Consultant</i> " in GC 5.2.4 <u>add</u> the words "and the <i>Owner</i> "
SC29.5	5.2.5	After the word " <i>Consultant</i> " in GC 5.2.5 <u>add</u> the words "or the <i>Owner</i> ".
SC29.6	5.2.6	In GC 5.2.6, <u>delete</u> the word " <i>Consultant</i> " and <u>replace</u> it with " <i>Owner</i> ".
SC29.7	5.2.9	<u>Add</u> new 5.2.9 as follows: "5.2.9 The <i>Contractor</i> shall prepare and maintain current as-built drawings which shall consist of the <i>Drawings</i> and <i>Specifications</i> revised by the <i>Contractor</i> during the <i>Work</i> , showing changes to the <i>Drawings</i> and <i>Specifications</i> , which current as-built drawings shall be maintained by the <i>Contractor</i> and made available to the <i>Consultant</i> for review with each application for progress payment. The <i>Consultant</i> shall recommend to the <i>Owner</i> that the <i>Owner</i> retain a reasonable amount for the value of the as-built drawings not presented for review."

SC30 GC 5.3 PAYMENT

SC30.1	5.3.1	<p><u>Delete</u> GC 5.3.1 in its entirety, including all subparagraphs thereunder, and <u>replace</u> it with the following:</p> <p>"5.3.1 After receipt by the <i>Owner</i> and the <i>Consultant</i> of an application for payment submitted by the <i>Contractor</i> in accordance with GC 5.2 - APPLICATIONS FOR PAYMENT:</p> <p>.1 the <i>Consultant</i> will either:</p> <p>(a) issue to the <i>Owner</i> with a copy to the <i>Contractor</i>, a progress payment certificate in the amount applied for by the <i>Contractor</i> in the <i>Proper Invoice</i>, or</p> <p>(b) issue to the <i>Owner</i>, with a copy to the <i>Contractor</i>, a certificate for payment for an amount determined by the <i>Consultant</i> to be properly due to the <i>Contractor</i> after applying any credits, withheld amounts, or other set-offs which the <i>Consultant</i> has determined that the <i>Owner</i> is entitled to notwithstanding any notice of dispute or disagreement that the <i>Contractor</i> may have served, along with the <i>Consultant's</i> reasons why an amount other than what is claimed in the <i>Proper Invoice</i> is properly due to the <i>Contractor</i>, which finding the <i>Owner</i> may accept or amend prior to the <i>Owner</i> issuing a <i>Notice of Non-Payment</i>, if any, in accordance with GC 5.3.2;</p> <p>.2 the <i>Owner</i> shall make payment to the <i>Contractor</i> on account as provided in Article A-5 PAYMENT,</p> <p>(a) in the amount stated in the certificate for payment, or</p> <p>(b) in the amount stated in the certificate for payment less such amount stated in the <i>Owner's Notice of Non-Payment</i> issued pursuant to GC 5.3.3,</p> <p>on the 28th calendar day after receipt of a <i>Proper Invoice</i>, unless such 28th calendar day lands on a day that is other than a <i>Working Day</i>, in which case payment shall be made on the next <i>Working Day</i> after such 28th day."</p>
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SC30.2	5.3.2 to 5.3.7	<p><u>Add</u> new paragraphs 5.3.2, 5.3.3, 5.3.4, 5.3.4, 5.3.5, 5.3.6, and 5.3.7 as follows:</p> <p>5.3.2 All payments to the <i>Contractor</i> shall be processed using electronic funds transfer (“EFT”) and deposited directly to the <i>Contractor’s</i> bank account unless agreed to otherwise by the <i>Contractor</i> and the <i>Owner</i> in writing. Prior to the <i>Contractor</i> submitting its first application for payment, the <i>Owner</i> and the <i>Contractor</i> shall exchange such information as is necessary to facilitate <i>EFT</i> payments.</p> <p>5.3.3 In the event that the application for payment delivered by the <i>Contractor</i> pursuant to GC 5.2 - APPLICATIONS FOR PAYMENT does not include the requirements for a <i>Proper Invoice</i> or where the <i>Owner</i> disputes the amount claimed as payable in the <i>Proper Invoice</i>, then the <i>Owner</i> shall within 14 calendar days of receipt of the application for payment, issue a <i>Notice of Non-Payment</i> (Form 1.1).</p> <p>5.3.4 Where the <i>Owner</i> has delivered a <i>Notice of Non-Payment</i>, the <i>Owner</i> and the <i>Contractor</i> shall first engage in good faith negotiations to resolve the dispute. If within 5 calendar days following the issuance of a <i>Notice of Non-Payment</i>, despite good faith efforts by both parties and the assistance of the <i>Consultant</i>, the <i>Owner</i> and the <i>Contractor</i> cannot resolve the dispute, either party may commence an <i>Adjudication</i> in accordance with the procedures set out in the <i>Construction Act</i>. Any portion of the <i>Proper Invoice</i> which is not the subject of the <i>Notice of Non-Payment</i> shall be payable within the time period set out in GC 5.3.1.2.</p> <p>5.3.5 Provided that the <i>Owner</i> complies with its obligations under the <i>Construction Act</i>, and subject to any interim determination of an adjudicator in accordance with any <i>Adjudication</i>, and where applicable, a final determination made in accordance with the dispute resolution processes prescribed by this <i>Contract</i>, the <i>Owner</i> shall be entitled to claim in a <i>Notice of Non-Payment</i> a right to deduct from or, set off against, any payment of the <i>Contract Price</i>:</p> <ol style="list-style-type: none"> .1 any amount expended by the <i>Owner</i> in exercising the <i>Owner’s</i> rights under this <i>Contract</i> to perform any of the <i>Contractor’s</i> obligations that the <i>Contractor</i> has failed to perform; .2 any damages, costs or expenses (including, without limitation, reasonable legal fees and expenses) incurred by the <i>Owner</i> as a result of the failure of the <i>Contractor</i> to perform any of its obligations under the <i>Contract</i>; .3 any other amount owing from the <i>Contractor</i> to the <i>Owner</i> under this <i>Contract</i>. <p>5.3.6 The amounts disputed and described under the <i>Notice of Non-Payment</i> shall be held by the <i>Owner</i> until all disputed amounts of the <i>Proper Invoice</i> have been resolved pursuant to PART 8 – DISPUTE RESOLUTION.</p> <p>5.3.7 The <i>Contractor</i> represents, warrants, and covenants to the <i>Owner</i> that it is familiar with its prompt payment and trust obligations under the <i>Construction Act</i> and will take all required steps and measures to ensure that it complies with the applicable prompt payment and trust provisions under the <i>Construction Act</i> including, without limitation, section 8.1 of the <i>Construction Act</i>. Evidence of the <i>Contractor’s</i> compliance under this GC 5.3.7, including evidence demonstrating that all <i>EFTs</i> by the <i>Owner</i> to the <i>Contractor</i> are kept in a bank account in the <i>Contractor’s</i> name will be made available to the <i>Owner</i> within 5 <i>Working Days</i> following receipt by the <i>Contractor</i> of a <i>Notice in Writing</i> making such request.”</p>
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SC31 GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK- AND PAYMENT OF HOLDBACK

SC31.1	GC 5.4	<p><u>Delete</u> GC 5.4 – SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK in its entirety and <u>replace</u> it with the following:</p>
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		<p>GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK</p> <p>5.4.1 When the <i>Contractor</i> considers that <i>Substantial Performance of the Work</i> has been achieved, the <i>Contractor</i> shall prepare and submit to the <i>Consultant</i> and the <i>Owner</i> a comprehensive deficiency list of items to be completed or corrected, including any incomplete <i>Close-Out Documentation</i>, and apply for a review by the <i>Consultant</i> and the <i>Owner</i> to establish <i>Substantial Performance of the Work</i>. Failure to include an item on the list does not alter the responsibility of the <i>Contractor</i> to complete the <i>Contract</i>.</p> <p>5.4.2 Prior to, or as part of its written application for <i>Substantial Performance of the Work</i> the <i>Contractor</i> shall submit to the <i>Consultant</i> all closeout documentation required by the <i>Contract Documents</i>, including but not limited to, warranties, manuals, guarantees, as-built drawings and all other relevant literature from suppliers and manufacturers including, but not limited to, where applicable (the "Close-Out Documentation"): .1 equipment, maintenance, and operations manuals; .2 equipment specifications, data sheets and brochures, parts lists and assembly drawings, performance curves and other related data; .3 line drawings, value charts and control sheets sequences with description of the sequence of operations; .4 warranty documents; .5 guarantees; .6 certificates; .7 service and maintenance reports; .8 <i>Specifications</i>; .9 <i>Shop Drawings</i>; .10 coordination drawings; .11 testing and balancing results and reports; .12 <i>Commissioning</i> and quality assurance documentation; .13 distribution system diagrams; .14 spare parts; .15 samples; .16 existing reports and correspondence from authorities having jurisdiction in the <i>Place of the Work</i>; .17 inspection certificates; .18 red-lined record drawings from the construction trailer in two copies and .19 other materials or documentation required to be submitted under the <i>Contract</i>.</p> <p>5.4.3 The <i>Consultant</i> will review the <i>Work</i> to verify the validity of the application and shall promptly, and in any event, no later than 30 calendar days after receipt of the <i>Contractor's</i> complete deficiency list and application: .1 prepare a final deficiency list incorporating all items to be completed or corrected, including any incomplete or unsubmitted <i>Close-Out Documentation</i>. Each item shall have an indicated value for correction or completion and the determination of the total value of such items shall be determined pursuant to GC 5.8 – DEFICIENCY HOLDBACK. The final deficiency list complete with values is to be included with the <i>Consultant's</i> draft verification and shall be reviewed with the <i>Owner</i> prior to the <i>Consultant</i> rendering a determination in accordance with GC 5.4.3.2 .2 having completed the requirements set out in GC 5.4.3.1, (a) the <i>Consultant</i> shall advise the <i>Contractor</i> in writing that the <i>Work</i> or the designated portion of the <i>Work</i> is not substantially performed and give reasons why, or (b) the <i>Consultant</i> shall state the date of <i>Substantial Performance of the Work</i></p>
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		<p>in a certificate and issue a copy of that certificate to each the <i>Owner</i> and the <i>Contractor</i>.</p> <p>5.4.4 Following the issuance of the certificate of <i>Substantial Performance of the Work</i> referenced in subparagraph 5.4.3.2(b):</p> <ol style="list-style-type: none">.1 The <i>Contractor</i> shall publish, in a construction trade newspaper in the area of the location of the <i>Work</i>, a copy of the certificate of <i>Substantial Performance of the Work</i> referred to in GC 5.4.2.2(b) within seven (7) calendar days of receiving a copy of the certificate signed by the <i>Consultant</i>, and the <i>Contractor</i> shall provide suitable evidence of the publication to the <i>Consultant</i> and the <i>Owner</i>. If the <i>Contractor</i> fails to publish such notice, the <i>Owner</i> shall be at liberty to publish said certificate and back-charge the <i>Contractor</i> its reasonable costs for doing so;.2 The <i>Contractor</i> shall complete the <i>Work</i> within forty (40) calendar days of the date certified as the date of <i>Substantial Performance of the Work</i>;.3 Notwithstanding any other provisions of the <i>Contract</i>, no payments will be processed between <i>Substantial Performance of the Work</i> and <i>Ready-for-Takeover</i>;.4 The <i>Owner</i> reserves the right to contract out any or all unfinished <i>Work</i> if it has not been completed within forty (40) days of <i>Substantial Performance of the Work</i> using, without limitation, the funds retained in accordance with GC 5.8 - DEFICIENCY HOLDBACK, without prejudice to any other right or remedy and without affecting the warranty period. The cost to the <i>Owner</i> of completing the <i>Work</i> including <i>Owner</i> and <i>Consultant</i> wages and materials shall be deducted from the <i>Contract Price</i>. <p>5.4.5 After publication of the certificate of the <i>Substantial Performance of the Work</i>, and provided that the <i>Contractor</i> has completed performance of the <i>Work</i> within the 40 calendar days following certification of <i>Substantial Performance of the Work</i>, the <i>Contractor</i> may submit an application for payment of the outstanding <i>Construction Act</i> holdback amount, which application for payment shall:</p> <ol style="list-style-type: none">.1 include all of the requirements listed in EXHIBIT "1" - PROJECT SPECIFIC REQUIREMENTS FOR A PROPER INVOICE, as applicable to the application for payment of the holdback amount; and.2 include a statement that the <i>Contractor</i> has not received any written notices of lien or any claims for liens from any <i>Subcontractor</i> or <i>Supplier</i>. <p>5.4.6 The <i>Construction Act</i> holdback amount shall become due and payable the day immediately following the expiration of the holdback period prescribed by the <i>Construction Act</i> (in most cases being the 61st calendar day following the publication of the certificate of <i>Substantial Performance of the Work</i> referred to in GC 5.4.4.1), subject to the occurrence of any of the following:</p> <ol style="list-style-type: none">.1 the preservation of a lien in respect of the <i>Project</i> that has not been satisfied, discharged or otherwise provided for in accordance with the <i>Construction Act</i>;.2 receipt by the <i>Owner</i> of a written notice of lien that has not been satisfied, discharged or otherwise provided for in accordance with the <i>Construction Act</i>; or.3 prior to the expiry of 40 calendar days following the publication of the certificate of <i>Substantial Performance of the Work</i>, the <i>Owner</i> publishes a <i>Notice of Non-Payment</i> of holdback in accordance with the <i>Construction Act</i> (Form 6), setting out the amount of holdback that will not be paid, which may include non-payment to secure the correction of deficiencies and/or the completion of the <i>Work</i>.
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		<p>5.4.7 Notwithstanding the <i>Owner's</i> obligation to make payment of the holdback amount in accordance with GC 5.4.6, the processing of such payment remains subject to the <i>Owner's</i> internal <i>EFT</i> timing limitations. The <i>Owner</i> covenants, and the <i>Contractor</i> agrees, that payment of the holdback shall be made by <i>EFT</i> at the first opportunity during the <i>Owner's</i> normal processing of <i>EFTs</i> upon the holdback becoming due in accordance with GC 5.4.6..</p>
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SC32 GC 5.5 FINAL PAYMENT

<p>SC32.1</p>	<p>GC 5.5</p>	<p><u>Delete</u> GC 5.5 in its entirety, including all subparagraphs thereunder and <u>replace</u> it with the following:</p> <p>"5.5.1 When <i>Ready-for-Takeover</i> has been achieved in accordance with GC 12.1 – READY-FOR-TAKEOVER and the <i>Contractor</i> considers the <i>Work</i> is complete, and after the <i>Contractor</i>, the <i>Owner</i>, and the <i>Consultant</i> have attended a <i>Pre-Invoice Submission Meeting</i> analogous to the requirement in GC 5.2.1 (the "<i>Final Pre-Invoice Submission Meeting</i>"), the <i>Contractor</i> may submit an application for final payment to the <i>Owner</i> and to the <i>Consultant</i>, which application for payment shall:</p> <ul style="list-style-type: none"> .1 include all of the requirements set out in GC 5.2.2, including without limitation those requirements listed in APPENDIX "1" - PROJECT SPECIFIC REQUIREMENTS FOR A PROPER INVOICE that are specific to an application for final payment; and .2 if applicable, (a) a certificate from the <i>Consultant</i> or written confirmation from the <i>Owner</i> that the deficiencies or incomplete <i>Work</i> waived by the <i>Owner</i> pursuant to GC 12.1.2 have been fully rectified as of the date of the <i>Contractor's</i> application for final payment, and/or (b) written confirmation, signed by the <i>Owner</i> and the <i>Contractor</i>, that the <i>Contract Price</i> has been reduced by a specified amount in exchange for the <i>Owner</i> releasing the <i>Contractor</i> of its obligation to rectify the certain outstanding deficiencies and/or incomplete <i>Work</i> waived by the <i>Owner</i> pursuant to GC 12.1.2, as detailed in such written confirmation. <p>5.5.2 No later than 5 calendar days prior to the <i>Final Pre-Invoice Submission Meeting</i>, the <i>Contractor</i> will, if not already provided, submit to the <i>Consultant</i> all <i>Close-Out Documentation</i>.</p> <p>5.5.3 Delivery of all <i>Close-Out Documentation</i> is a requirement for the <i>Proper Invoice</i> for final payment.</p> <p>5.5.4 After receipt by the <i>Owner</i> and the <i>Consultant</i> of an application for payment submitted by the <i>Contractor</i> that is a <i>Proper Invoice</i> and by no later than 10 calendar days after the receipt of the <i>Proper Invoice</i>:</p> <ul style="list-style-type: none"> .1 the <i>Consultant</i> will either: <ul style="list-style-type: none"> (a) issue to the <i>Owner</i> with a copy to the <i>Contractor</i>, a progress payment certificate in the amount applied for by the <i>Contractor</i> in the <i>Proper Invoice</i>, or (b) deliver a finding to the <i>Owner</i> with reasons why an amount other than what is claimed in the <i>Proper Invoice</i> is properly due to the <i>Contractor</i>, which finding the <i>Owner</i> may accept or amend prior to issuing a <i>Notice of Non-Payment</i> (Form 1.1), if any, in accordance with GC 5.5.2; .2 the <i>Owner</i> shall make payment to the <i>Contractor</i> on account as provided in Article A-5 PAYMENT,
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		<p>(a) in the amount stated in the certificate for payment, or</p> <p>(b) in the amount stated in the certificate for payment less such amount stated in the <i>Owner's Notice of Non-Payment</i> issued pursuant to GC 5.5.5,</p> <p>on the 28th calendar day after receipt of a <i>Proper Invoice</i>, unless such 28th calendar day lands on a day that is other than a <i>Working Day</i>, in which case payment shall be made on the next <i>Working Day</i> after such 28th day.</p> <p>5.5.5 In the event that the application for final payment delivered by the <i>Contractor</i> does not include the requirements of GC 5.5.1 (including the requirements for a <i>Proper Invoice</i>) and GC 5.5.2 or where the <i>Owner</i> disputes the amount claimed as payable in the <i>Proper Invoice</i>, then the <i>Owner</i> shall within 14 calendar days of receipt of the application for payment, issue a <i>Notice of Non-Payment</i>. Where the <i>Owner</i> has delivered a <i>Notice of Non-Payment</i>, as specified under this GC 5.5.5, the <i>Owner</i> and the <i>Contractor</i> shall first engage in good faith negotiations to resolve the dispute. If within 5 calendar days following the issuance of a <i>Notice of Non-Payment</i>, despite good faith efforts by both parties with the assistance of the <i>Consultant</i>, the <i>Owner</i> and the <i>Contractor</i> cannot resolve the dispute, either party may commence an <i>Adjudication</i> in accordance with the procedures set out in the <i>Construction Act</i>. Any portion of the <i>Proper Invoice</i> which is not the subject of the <i>Notice of Non-Payment</i> shall be payable within the time period set out in GC 5.5.4.2.</p> <p>5.5.6 Subject to the provisions of the <i>Construction Act</i> and any other rights conferred on the <i>Owner</i> at law or under this <i>Contract</i> to withhold payment or backcharge or set-off against payment, the <i>Owner</i> shall pay the amount payable under a <i>Proper Invoice</i> for final payment in accordance with the <i>Construction Act</i>.</p> <p>5.5.7 When the <i>Consultant</i> issues certificate of completion in accordance with GC 5.5.4.1, the <i>Consultant</i> shall also issue a certificate for release of any holdback for finishing work amount. In accordance with the <i>Construction Act</i>, the <i>Owner</i> may retain any amounts which are required by law to satisfy any liens against the <i>Work</i>, in respect of any third party claims made to the <i>Owner</i> in respect of the <i>Contract</i> or the <i>Work</i>, and in respect of any claims the <i>Owner</i> may have against the <i>Contractor</i>. Subject to the foregoing, the <i>Owner</i> shall release the holdback in accordance with the <i>Construction Act</i>."</p>
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SC33 GC 5.6 DEFERRED WORK

SC33.1	5.6.1	<p><u>Delete</u> paragraph 5.6.1 and <u>replace</u> with the following:</p> <p>"5.6.1 If because of conditions reasonably beyond the control of the <i>Contractor</i>, there are items of work that cannot be performed, payment in full for that portion of the <i>Work</i> which has been performed as certified by the <i>Consultant</i> shall not be withheld or delayed by the <i>Owner</i> on account thereof, but the <i>Owner</i> may withhold, subject to its requirement to issue a <i>Notice of Non-Payment</i> under the <i>Construction Act</i>, until the remaining portion of the <i>Work</i> is finished, only such an amount that the <i>Consultant</i> determines is sufficient and reasonable to cover the cost of performing such remaining work. The remaining work shall be valued as deficient work as defined in GC 5.8.1."</p>
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SC34 *NEW* GC 5.8 DEFICIENCY HOLDBACK

SC34.1	5.8.1	<u>Add</u> new GC 5.8 – DEFICIENCY HOLDBACK as follows:
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		<p>“GC 5.8 DEFICIENCY HOLDBACK</p> <p>5.8.1 Notwithstanding any provisions contained in the <i>Contract Documents</i> concerning certification and release of monies to the <i>Contractor</i>, the <i>Owner</i> reserves the right to establish a deficiency holdback, at the time of the review for <i>Substantial Performance of the Work</i>, based on a 200% dollar value of the deficiencies listed by the <i>Consultant</i>.</p> <p>5.8.2 In performing the calculation under GC 5.8.1,</p> <p>.1 no individual deficiency will be valued at less than five hundred dollars (\$500.00); and</p> <p>.2 for any <i>Close-Out Documentation</i> not submitted in advance of or as part of the <i>Contractor's</i> application for <i>Substantial Performance of the Work</i>, an amount shall be retained by the <i>Owner</i> as part of the deficiency holdback that is equal to the estimated time and material costs to retain a third-party to re-create the applicable <i>Close-Out Documentation</i>, as determined by the <i>Consultant</i>, until such time as the applicable <i>Close-Out Documentation</i> is submitted and approved.</p> <p>5.8.3 The deficiency holdback shall be due and payable to the <i>Contractor</i> on the 61st day following completion of all of the deficiencies listed by the <i>Consultant</i>, there being no claims for lien registered against the title to the <i>Place of the Work</i> issued in accordance with the <i>Construction Act</i>, and less any amounts disputed under an <i>Owner's Notice of Non-Payment</i> (Form 1.1).”</p>
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PART 6 CHANGES IN THE WORK

SC35 GC 6.1 OWNER'S RIGHT TO MAKE CHANGES

SC35.1	6.1.2	<p><u>Add</u> the following to the end of GC 6.1.2:</p> <p>“This requirement is of the essence and it is the express intention of the parties that any claims by the <i>Contractor</i> for a change in the <i>Contract Price</i> and/or <i>Contract Time</i> shall be barred unless there has been strict compliance with PART 6 - CHANGES IN THE WORK. No verbal dealings between the parties and no implied acceptance of alterations or additions to the <i>Work</i> and no claims that the <i>Owner</i> has been unjustly enriched by any alteration or addition to the <i>Work</i>, whether in fact there is any such unjust enrichment or not, shall be the basis of a claim for additional payment under this <i>Contract</i>, an increase to the <i>Contract Price</i>, or a claim for any extension of the <i>Contract Time</i>.”</p>
SC35.2	6.1.3 to 6.1.8	<p><u>Add</u> new paragraphs 6.1.3, 6.1.4, 6.1.5, 6.1.6, 6.1.7 and 6.1.8 as follows:</p> <p>“6.1.3 The <i>Contractor</i> agrees that changes resulting from construction coordination, including but not limited to, site surface conditions, site coordination, and <i>Subcontractor and Supplier</i> coordination are included in the <i>Contract Price</i> and the <i>Contractor</i> shall be precluded from making any claim for a change in the <i>Contract Price</i> as a result of such changes.</p> <p>6.1.4 Labour costs shall be actual, prevailing rates at the <i>Place of the Work</i> paid to workers, plus statutory charges on labour including WSIB, unemployment insurance, Canada pension, vacation pay, hospitalization and medical insurance. The <i>Contractor</i> shall provide these rates, when requested by the <i>Consultant</i>, for review and/or agreement.</p> <p>6.1.5 Quotations for changes to the <i>Work</i> shall only include <i>Direct Costs</i> and be accompanied by itemized breakdowns together with detailed, substantiating quotations or cost vouchers from <i>Subcontractors</i> and <i>Suppliers</i>, submitted in a</p>

		<p>format acceptable to the <i>Consultant</i> and shall include any <i>Direct Costs</i> associated with extensions in <i>Contract Time</i>.</p> <p>6.1.6 When both additions and deletions covering related <i>Work</i> or substitutions are involved in a change to the <i>Work</i>, payment, including <i>Overhead</i> and profit, shall be calculated on the basis of the net difference, if any, with respect to that change in the <i>Work</i>.</p> <p>6.1.7 No extension to the <i>Contract Time</i> shall be granted for changes in the <i>Work</i> unless the <i>Contractor</i> can clearly demonstrate that such changes significantly alter the overall construction schedule submitted at the commencement of the <i>Work</i>. Extensions of <i>Contract Time</i> and all associated costs, if approved, shall be included in the relevant <i>Change Order</i>.</p> <p>6.1.8 When a change in the <i>Work</i> is proposed or required, the <i>Contractor</i> shall within 10 calendar days submit to the <i>Consultant</i> for review a claim for a change in <i>Contract Price</i> and/or <i>Contract Time</i>. Should 10 calendar days be insufficient to prepare the submission, the <i>Contractor</i> shall within 5 calendar days, advise the <i>Consultant</i> in writing of the proposed date of submission of the claim. Claims submitted after the dates prescribed herein will not be considered."</p>
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SC36 GC 6.2 CHANGE ORDER

SC36.1	6.2.1	<p>In paragraph 6.2.1 after the last sentence in the paragraph <u>add</u> the following:</p> <p>"The adjustment in the <i>Contract Time</i> and the <i>Contract Price</i> shall include an adjustment, if any, for delay or for the impact that the change in the <i>Work</i> has on the <i>Work</i> of the <i>Contractor</i>, and once such adjustment is made, the <i>Contractor</i> shall be precluded from making any further claims for delay or impact with respect to the change in the <i>Work</i>."</p>
SC36.2	6.2.3 to 6.2.5	<p><u>Add</u> new paragraphs 6.2.3, 6.2.4, and 6.2.5 as follows:</p> <p>"6.2.3 The value of a change shall be determined in one or more of the following methods as directed by the <i>Consultant</i>:</p> <ul style="list-style-type: none"> .1 by estimate and acceptance of a lump sum; .2 by negotiated unit prices which include the <i>Contractor's</i> overhead and profit, or; .3 by the actual <i>Direct Cost</i> to the <i>Owner</i>, such costs to be the actual cost after all credits included in the change have been deducted, plus the following ranges of mark-up on such costs: <ul style="list-style-type: none"> .1 for <i>Change Orders</i> with a value of \$0 to \$15,000 the total <i>Subcontractor/Supplier</i> mark-up including <i>Overhead</i> and profit shall be 10% and the total <i>Contractor</i> mark-up including overhead and profit shall be 5%. .2 for <i>Change Orders</i> in excess of \$15,000, the total <i>Subcontractor/Supplier</i> mark-up including <i>Overhead</i> and profit shall be 5% and the total <i>Contractor</i> mark-up including <i>Overhead</i> and profit shall be 3%. <p>6.2.4 All quotations shall include <i>Direct Costs</i> and be submitted in a complete manner listing:</p> <ul style="list-style-type: none"> .1 quantity of each material, .2 unit cost of each material, .3 man hours involved,

		<p>.4 cost per hour, .5 <i>Subcontractor</i> quotations submitted listing items 1 to 4 above and item 6 below. .6 mark-up.</p> <p>6.2.5 The <i>Owner</i> and the <i>Consultant</i> will not be responsible for delays to the <i>Work</i> resulting from late, incomplete or inadequately broken-down valuations submitted by the <i>Contractor</i>.”</p>
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SC37 GC 6.3 CHANGE DIRECTIVE

SC37.1	6.3.6.1	<p><u>Amend</u> paragraph 6.3.6.1 by deleting the final period and adding the following:</p> <p>“.1 Ten percent (10%) for profit plus five percent (5%) for overhead on work by the <i>Contractor</i>’s own forces up to the value of \$15,000 and five percent (5%) for profit plus three percent (3%) for <i>Overhead</i> on work by the <i>Contractor</i>’s own forces in excess of \$15,000 and,</p> <p>.2 Ten percent (10%) fee on amounts paid to <i>Subcontractors</i> or <i>Suppliers</i> under subparagraph 6.3.7.9 for changes up to the value of \$15,000 and five percent (5%) on changes over \$15,000.</p> <p>Unless a <i>Subcontractor</i>’s or <i>Supplier</i>’s price has been approved by the <i>Owner</i>, the <i>Subcontractor</i> or <i>Supplier</i> shall be entitled to its actual net cost as determined in accordance with paragraph 6.3.7, plus ten percent (10%) for profit and five percent (5%) for <i>Overhead</i> on such actual net cost for changes in the <i>Work</i>, up to the value of \$15,000 and five percent (5%) for profit and three percent (3%) for overhead on such actual net cost changes in the <i>Work</i> in excess of \$15,000.”</p>
SC37.2	6.3.6.2	<p><u>Delete</u> paragraph 6.3.6.2 and <u>replace</u> it with the following:</p> <p>“.2 If a change in the <i>Work</i> results in a net decrease in the <i>Contract Price</i>, the amount of the credit shall be the net cost, without deduction for <i>Overhead</i> or profit.”</p>
SC37.3	6.3.7.1(4)	<u>Delete</u> GC 6.3.7.1(4).
SC37.4	6.3.7.7	Amend GC 6.3.7.7 by <u>deleting</u> the words “described in paragraph 6.3.7.1” and <u>replacing</u> them with “approved by the <i>Owner</i> in writing and in advance of any such expenses being incurred;”
SC37.5	6.3.7.9	Amend GC 6.3.7.9 by <u>adding</u> the following to the end of the paragraph: “...when specifically requested by the <i>Owner</i> or as directed by the <i>Consultant</i> .”.
SC37.6	6.3.7.10	Amend GC 6.3.7.10 by <u>adding</u> the following to the end of the paragraph: “, provided that such amounts are not caused by negligent acts, omissions, or default of the <i>Contractor</i> or <i>Subcontractor</i> .”.
SC37.7	6.3.7.13	<u>Delete</u> GC 6.3.7.13.
SC37.8	6.3.7.15	<u>Delete</u> GC 6.3.7.15.
SC37.9	6.3.7.17	<u>Delete</u> GC 6.3.7.17 in its entirety including all subparagraphs.
SC37.10	6.3.11	<u>Delete</u> GC 6.3.11 and <u>replace</u> it with the following:

		“6.3.11 The value of the <i>Work</i> performed as a result of a <i>Change Directive</i> shall not be eligible to be included in progress payments until the amount, including the method for determining the amount, of such <i>Change Directive</i> has been determined.”
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SC38 GC 6.4 CONCEALED OR UNKNOWN CONDITIONS

SC38.1	6.4.1	<p><u>Delete</u> paragraph 6.4.1 in its entirety and <u>replace</u> with the following:</p> <p>“6.4.1.1 Prior to the submission of the bid on which the Contract was awarded, the Contractor confirms that it carefully investigated the Place of the Work insofar as the Place of Work was available for investigation and, in doing so, applied to that investigation the degree of care and skill required by paragraph 3.14.1</p> <p>6.4.1.2 No claim by the <i>Contractor</i> will be considered by the <i>Owner</i> or the <i>Consultant</i> in connection with conditions which could reasonably have been ascertained by such investigation or other due diligence undertaken prior to the execution of the <i>Contract</i>.</p>
SC38.2	6.4.2	<p><u>Amend</u> paragraph 6.4.2 by <u>adding</u> a new first sentence as follows:</p> <p>“Having regard to paragraph 6.4.1, if the <i>Contractor</i> believes that the conditions of the <i>Place of the Work</i> differ materially from those reasonably anticipated, differ materially from those indicated in the <i>Contract Documents</i> or were concealed from discovery notwithstanding the conduct of the investigation described in paragraph 6.4.1, it shall provide the <i>Owner</i> and the <i>Consultant</i> with <i>Notice in Writing</i> no later than five (5) <i>Working Days</i> after the first observation of such conditions.”</p> <p>-and-</p> <p><u>amend</u> the existing second sentence of paragraph 6.4.2 in the second line, following the word “materially” by <u>adding</u> the words “or were concealed from discovery notwithstanding the conduct of the investigation described in paragraph 6.4.1,”.</p>
SC38.3	6.4.3	<p><u>Delete</u> paragraph 6.4.3 in its entirety and <u>substitute</u> the following:</p> <p>“6.4.3 If the <i>Consultant</i> makes a finding pursuant to paragraph 6.4.2 that no change in the <i>Contract Price</i> or the <i>Contract Time</i> is justified, the <i>Consultant</i> shall report in writing the reasons for this finding to the <i>Owner</i> and the <i>Contractor</i>.”</p>
SC38.4	6.4.5	<p><u>Add</u> new paragraph 6.4.5 as follows:</p> <p>“6.4.5 No claims for additional compensation or for an extension of <i>Contract Time</i> shall be allowed if the <i>Contractor</i> fails to give <i>Notice in Writing</i> to the <i>Owner</i> or <i>Consultant</i>, as required by paragraph 6.4.2.”</p>

SC39 GC 6.5 DELAYS

SC39.1	6.5.1	In paragraph 6.5.1 <u>delete</u> the words after the word “for” in the fourth line and <u>replace</u> them with the words “...reasonable <i>Direct Costs</i> directly flowing from the delay, but excluding any consequential, indirect or special damages (including, without limitation, loss of profits, loss of opportunity or loss of productivity).”
SC39.2	6.5.2	<p><u>Delete</u> GC 6.5.2 in its entirety and <u>replace</u> it with the following:</p> <p>“6.5.2 If the <i>Contractor</i> is delayed in the performance of the <i>Work</i> by a stop work order issued by a court or other public authority and providing that such order was issued on account of a direct breach, violation, contravention, or a failure to abide by any laws, ordinances, rules, regulations, or codes by the <i>Owner</i>, <i>Other Contractor(s)</i>, or the <i>Consultant</i>, and relating to the <i>Work</i> or the <i>Place of the Work</i>, then the <i>Contract</i></p>

		<p><i>Time</i> shall be extended for such reasonable time as the <i>Consultant</i> may determine. The <i>Contractor</i> shall be reimbursed by the <i>Owner</i> for reasonable <i>Direct Costs</i> directly flowing from the delay, but excluding any consequential, indirect or special damages (including, without limitation, loss of profits, loss of opportunity or loss of productivity)."</p>
SC39.3	6.5.3	<p><u>Delete</u> paragraph 6.5.3 in its entirety and <u>replace</u> with the following:</p> <p>"6.5.3 If either party is delayed in the performance of their obligations under this <i>Contract</i> by <i>Force Majeure</i>, then the <i>Contract Time</i> shall be extended for such reasonable time as the <i>Owner</i> and the <i>Contractor</i> shall agree. The extension of time shall not be less than the time lost as a result of the event causing the delay, unless the parties agree to a shorter extension. Neither party shall be entitled to payment for costs incurred by such delays. Upon reaching agreement on the extension of the <i>Contract Time</i> attributable to the <i>Force Majeure</i> event, the <i>Owner</i> and the <i>Contractor</i> shall execute a <i>Change Order</i> indicating the length of the extension to the <i>Contract Time</i> and confirming that there are no costs payable by the either party for the extension of <i>Contract Time</i>. However, if at the time an event of <i>Force Majeure</i> arises a party is in default of its obligations under the <i>Contract</i> and has received a notice of default pursuant to PART 7 – DEFAULT NOTICE, this paragraph 6.5.3 shall not excuse a party from its obligation to cure the default(s). For greater certainty, the defaulting party, to the extent possible, must continue to address and cure the default notwithstanding an event of <i>Force Majeure</i>."</p>
SC39.4	6.5.4	<p><u>Delete</u> paragraph 6.5.4 in its entirety and <u>replace</u> it with the following:</p> <p>"6.5.4 No extension or compensation shall be made for delay or impact on the <i>Work</i> unless notice in writing of a claim is given to the <i>Consultant</i> not later than ten (10) <i>Working Days</i> after the commencement of the delays or impact on the <i>Work</i>, provided however, that, in the case of a continuing cause of delay or impact on the <i>Work</i>, only one notice of claim shall be necessary."</p>
SC39.5	6.5.6 to 6.5.8	<p><u>Add</u> new paragraphs 6.5.6, 6.5.7 and 6.5.8 as follows:</p> <p>"6.5.6 If the <i>Contractor</i> is delayed in the performance of the <i>Work</i> by an act or omission of the <i>Contractor</i> or anyone directly or indirectly employed or engaged by the <i>Contractor</i>, or by any cause within the <i>Contractor's</i> control, then (i) firstly, at its expense, and to the extent possible, the <i>Contractor</i> shall accelerate the work and/or provide overtime work to recover time lost by a delay arising under this paragraph 6.5.6, and (ii) secondly, where it is not possible for the <i>Contractor</i> to recover the time lost by implementing acceleration measures and/or overtime work, the <i>Contract Time</i> may be extended for such reasonable time as the <i>Owner</i> may decide in consultation with the <i>Consultant</i> and the <i>Contractor</i>. The <i>Owner</i> shall be reimbursed by the <i>Contractor</i> for all reasonable costs incurred by the <i>Owner</i> as the result of such delay, including, but not limited to, <i>Owner's</i> staff costs, the cost of all additional services required by the <i>Owner</i> from the <i>Consultant</i> or any sub-consultants, project managers, or others employed or engaged by the <i>Owner</i>, and in particular, the costs of the <i>Consultant's</i> services during the period between the date of <i>Substantial Performance of the Work</i> stated in Article A-1 herein, as the same may be extended through the provision of these General Conditions, and any later or actual date of <i>Substantial Performance of the Work</i> achieved by the <i>Contractor</i>.</p> <p>6.5.7 Without limiting the obligations of the <i>Contractor</i> described in GC 3.2 – CONSTRUCTION BY OWNER OR OTHER CONTRACTORS or GC 9.4 – CONSTRUCTION SAFETY, the <i>Owner</i> or <i>Consultant</i> may, by <i>Notice in Writing</i>, direct the <i>Contractor</i> to stop the <i>Work</i> where the <i>Owner</i> or <i>Consultant</i> determines that there is an imminent risk to the safety of persons or property at the <i>Place of the Work</i>. In the event that the <i>Contractor</i> receives such notice, it shall immediately stop the <i>Work</i> and secure the site. The <i>Contractor</i> shall not be entitled to an extension of the <i>Contract Time</i> or to an increase in the <i>Contract Price</i> unless the resulting</p>

		<p>delay, if any, would entitle the <i>Contractor</i> to an extension of the <i>Contact Time</i> or the reimbursement of the <i>Contractor's</i> costs as provided in paragraphs 6.5.1, 6.5.2 or 6.5.3.</p> <p>6.5.8 No claim for delay shall be made by the <i>Contractor</i> and the <i>Contract Time</i> shall not be extended due to climatic conditions or arising from the <i>Contractor's</i> efforts to maintain the <i>Construction Schedule</i>."</p>
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PART 7 DEFAULT NOTICE

SC40 GC 7.1

OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK OR TERMINATE THE CONTRACT

SC40.1	7.1.2	In GC 7.1.2, <u>delete</u> the words "and if the <i>Consultant</i> has given a written statement to the <i>Owner</i> and <i>Contractor</i> which provides the detail of such neglect to perform the <i>Work</i> properly or such failure to comply with the requirements of the <i>Contract</i> to a substantial degree".
SC40.2	7.1.3.4	<u>Add</u> a new subparagraph 7.1.3.4 as follows: ".4 an "acceptable schedule" as referred to in subparagraph 7.1.3.2. means a schedule approved by the <i>Consultant</i> and the <i>Owner</i> wherein the default can be corrected within the balance of the <i>Contract Time</i> and shall not cause delay to any other aspect of the <i>Work</i> or the work of other contractors, and in no event shall it be deemed to give a right to extend the <i>Contract Time</i> ."
SC40.3	7.1.4.1	<u>Delete</u> subparagraph 7.1.4.1 and <u>replace</u> it with the following: ".1 correct such default and deduct the cost, including <i>Owner's</i> expenses, thereof from any payment then or thereafter due the <i>Contractor</i> ."
SC40.4	7.1.4.2	<u>Delete</u> subparagraph 7.1.4.2 and <u>replace</u> it with the following: ".2 by providing <i>Notice in Writing</i> to the <i>Contractor</i> , terminate the <i>Contractor's</i> right to continue with the <i>Work</i> in whole or in part or terminate the <i>Contract</i> , and publish a notice of termination (Form 8) in accordance with the <i>Act</i> ."
SC40.5	7.1.5.3	In subparagraph 7.1.5.3 <u>delete</u> the words: "however, if such cost of finishing the <i>Work</i> is less than the unpaid balance of the <i>Contract Price</i> , the <i>Owner</i> shall pay the <i>Contractor</i> the difference"
SC40.6	7.1.6 to 7.1.10	<u>Delete</u> GC 7.1.6 and <u>replace</u> it with new paragraphs 7.1.6, 7.1.7, 7.1.8, 7.1.9 and 7.1.10 as follows: "7.1.6 In addition to its right to terminate the <i>Contract</i> set out herein, the <i>Owner</i> may terminate this <i>Contract</i> at any time for any other reason and without cause upon giving the <i>Contractor</i> fifteen (15) <i>Working Days Notice in Writing</i> to that effect. In such event, the <i>Contractor</i> shall be entitled to be paid for all <i>Work</i> performed including reasonable profit, for loss sustained upon <i>Products</i> and <i>Construction Equipment</i> , and such other damages as the <i>Contractor</i> may have sustained as a result of the termination of the <i>Contract</i> , but in no event shall the <i>Contractor</i> be entitled to be compensated for any loss of profit on unperformed portions of the <i>Work</i> , or indirect, special, or consequential damages incurred. 7.1.7 The <i>Owner</i> may suspend <i>Work</i> under this <i>Contract</i> at any time for any reason and without cause upon giving the <i>Contractor Notice in Writing</i> to that effect. In such event, the <i>Contractor</i> shall be entitled to be paid for all <i>Work</i> performed to the date of suspension and be compensated for all actual costs incurred arising from the suspension, including reasonable profit, for loss sustained upon <i>Products</i> and <i>Construction Equipment</i> , and such other damages as the <i>Contractor</i> may have sustained as a result of the suspension of the <i>Work</i> , but in no event shall the

		<p><i>Contractor</i> be entitled to be compensated for any indirect, special, or consequential damages incurred. In the event that the suspension continues for more than thirty (30) calendar days, the <i>Contract</i> shall be deemed to be terminated and the provisions of paragraph 7.1.6 shall apply.</p> <p>7.1.8 In the case of either a termination of the <i>Contract</i> or a suspension of the <i>Work</i> under GC 7.1 - OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK, OR TERMINATE THE CONTRACT or GC 7.2 - CONTRACTOR'S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT, the <i>Contractor</i> shall use its best commercial efforts to mitigate the financial consequences to the <i>Owner</i> arising out of the termination or suspension, as the case may be.</p> <p>7.1.9 Upon the resumption of the <i>Work</i> following a suspension under GC 7.1 - OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK, OR TERMINATE THE CONTRACT or GC 7.2 - CONTRACTOR'S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT, the <i>Contractor</i> will endeavour to minimize the delay and financial consequences arising out of the suspension.</p> <p>7.1.10 The <i>Contractor's</i> obligations under the <i>Contract</i> as to quality, correction, and warranty of the <i>Work</i> performed by the <i>Contractor</i> up to the time of termination or suspension shall continue after such termination of the <i>Contract</i> or suspension of the <i>Work</i>."</p>
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SC41 GC 7.2

CONTRACTOR'S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT

SC41.1	7.2.2	<p><u>Delete</u> paragraph 7.2.2 and <u>replace</u> it with the following:</p> <p>"7.2.2 If the <i>Work</i> is suspended or otherwise delayed for a period of 40 consecutive <i>Working Days</i> or more under a stop work order issued by a court or other public authority on account of a breach, violation, contravention, or a failure to abide by any laws, ordinances, rules, regulations, or codes directly by the <i>Owner</i>, the <i>Owner's</i> other contractor(s), or the <i>Consultant</i>, and relating to the <i>Work</i> or the <i>Place of the Work</i>, the <i>Contractor</i> may, without prejudice to any other right or remedy the <i>Contractor</i> may have, terminate the <i>Contract</i> by giving the <i>Owner</i> Notice in <i>Writing</i> to that effect."</p>
SC41.2	7.2.3.1	<u>Delete</u> subparagraph 7.2.3.1 in its entirety.
SC41.3	7.2.3.2	<u>Delete</u> subparagraph 7.2.3.2 in its entirety.
SC41.4	7.2.3.4	In subparagraph 7.2.3.4, <u>delete</u> the words "except for GC 5.1 - FINANCING INFORMATION REQUIRED OF THE OWNER".
SC41.5	7.2.5	<p><u>Delete</u> paragraph 7.2.5 and <u>replace</u> it with the following:</p> <p>"7.2.5 If the default cannot be corrected within the 5 <i>Working Days</i> specified in paragraph 7.2.4, the <i>Owner</i> shall be deemed to have cured the default if it:</p> <ul style="list-style-type: none"> .1 commences correction of the default within the specified time; .2 provides the <i>Contractor</i> with an acceptable schedule for such correction; and, .3 completes the correction in accordance with such schedule."

SC41.6	7.2.6 to 7.2.9	<p><u>Add</u> new paragraphs 7.2.6, 7.2.7, 7.2.8 and 7.2.9 as follows:</p> <p>“7.2.6 If the <i>Contractor</i> terminates the <i>Contract</i> under the conditions described in GC 7.2 – CONTRACTOR’S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT, the <i>Contractor</i> shall be entitled to be paid for all <i>Work</i> performed to the date of termination, as determined by the <i>Consultant</i>. The <i>Contractor</i> shall also be entitled to recover the direct costs associated with termination, including the costs of demobilization and losses sustained on <i>Products</i> and <i>Construction Equipment</i>. The <i>Contractor</i> shall not be entitled to any recovery for any special, indirect or consequential losses, including loss of profit.</p> <p>7.2.7 The <i>Contractor</i> shall not be entitled to give notice of the <i>Owner’s</i> default or terminate the <i>Contract</i> in the event the <i>Owner</i> withholds certificates or payment or both in accordance with the <i>Contract</i> because of:</p> <ol style="list-style-type: none"> .1 the <i>Contractor’s</i> failure to pay all legitimate claims promptly, or .2 the failure of the <i>Contractor</i> to discharge construction liens which are registered against the title to the <i>Place of the Work</i>. <p>7.2.8 The <i>Contractor’s</i> obligations under the <i>Contract</i> as to quality, correction and warranty of the <i>Work</i> performed by the <i>Contractor</i> up to the effective date of termination shall continue in force and shall survive termination of this <i>Contract</i> by the <i>Contractor</i>.</p> <p>7.2.9 If the <i>Contractor</i> suspends the <i>Work</i> or terminates the <i>Contract</i> as provided for in GC 7.2 – CONTRACTOR’S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT, the <i>Contractor</i> shall ensure the site and the <i>Work</i> are left in a safe, secure condition as required by authorities having jurisdiction at the <i>Place of the Work</i> and the <i>Contract Documents</i>.”</p>
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PART 8 DISPUTE RESOLUTION

SC42 GC 8.1 AUTHORITY OF THE CONSULTANT

SC42.1	8.1.3	<p><u>Delete</u> paragraph 8.1.3 in its entirety and <u>substitute</u> as follows:</p> <p>“8.1.3 If a dispute is not resolved promptly, the <i>Consultant</i> will give such instruction as in the <i>Consultant’s</i> opinion are necessary for the proper performance of the <i>Work</i> and to prevent delays pending settlement of the dispute. The parties shall act immediately according to such instructions, it being understood that by doing so neither party will jeopardize any claim the party may have.”</p>
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SC43 GC 8.2 ADJUDICATION

SC43.13	8.2.2 to 8.2.7	<p><u>Add</u> new GC 8.2.2, 8.2.3, 8.2.4, 8.2.5, 8.2.6, and 8.2.7 as follows:</p> <p>“8.2.2 Save and except where the <i>Contractor</i> has given an undertaking, in accordance with the <i>Act</i>, to refer a dispute to <i>Adjudication</i>, prior to delivering a notice of <i>Adjudication</i> in a form prescribed by the <i>Act</i>, the parties agree to first address all disputes with at least one in-person meeting with the <i>Owner’s</i> representative, the <i>Consultant’s</i> representative, and the <i>Contractor’s</i> representative. The parties agree that such steps will be taken to resolve any disputes in a timely and cost-effective manner.</p>
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	<p>8.2.3 Notwithstanding any other provisions in PART 8 DISPUTE RESOLUTION, the parties shall engage in <i>Adjudication</i> proceedings as required by, and in accordance with, the <i>Construction Act</i>.</p> <p>8.2.4 The following procedures shall apply to any <i>Adjudication</i> the parties engage in under the <i>Construction Act</i>.</p> <ul style="list-style-type: none">.1 any hearings shall be held at a venue within the jurisdiction of the <i>Place of the Work</i> or such other venue as the parties may agree and which is acceptable to the adjudicator;.2 the <i>Adjudication</i> shall be conducted in English;.3 each party may be represented by counsel throughout an <i>Adjudication</i>;.4 there shall not be any oral communications with respect to issues in dispute that are the subject of an <i>Adjudication</i> between a party and the adjudicator unless it is made in the presence of both parties or their legal representatives; and.5 a copy of all written communications between the adjudicator and a party shall be given to the other party at the same time. <p>8.2.5 Any documents or information disclosed by the parties during an <i>Adjudication</i> are confidential and the parties shall not use such documents or information for any purpose other than the <i>Adjudication</i> in which they are disclosed and shall not disclose such documents and information to any third party, unless otherwise required by law, save and except the for the adjudicator.</p> <p>8.2.6 If the <i>Contractor</i> fails to comply with any of the notice requirements set out in the <i>Contract</i>, including the time limits set out in any of the following:</p> <ul style="list-style-type: none">.1 GC 6.4 – CONCEALED OR UNKNOWN CONDITIONS;.2 GC 6.5 – DELAYS;.3 GC 6.6 – CLAIMS FOR A CHANGE IN CONTRACT PRICE;.4 PART 8 DISPUTE RESOLUTION.5 GC 9.2 – TOXIC AND HAZARDOUS SUBSTANCES.6 GC 9.3 – ARTIFACTS AND FOSSILS; or.7 GC 9.5 - MOULD <p>in respect of any claim or dispute, the <i>Contractor</i> shall have no entitlement whatsoever (including to an increase in the <i>Contract Price</i>, or an extension of <i>Contract Time</i>) in the context of an <i>Adjudication</i> under the <i>Construction Act</i> and waives the right to make any such claims or disputes in an <i>Adjudication</i>. This GC 8.2.6 shall operate conclusively as an estoppel and bar in the event such claims or disputes are brought in an <i>Adjudication</i> and the <i>Owner</i> may rely on this GC 8.2.6 as a complete defence to any such claims or disputes.</p> <p>8.2.7 The parties hereby acknowledge and agree,</p> <ul style="list-style-type: none">.1 that counterclaims, claims of set-off or the exercise or use of other contractual rights that permit the <i>Owner</i> to withhold, deduct or retain from monies otherwise owed to the <i>Contractor</i> under the <i>Contract</i> may be referred to, and included as part of, <i>Adjudications</i> under the <i>Construction Act</i>;.2 that disputes related to the termination or abandonment of the <i>Contract</i>, as well as any disputes that arise or are advanced following the termination or abandonment of the <i>Contract</i>, shall not be referred to <i>Adjudication</i> under the <i>Construction Act</i>;.3 that notice(s) of <i>Adjudication</i>, with respect to any dispute or claim relating to the <i>Project</i>, shall not be given, and no <i>Adjudication</i> shall be commenced following <i>Contract</i> completion, <i>Contract</i> abandonment, or termination of the <i>Contract</i>;
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		<p>.4 that any <i>Adjudication</i> between the <i>Contractor</i> and a <i>Subcontractor</i> or a supplier that relates to an <i>Adjudication</i> between the <i>Owner</i> and the <i>Contractor</i> shall be joined together to be adjudicated by a single adjudicator, provided that the adjudicator agrees to do so, and the <i>Contractor</i> shall include a provision in each of its contracts that contain an equivalent obligation to this GC 8.2.7.4; and</p> <p>.5 that, other than where the <i>Contractor</i> is obliged to commence an <i>Adjudication</i> pursuant to an undertaking under the <i>Construction Act</i>, neither the <i>Owner</i> nor the <i>Contractor</i> shall commence an <i>Adjudication</i> during the <i>Restricted Period</i>.</p> <p>8.2.8 The parties acknowledge and agree that no <i>Adjudication</i>, arbitration, action, suit or other proceeding may be brought by the <i>Contractor</i> against the <i>Owner</i> in respect of a claim for an increase to the <i>Contract Price</i> as set out in GC 6.6, before the <i>Consultant</i> has issued its findings in respect of same, pursuant to GC 6.6.5. For greater clarity and without limiting the foregoing, the amount applied for in each <i>Proper Invoice</i> shall not include any amounts pertaining to the <i>Contractor's</i> claim for an increase in <i>Contract Price</i> unless and until the <i>Consultant</i> has issued a written notice to the <i>Contractor</i> regarding the validity of such claim, as provided for in GC 6.6.5. However, nothing in this GC 8.2.8 shall prevent a <i>Contractor</i> from commencing an <i>Adjudication</i> where, pursuant to the <i>Construction Act</i>, the <i>Contractor</i> is required to give an undertaking to a <i>Subcontractor</i> to commence an <i>Adjudication</i> following delivery of a <i>Notice of Non-Payment</i>."</p>
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SC44 GC 8.3 NEGOTIATION, MEDIATION AND ARBITRATION

SC44.1	8.3.1	<u>Amend</u> paragraph 8.3.1 by changing part of the second line from "shall appoint a <i>Project Mediator</i> " to "may appoint a <i>Project Mediator</i> , except that such an appointment shall only be made if both the <i>Owner</i> and the <i>Contractor</i> agree."
SC44.2	8.3.4	<u>Amend</u> paragraph 8.3.4 by changing part of the second line from "the parties shall request the <i>Project Mediator</i> " to "and subject to paragraph 8.3.1 the parties may request the <i>Project Mediator</i> ".
SC44.3	8.3.6 to 8.3.9	<p><u>Delete</u> paragraphs 8.3.6, 8.3.7 and 8.3.8 in their entirety and <u>replace</u> them with the following new GCs 8.3.6, 8.3.7, 8.3.8, and 8.3.9:</p> <p>"8.3.6 The dispute may be finally resolved by arbitration under the Rules for Arbitration of Construction Disputes as provided in CCDC 40 in effect at the time of bid closing, provided that both the <i>Contractor</i> and the <i>Owner</i> agree. If the <i>Contractor</i> and the <i>Owner</i> agree to resolve the dispute by arbitration, the arbitration shall be conducted in the jurisdiction of the <i>Place of the Work</i>.</p> <p>8.3.7 Prior to delivering a notice of <i>Adjudication</i> in a form prescribed by the <i>Act</i>, the parties agree to first address all disputes by attending at least one meeting with the <i>Owner's</i> representative, the <i>Consultant's</i> representative, and the <i>Contractor's</i> representative, prior to commencing an <i>Adjudication</i>. The parties agree that such steps will be taken to resolve any disputes in a timely and cost effective manner. If a resolution to the dispute(s) is not made at such a meeting, any party who plans to commence an <i>Adjudication</i> shall provide the other party with 5 <i>Working Days' Notice in Writing</i> of its intention to issue a notice of <i>Adjudication</i>.</p> <p>8.3.8 Other than where the <i>Contractor</i> is obliged to commence an <i>Adjudication</i> pursuant to an undertaking under the <i>Construction Act</i>, neither the <i>Owner</i> nor the <i>Contractor</i> shall commence an <i>Adjudication</i> during the <i>Restricted Period</i>.</p> <p>8.3.9 Where either party has delivered a notice of <i>Adjudication</i> in a form prescribed by the <i>Act</i>, the procedures and rules set out under the <i>Construction Act</i> and the regulations thereto shall govern the <i>Adjudication</i>."</p>

PART 9 PROTECTION OF PERSONS AND PROPERTY

SC45 GC 9.1 PROTECTION OF WORK AND PROPERTY

SC45.1	9.1.1.1	<p><u>Delete</u> subparagraph 9.1.1.1 in its entirety and <u>substitute</u> the following:</p> <p>“.1 errors in the <i>Contract Documents</i> which the <i>Contractor</i> could not have discovered applying the standard of care described in paragraph 3.14.1;”</p>
SC45.2	9.1.2	<p><u>Delete</u> paragraph 9.1.2 in its entirety and <u>substitute</u> as follows:</p> <p>“9.1.2 Before commencing any <i>Work</i>, the <i>Contractor</i> shall determine the locations of all underground or hidden utilities and structures indicated in or inferable from the <i>Contract Documents</i>, or that are inferable from an inspection of the <i>Place of the Work</i> exercising the degree of care and skill described in paragraph 3.14.1.”</p>
SC45.3	9.1.5	<p><u>Add</u> new paragraph 9.1.5 as follows:</p> <p>“9.1.5 With respect to any damage to which paragraphs 9.1.3 or 9.1.4 apply, the <i>Contractor</i> shall neither undertake to repair or replace any damage whatsoever to the work of other contractors, or to adjoining property, nor acknowledge that the same was caused or occasioned by the <i>Contractor</i>, without first consulting the <i>Owner</i> and receiving written instructions as to the course of action to be followed from either the <i>Owner</i> or the <i>Consultant</i>. Where, however, there is danger to life, the environment, or public safety, the <i>Contractor</i> shall take such emergency action as it deems necessary to remove the danger.”</p>

SC46 GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES

SC46.1	9.2.1	<p>Amend GC 9.2.1 by <u>inserting</u> the following to the end of the paragraph:</p> <p>“For the purposes of GC 9.2 – TOXIC AND HAZARDOUS SUBSTANCES, <i>Excess Soil</i> shall not be considered a ‘toxic and hazardous substance’.”</p>
SC46.2	9.2.5.5	<p>Add a new subparagraph 9.2.5.5 as follows:</p> <p>“.5 in addition to the steps described in subparagraph 9.2.5.3, take any further steps it deems necessary to mitigate or stabilize any conditions resulting from encountering toxic or hazardous substances or materials.”</p>
SC46.3	9.2.6	<p><u>Amend</u> GC 9.2.6 by <u>adding</u> the following words after the word “responsible” in the second line:</p> <p>“or whether any toxic or hazardous substances or materials already at the <i>Place of the Work</i> (and which were then harmless or stored, contained or otherwise dealt with in accordance with legal and regulatory requirements) were dealt with by the <i>Contractor</i> or anyone for whom the <i>Contractor</i> 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 damages to the property of the <i>Owner</i> or others,”.</p>
SC46.4	9.2.8	<p><u>Amend</u> GC 9.2.8 by <u>adding</u> the following words after the word “responsible” in the second line:</p> <p>“or whether any toxic or hazardous substances or materials already at the <i>Place of the Work</i> (and which were then harmless or stored, contained or otherwise dealt with in accordance with legal and regulatory requirements) were dealt with by the <i>Contractor</i> or anyone for whom the <i>Contractor</i> 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 damages to the property of the <i>Owner</i> or others,”.</p>

SC46.5	9.2.10	<p><u>Add</u> new paragraph 9.2.10 as follows:</p> <p>"9.2.10 The <i>Contractor, Subcontractors</i> and <i>Suppliers</i> shall not bring on to the <i>Place of the Work</i> any toxic or hazardous substances and materials except as required in order to perform the <i>Work</i>. If such toxic or hazardous substances or materials are required, storage in quantities sufficient to allow work to proceed to the end of any current work week only shall be permitted. All such toxic and hazardous materials and substances shall be handled and disposed of only in accordance with all laws and regulations that are applicable at the <i>Place of the Work</i>."</p>
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SC47 GC 9.4 CONSTRUCTION SAFETY

SC47.1	9.4.1	<p><u>Delete</u> GC 9.4.1 in its entirety and <u>replace</u> it with the following:</p> <p>"9.4.1 The <i>Contractor</i> shall be solely responsible for construction safety at the <i>Place of the Work</i> and for compliance with the rules, regulations, and practices required by the <i>OHSA</i>, including, but not limited to those of the "constructor", and shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the <i>Work</i>. The <i>Contractor's</i> health and safety program documentation shall be made available for review by the <i>Owner</i> or <i>Consultant</i> immediately upon request. Without limiting the foregoing, the <i>Contractor</i> shall be solely responsible for construction safety in respect of the <i>Consultant, Subcontractors</i> and <i>Suppliers</i>, the <i>Owner's</i> own forces, <i>Other Contractors</i>, and all persons attending the <i>Place of the Work</i> during the course of the <i>Project</i>."</p>
SC47.2	9.4.2	<p>Amend GC 9.4.2 by <u>adding</u> the following words after "and the <i>Contractor</i>": ", <i>Subcontractors</i> and <i>Suppliers</i>".</p>
SC47.3	9.4.3	<p>Amend GC 9.4.3 by <u>adding</u> the following words after "and the <i>Contractor</i>": ", <i>Subcontractors</i> and <i>Suppliers</i>".</p>
SC47.4	9.4.4	<p><u>Delete</u> GC 9.4.4 and replace it with the following:</p> <p>"9.4.4 The <i>Owner</i> undertakes to include in its contracts with other contractors and in its instructions to its own forces the requirement that the other contractor or its own forces, as the case may be, comply with the policies and procedures of and the directions and instructions from the <i>Contractor</i> with respect to occupational health and safety and related matters."</p>
SC47.5	9.4.5	<p><u>Delete</u> GC 9.4.5 in its entirety and <u>replace</u> it with the following:</p> <p>"9.4.5 Prior to the commencement of the <i>Work</i>, the <i>Contractor</i> shall submit to the <i>Owner</i>:</p> <ul style="list-style-type: none"> .1 a current WSIB clearance certificate; .2 copies of the <i>Contractor's</i> insurance policies having application to the <i>Project</i> or certificates of insurance, at the option of the <i>Owner</i>; .3 documentation setting out the <i>Contractor's</i> in-house safety programs; .4 a copy of the Notice of Project filed with the Ministry of Labour naming itself as "constructor" under the <i>OHSA</i>; and .5 copies of any documentation or notices to be filed or delivered to the authorities having jurisdiction for the regulation of occupational health and safety at the <i>Place of the Work</i>;"

SC47.6	9.4.6 to 9.4.12	<p><u>Add</u> new GC 9.4.6, 9.4.7, 9.4.8, 9.4.9, 9.4.10, 9.4.11, and 9.4.12 as follows:</p> <p>“9.4.6 The <i>Contractor</i> shall indemnify and save harmless the <i>Owner</i>, its agents, trustees, officers, directors, employees, consultants, successors, appointees, and assigns from and against the consequences of any and all safety infractions committed by the <i>Contractor</i> under <i>OHSA</i> and any other occupational health and safety legislation in force at the <i>Place of the Work</i> including the payment of legal fees and disbursements on a solicitor and client basis. Such indemnity shall apply to the extent to which the <i>Owner</i> is not covered by insurance.</p> <p>9.4.7 If the <i>Owner</i> is of the reasonable opinion that the <i>Contractor</i> has not taken such precautions as are necessary to ensure compliance with the requirements of paragraph 9.4.1, the <i>Owner</i> may take any remedial measures which it deems necessary, including stopping the performance of all or any portion of the <i>Work</i>, and the <i>Owner</i> may use its employees, the <i>Contractor</i>, any <i>Subcontractor</i> or any other contractors to perform such remedial measures.</p> <p>9.4.8 The <i>Contractor</i> shall file any notices or any similar document required pursuant to the <i>Contract</i> or the safety regulations in force at the <i>Place of the Work</i>. This duty of the <i>Contractor</i> will be considered to be included in the <i>Work</i> and no separate payment therefore will be made to the <i>Contractor</i>.</p> <p>9.4.9 Unless otherwise provided in the <i>Contract Documents</i>, the <i>Contractor</i> shall develop, maintain and supervise for the duration of the <i>Work</i> a comprehensive safety program that will effectively incorporate and implement all required safety precautions. The program shall, at a minimum, respond fully to the applicable safety regulations and general construction practices for the safety of persons or property, including, without limitation, any general safety rules and regulations of the <i>Owner</i> and any workers' compensation or occupational health and safety statutes or regulations in force at the <i>Place of the Work</i>.</p> <p>9.4.10 The <i>Contractor</i> shall provide a copy of the safety program described in GC 9.4.9 hereof to the <i>Consultant</i> for delivery to the <i>Owner</i> prior to the commencement of the <i>Work</i>, and shall, ensure, as far as it is reasonably practical to do so, that every employer and worker performing work in respect of the <i>Project</i> complies with such program.</p> <p>9.4.11 The <i>Contractor</i> shall arrange regular safety meetings, and shall supply and maintain, at its own expense, at its office or other well-known place at the job site, safety equipment necessary to protect the workers and general public against accident or injury as prescribed by the authorities having jurisdiction at the <i>Place of the Work</i>, including, without limitation, articles necessary for administering first-aid to any person and an emergency procedure for the immediate removal of any injured person to a hospital or a doctor's care.</p> <p>9.4.12 The <i>Contractor</i> shall promptly report in writing to the <i>Owner</i> and the <i>Consultant</i> all accidents of any sort arising out of or in connection with the performance of the <i>Work</i>, whether on or adjacent to the job site, giving full details and statement of witnesses. If death or serious injuries or damages are caused, the accident shall be promptly reported by the <i>Contractor</i> to the <i>Owner</i> and the <i>Consultant</i> by telephone or messenger in addition to any reporting required under the applicable safety regulations.”</p>
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PART 10 GOVERNING REGULATIONS

SC48 GC 10.1 TAXES AND DUTIES

SC48.1	10.1.2	<u>Amend</u> paragraph 10.1.2 by <u>adding</u> the following sentence to the end of the paragraph:
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		“For greater certainty, the <i>Contractor</i> shall not be entitled to any mark-up for overhead or profit on any increase in such taxes and duties and the <i>Owner</i> shall not be entitled to any credit relating to mark-up for overhead or profit on any decrease in such taxes. The <i>Contractor</i> shall provide a detailed breakdown of <u>Additional</u> taxes if requested by the <i>Owner</i> in a form satisfactory to the <i>Owner</i> .”
SC48.2	10.1.3	<p><u>Add</u> new paragraph 10.1.3 as follows:</p> <p>“10.1.3 Where the <i>Owner</i> is entitled to an exemption or a recovery of sales taxes, customs duties, excise taxes or <i>Value Added Taxes</i> applicable to the <i>Contract</i>, the <i>Contractor</i> shall, at the request of the <i>Owner</i>, assist with the 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 <i>Owner</i>. The <i>Contractor</i> agrees to endorse over to the <i>Owner</i> any cheques received from the federal or provincial governments, or any other taxing authority, as may be required to give effect to this paragraph.”</p>

SC49 GC 10.2 LAWS, NOTICES, PERMITS, AND FEES

SC49.1	10.2.5	<p><u>Amend</u> paragraph 10.2.5 by <u>adding</u> the words “Subject to paragraph 3.4” at the beginning of the paragraph.</p> <p>-and-</p> <p><u>Add</u> the following to the end of the second sentence:</p> <p>“...and no further <i>Work</i> on the affected components of the <i>Contract</i> shall proceed until these directives have been obtained by the <i>Contractor</i> from the <i>Consultant</i>.”</p>
SC49.2	10.2.6	<p><u>Amend</u> paragraph 10.2.6 by <u>adding</u> the following sentence to the end of the paragraph:</p> <p>“In the event the <i>Owner</i> suffers loss or damage as a result of the <i>Contractor</i>’s failure to comply with paragraph 10.2.5 and notwithstanding any limitations described in paragraph 12.1.1, the <i>Contractor</i> agrees to indemnify and to hold harmless the <i>Owner</i> and the <i>Consultant</i> from and against any claims, demands, losses, costs, damages, actions suits or proceedings resulting from such failure by the <i>Contractor</i>.”</p>
SC49.3	10.2.7	<p><u>Amend</u> paragraph 10.2.7 by inserting the words “which changes were not, or could not have reasonably been known to the <i>Owner</i> or to the <i>Contractor</i>, as applicable, at the time of bid closing and which changes did not arise as a result of a public emergency or other <i>Force Majeure</i> event” to the second line, after the words “authorities having jurisdiction”.</p>
SC49.4	10.2.8	<p><u>Add</u> new paragraph 10.2.8 as follows:</p> <p>“10.2.8 The <i>Contractor</i> shall furnish all certificates that are required or given by the appropriate governmental authorities as evidence that the <i>Work</i> as installed conforms with the laws and regulations of authorities having jurisdiction, including certificates of compliance for the <i>Owner</i>’s occupancy or partial occupancy. The certificates are to be final certificates giving complete clearance of the <i>Work</i>, in the event that such governmental authorities furnish such certificates.”</p>

SC50 GC 10.4 WORKERS’ COMPENSATION

SC50.1	10.4.1	<p><u>Delete</u> paragraph 10.4.1 and <u>replace</u> with the following:</p> <p>“10.4.1 Prior to commencing the <i>Work</i>, and with each and every application for payment thereafter, including the <i>Contractor</i>’s application for payment of the holdback amount following <i>Substantial Performance of the Work</i> and again with the <i>Contractor</i>’s application for final payment, the <i>Contractor</i> shall provide evidence</p>
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		of compliance with workers' compensation legislation in force at the <i>Place of the Work</i> , including payments due thereunder.”
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SC51 GC 11.1 INSURANCE

SC51.1	11.1	<p><u>Delete</u> entirety of GC 11.1 and <u>replace</u> with the following:</p> <p>“GC 11.1 INSURANCE</p> <p>11.1.1 Without restricting the generality of GC 12 – INDEMNIFICATION, the <i>Contractor</i> shall provide, maintain, and pay for the insurance coverages specified in GC 11.1 – INSURANCE. Unless otherwise stipulated, the duration of each insurance policy shall be from the date of commencement of the <i>Work</i> until the expiration of the warranty periods set out in the <i>Contract Documents</i>. Prior to commencement of the <i>Work</i> and upon the placement, renewal, <u>amendment</u>, or extension of all or any part of the insurance, the <i>Contractor</i> shall promptly provide the <i>Owner</i> with confirmation of coverage and, if required, a certified true copy of the policies certified by an authorized representative of the insurer together with copies of any <u>amending</u> endorsements.</p> <p>.1 General Liability Insurance</p> <p>General liability insurance shall be in the name of the <i>Contractor</i>, with the <i>Owner</i> and the <i>Consultant</i> named as <u>Additional</u> insureds, with limits of not less than \$5,000,000.00 inclusive per occurrence for bodily injury, death, and damage to property, including loss of use thereof, for itself and each of its employees, <i>Subcontractors</i> and/or agents. The insurance coverage shall not be less than the insurance required by IBC Form 2100, or its equivalent <u>replacement</u>, provided that IBC Form 2100 shall contain the latest edition of the relevant CCDC endorsement form. To achieve the desired limit, umbrella, or excess liability insurance may be used. All liability coverage shall be maintained for completed operations hazards from the date of <i>Ready-for-Takeover</i>, as set out in the certificate of <i>Ready-for-Takeover</i>, on an ongoing basis for a period of 6 years following <i>Ready-for-Takeover</i>. Where the <i>Contractor</i> maintains a single, blanket policy, the <u>Addition</u> of the <i>Owner</i> and the <i>Consultant</i> is limited to liability arising out of the <i>Project</i> and all operations necessary or incidental thereto. The policy shall be endorsed to provide the <i>Owner</i> with not less than 30 days' notice, in writing, in advance of any cancellation and of change or <u>amendment</u> restricting coverage.</p> <p>.2 Automobile Liability Insurance</p> <p>Automobile liability insurance in respect of licensed vehicles shall limits of not less than \$2,000,000.00 inclusive per occurrence for bodily injury, death and damage to property, covering all licensed vehicles <i>owned</i> or leased by the <i>Contractor</i>, and endorsed to provide the <i>Owner</i> with not less than 30 days' notice, in writing, in advance of any cancellation, change or <u>amendment</u> restricting coverage. Where the policy has been issued pursuant to a government-operated automobile insurance system, the <i>Contractor</i> shall provide the <i>Owner</i> with confirmation of automobile insurance coverage for all automobiles registered in the name of the <i>Contractor</i>.</p> <p>.3 Aircraft and Watercraft Liability Insurance</p> <p>Where determined necessary by the <i>Contractor</i>, acting reasonably, aircraft and watercraft liability insurance will be obtained in accordance with the provisions of paragraph 11.1.3. Aircraft and watercraft liability insurance with respect to owned or non-owned aircraft and watercraft if used directly or indirectly in the performance of the <i>Work</i>, including use of <u>Additional</u> premises, shall be subject to limits of not less than \$2,000,000.00 inclusive per occurrence for bodily injury, death and damage to property, including loss of use thereof and limits of not less than</p>
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\$2,000,000.00 for aircraft passenger hazard. Such insurance shall be in a form acceptable to the *Owner*. The policies shall be endorsed to provide the *Owner* with not less than 30 days' notice, in writing, in advance of cancellation, change or amendment restricting coverage.

.4 Property and Boiler and Machinery Insurance

(1) Builder's Risk property insurance shall be in the name of the *Contractor* with the *Owner* and the *Consultant* named as Additional insureds. The policy shall insure against all risks of direct physical loss or damage to the property insured which shall include all property included in the *Work*, whether owned by the *Contractor* or the owner or owned by others, so long as the property forms part of the *Work*. The property insured also includes all materials and supplies necessary to complete the work, whether installed in the work temporarily or permanently, in storage on the project site, or in transit to the project site, as well as temporary buildings, scaffolding, falsework forms, hoardings, excavation, site preparation and similar work. The insurance shall be for not less than the sum of the amount of the contract price and the full value of products that are specified to be provided by the owner for incorporation into the work, if applicable, with the deductible of \$10,000.00 payable by the contractor. The insurance shall include the foregoing and, otherwise, shall not be less than the insurance required by IBC Form 4042 or its equivalent replacement provided that the IBC Form 4042 shall include the latest Addition of the relevant CCDC endorsement form. The coverage shall be based on a completed value form and shall be maintained continuously until ten (10) days after the date of the final certificate of payment.

(2) Boiler and machinery insurance shall be in the name of the *Contractor*, with the *Owner* and the *Consultant* named as Additional insureds, for not less than the replacement value of the boilers, pressure vessels and other insurable objects forming part of the *Work*. The insurance provided shall not be less than the insurance provided by the "Comprehensive Boiler and Machinery Form" and shall be maintained continuously from commencement of use or operation of the property insured and until 10 days after the date of the final certificate for payment.

(3) The policies shall allow for partial or total use or occupancy of the *Work*.

(4) The policies shall provide that, in the case of a loss or damage, payment shall be made to the *Owner* and the *Contractor* as their respective interests may appear. The *Contractor* shall act on behalf of the *Owner* for the purpose of adjusting the amount of such loss or damage payment with the insurers. When the extent of the loss or damage is determined, the *Contractor* shall proceed to restore the *Work*. Loss or damage shall not affect the rights and obligations of either party under the *Contract* except that the *Contractor* shall be entitled to such reasonable extension of the *Contract Time*, relative to the extent of the loss or damage, as determined by the *Owner*, in its sole discretion.

(5) The *Contractor* shall be entitled to receive from the *Owner*, in Addition to the amount due under the *Contract*, the amount at which the *Owner's* interest in restoration of the *Work* has been appraised, such amount to be paid as the restoration of the *Work* proceeds and as provided in GC 5.2 – APPLICATIONS FOR PROGRESS PAYMENT and GC 5.3 – PROGRESS PAYMENT. In Addition, the *Contractor* shall be entitled to receive from the payments made by the insurer the amount of the *Contractor's* interest in the restoration of the *Work*.

(6) In the case of loss or damage to the *Work* arising from the work of other contractors, or the *Owner's* own forces, the *Owner*, in accordance with the *Owner's* obligations under paragraph 3.2.2.4 of GC 3.2 – CONSTRUCTION BY OWNER OR OTHER CONTRACTORS, shall pay the *Contractor* the cost of restoring the *Work* as the restoration of the *Work* proceeds and as provided in GC 5.2 – APPLICATIONS FOR PROGRESS PAYMENT and GC 5.3 – PROGRESS PAYMENT.

		<p>.5 Contractors' Equipment Insurance</p> <p>"All risks" contractors' equipment insurance covering construction machinery and equipment used by the <i>Contractor</i> for the performance of the <i>Work</i>, excluding boiler insurance, shall be in a form acceptable to the <i>Owner</i> and shall not allow subrogation claims by the insurer against the <i>Owner</i>. The policies shall be endorsed to provide the <i>Owner</i> with not less than 30 days' notice, in writing, in advance of cancellation, change or <u>amendment</u> restricting coverage. Subject to satisfactory proof of financial capability by the <i>Contractor</i> for self-insurance of his equipment, the <i>Owner</i> agrees to waive the equipment insurance requirement.</p> <p>11.1.2 The <i>Contractor</i> shall be responsible for deductible amounts under the policies except where such amounts may be excluded from the <i>Contractor's</i> responsibility by the terms of GC 9.1 - PROTECTION OF WORK AND PROPERTY and GC 9.2 - DAMAGES AND MUTUAL RESPONSIBILITY.</p> <p>11.1.3 Where the full insurable value of the <i>Work</i> is substantially less than the <i>Contract Price</i>, the <i>Owner</i> may reduce the amount of insurance required to waive the course of construction insurance requirement.</p> <p>11.1.4 If the <i>Contractor</i> fails to provide or maintain insurance as required by the <i>Contract Documents</i>, then the <i>Owner</i> shall have the right to provide and maintain such insurance and provide evidence of same to the <i>Contractor</i>. The <i>Contractor</i> shall pay the costs thereof to the <i>Owner</i> on demand, or the <i>Owner</i> may deduct the amount that is due or may become due to the <i>Contractor</i>.</p> <p>11.1.5 All required insurance policies shall be with insurers licensed to underwrite insurance in the jurisdiction of the <i>Place of the Work</i>."</p>
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SC52 *NEW* GC 11.2 CONTRACT SECURITY

SC52.1	GC 11.2	<p><u>Add</u> new GC 11.2 – CONTRACT SECURITY as follows:</p> <p>"GC 11.2 CONTRACT SECURITY</p> <p>11.2.1 The <i>Contractor</i> shall, prior to the execution of the <i>Contract</i>, furnish a performance bond and labour and material payment bond which meets the requirements under paragraph 11.2.2.</p> <p>11.2.2 The performance bond and labour and material payment bond shall:</p> <ul style="list-style-type: none"> .1 be issued by a duly licensed surety company, which has been approved by the <i>Owner</i> and is permitted under the <i>Construction Act</i>, .2 be issued by an insurer licensed under the <i>Insurance Act</i> (Ontario) and authorized to transact a business of suretyship in the Province of Ontario; .3 shall be in the form prescribed by the <i>Construction Act</i>, .4 have a coverage limit of at least 50 per cent of the <i>Contract Price</i>, or such other percentage of the <i>Contract Price</i> as stated in the <i>Contract Documents</i>; .5 extends protection to <i>Subcontractors</i>, <i>Suppliers</i>, and any other persons supplying labour or materials to the <i>Project</i>; and .6 shall be maintained in good standing until the fulfillment of the <i>Contract</i>, including all warranty and maintenance periods set out in the <i>Contract Documents</i>.. <p>11.2.3 It is the intention of the parties that the performance bond shall be applicable to all of the <i>Contractor's</i> obligations in the <i>Contract Document</i> and, wherever a</p>
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		<p>performance bond is provided with language which conflicts with this intention, it shall be deemed to be amended to comply. The <i>Contractor</i> represents and warrants to the <i>Owner</i> that it has provided its surety with a copy of the <i>Contract Documents</i> prior to the issuance of such bonds.</p> <p>11.2.4 Without limiting the foregoing in any way, the bonds shall indemnify and hold harmless the <i>Owner</i> for and against costs and expenses (including legal and <i>Consultant</i> services and court costs) arising out of or as a consequence of any default of the <i>Contractor</i> under this <i>Contract</i>.</p> <p>11.2.4 The <i>Contractor</i> shall be responsible for notifying the surety company of any changes made to the <i>Contract</i> during the course of construction.</p> <p>11.2.5 The premiums for bonds required by the <i>Contract Documents</i> shall be included in the <i>Contract Price</i>.</p> <p>11.2.6 Should the <i>Owner</i> require additional bonds by the <i>Contractor</i> or any of his <i>Subcontractors</i>, after the receipt of bids for the <i>Work</i>, the <i>Contract Price</i> shall be increased by all direct costs attributable to providing such bonds. The <i>Contractor</i> shall promptly provide the <i>Owner</i>, through the <i>Consultant</i>, with any such bonds that may be required.”</p>
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PART 12 OWNER TAKEOVER

SC53 GC 12.1 READY-FOR-TAKEOVER

SC53.1	12.1.1	<p><u>Delete</u> GC 12.1.1 in its entirety and <u>replace</u> it with the following:</p> <p>“12.1.1 <i>Ready-for-Takeover</i> shall be achieved when all of the following has occurred, as verified and approved by the <i>Owner</i>:</p> <ol style="list-style-type: none"> .1 <i>Substantial Performance of the Work</i> has been achieved, as certified by the <i>Consultant</i>; .2 a permit for occupancy of the <i>Place of the Work</i> has been obtained from the authorities having jurisdiction; .3 the <i>Work</i> to be performed under the <i>Contract</i> has satisfied the requirements for deemed completion in accordance with Section 2(3) of the <i>Construction Act</i>; .4 final cleaning and waste removal, as required by the <i>Contract Documents</i>; .5 the <i>Contractor</i> has delivered to the <i>Consultant</i> and the <i>Owner</i> all inspection certificates from authorities having jurisdiction with respect to any component of the <i>Work</i> which has been completed; .6 subject only to GC 12.1.2, the entire <i>Work</i> has been completed to the requirements of the <i>Contract Documents</i>, including completion of all items on the punch list prepared at the time of <i>Substantial Performance of the Work</i> and the <i>Work</i> is being used for its intended purpose, and is so certified by the <i>Consultant</i>; .7 subject only to GC 12.1.2, the <i>Contractor</i> has submitted to the <i>Owner</i> and the <i>Consultant</i> in a collated and organized matter, all <i>Close-Out Documentation</i> and any other materials or documentation required by the <i>Contract Documents</i>;
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		<p>.8 subject only to GC 12.1.2, all <i>Products</i>, systems and components of the <i>Project</i> have been commissioned and certified for operation and accepted by the <i>Owner</i> and <i>Consultant</i>, and</p> <p>9 subject only to GC 12.1.2, the <i>Contractor</i> has submitted to the <i>Owner</i> and the <i>Consultant</i> full and complete as-built drawings and <i>Specifications</i> revised by the <i>Contractor</i> to reflect the as-built state of the <i>Work</i>, clearly showing changes to the <i>Drawings</i> and <i>Specifications</i> from the original <i>Contract Documents</i>, all of which have been approved by the <i>Owner</i> acting reasonably.”</p>
SC53.2	12.1.2	<p><u>Delete</u> GC 12.1.2 in its entirety and <u>replace</u> it with the following:</p> <p>“12.1.2 The <i>Owner</i> may, in its sole, absolute, and unfettered discretion, waive compliance with a requirement, or a part thereof, for achieving <i>Ready-for-Takeover</i> set out in GC 12.1.1.6 to 12.1.1.9 (inclusive). Where the <i>Owner</i> exercises the discretion afforded under this GC 12.1.2, the <i>Contractor</i> shall be required to comply with GC 5.5.1.2 as part of its application for final payment and the <i>Owner</i> and the <i>Contractor</i>, in consultation with the <i>Consultant</i>, shall establish a reasonable date for completing the <i>Work</i>.”</p>
SC53.3	12.1.3	<p><u>Delete</u> GC 12.1.3 in its entirety and <u>replace</u> it with the following:</p> <p>“12.1.3 When the <i>Contractor</i> considers the <i>Work Ready-for-Takeover</i>, it shall submit a written application to the <i>Owner</i> and the <i>Consultant</i> for review.”</p>
SC53.4	12.1.4	In GC 12.1.4, <u>delete</u> the words “list and” from the second line.
SC53.5	12.1.5	<p><u>Delete</u> GC 12.1.5 in its entirety and <u>replace</u> it with the following:</p> <p>“12.1.5 Following the confirmation of the date of <i>Ready-for-Takeover</i> by the <i>Consultant</i> and as confirmed by the <i>Owner</i>, the <i>Contractor</i> may submit a final application for payment in accordance with GC 5.5 – FINAL PAYMENT.”</p>
SC53.6	12.1.6	<u>Delete</u> GC 12.1.6 in its entirety.

SC54 GC 12.2 EARLY OCCUPANCY

SC54.1	GC 12.2	<p><u>Delete</u> GC 12.2 – EARLY OCCUPANCY BY THE OWNER in its entirety, including all subparagraphs thereunder and <u>replace</u> it with the following:</p> <p>“12.2.1 The <i>Owner</i> reserves the right to take possession of and use for any intended purpose any portion or all of the undelivered portion of the <i>Project</i> even though the <i>Work</i> may not have reached Substantial Performance of the <i>Work</i>, provided that such taking possession and use will not unduly interfere, in any material way, with the progress of the <i>Work</i>. The taking of possession or use of any such portion of the <i>Project</i> shall not be deemed to be the <i>Owner</i>’s acknowledgement or acceptance of the <i>Work</i> or <i>Project</i> nor shall it relieve the <i>Contractor</i> of any of its obligations under the <i>Contract</i>.</p> <p>12.2.2 Whether the <i>Project</i> contemplates <i>Work</i> by way of renovations in buildings which will be in use or be occupied during the course of the <i>Work</i> or where the <i>Project</i> involves <i>Work</i> that is adjacent to a structure which is in use or is occupied, the <i>Contractor</i>, without in any way limiting its responsibilities under this <i>Contract</i>, shall take all reasonable steps to avoid interference with fire exits, building access and egress, continuity of electric power and all other utilities, to suppress dust and noise and to avoid conditions likely to propagate mould or fungus of any kind and all other steps reasonably necessary to promote and maintain the safety and comfort of the users and occupants of such structures or adjacent structures.”</p>
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SC55 GC 12.3 WARRANTY

SC55.1	12.3.2	<u>Delete</u> from the first line of paragraph 12.3.2 the word “The” and <u>replace</u> it with the words “Subject to GC 1.1.3, the...”
SC55.2	12.3.7 to 12.3.12	<p><u>Add</u> new paragraphs 12.3.7 to 12.3.12 as follows:</p> <p>“12.3.7 Where required by the <i>Contract Documents</i>, the <i>Contractor</i> shall provide a maintenance bond as security for the performance of the <i>Contractor’s</i> obligations as set out in GC 12.3 WARRANTY.</p> <p>12.3.8 The <i>Contractor</i> shall provide fully and properly completed and signed copies of all warranties and guarantees required by the <i>Contract Documents</i>, containing:</p> <ul style="list-style-type: none"> .1 the proper name of the <i>Owner</i>; .2 the proper name and address of the <i>Project</i>; .3 the date the warranty commences, which shall be at the “<i>Ready-for-Takeover</i>” unless otherwise agreed upon by the <i>Consultant</i> in writing. .4 a clear definition of what is being warranted and/or guaranteed as required by the <i>Contract Documents</i>; and .5 the signature and seal (if required by the governing law of the <i>Contract</i>) of the company issuing the warranty, countersigned by the <i>Contractor</i>. <p>12.3.9 Should any <i>Work</i> be repaired or replaced during the time period for which it is covered by the specified warranty, a new warranty shall be provided under the same conditions and for the same period as specified herein before. The new warranty shall commence at the completion of the repair or replacement.</p> <p>12.3.10 The <i>Contractor</i> shall ensure that its <i>Subcontractors</i> are bound to the requirements of GC 12.3 – WARRANTY for the <i>Subcontractor’s</i> portion of the <i>Work</i>.</p> <p>12.3.11 The <i>Contractor</i> shall ensure that all warranties, guarantees or other obligations for <i>Work</i>, services or <i>Products</i> performed or supplied by any <i>Subcontractor</i>, <i>Supplier</i> or other person in connection with the <i>Work</i> are obtained and available for the direct benefit of the <i>Owner</i>. In the alternative, the <i>Contractor</i> shall assign to the <i>Owner</i> all warranties, guarantees or other obligations for <i>Work</i>, services or <i>Products</i> performed or supplied by any <i>Subcontractor</i>, <i>Supplier</i> or other person in connection with the <i>Work</i> and such assignment shall be with the consent of the assigning party, where required by law, or by the terms of that party’s contract. Such assignment shall be in addition to, and shall in no way limit, the warranty rights of the <i>Owner</i> under the <i>Contract Documents</i>.</p> <p>12.3.12 The <i>Contractor</i> shall commence or correct any deficiency within 2 <i>Working Days</i> after receiving a <i>Notice in Writing</i> from the <i>Owner</i> or the <i>Consultant</i>, and shall complete the <i>Work</i> as expeditiously as possible, except in the case where the deficiency prevents maintaining security or where basic systems essential to the ongoing business of the <i>Owner</i> and/or its tenants cannot be maintained operational as designed. In those circumstances all necessary corrections and/or installations of temporary replacements shall be carried out immediately as an emergency service. Should the <i>Contractor</i> fail to provide this emergency service within 8 hours of a request being made during the normal business hours of the <i>Contractor</i>, the <i>Owner</i> is authorized, notwithstanding GC 3.1, to carry out all necessary repairs or replacements at the <i>Contractor’s</i> expense.”</p>

PART 13 INDEMNIFICATION AND WAIVER

SC56 GC 13.1 INDEMNIFICATION

SC56.1	GC 13.1	<u>Delete</u> GC 13.1 – INDEMNIFICATION in its entirety and <u>replace</u> it with the following:
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		<p>13.1.1 The <i>Contractor</i> shall indemnify and hold harmless the <i>Owner</i>, its parent, subsidiaries and affiliates, their respective partners, trustees, officers, directors, agents and employees and the <i>Consultant</i> from and against any and all claims, liabilities, expenses, demands, losses, damages, actions, costs, suits, or proceedings (hereinafter called "claims"), whether in respect of claims suffered by the <i>Owner</i> or in respect of claims by third parties, that directly or indirectly arise out of, or are attributable to, the acts or omissions of the <i>Contractor</i>, its employees, agents, <i>Subcontractors</i>, <i>Suppliers</i> or any other persons for whom it is in law responsible (including, without limitation, claims that directly or indirectly arise out of, or are attributable to, loss of use or damage to the <i>Work</i>, the <i>Owner's</i> property or equipment, the <i>Contractor's</i> property or equipment or equipment or property adjacent to the <i>Place of the Work</i> or death or injury to the <i>Contractor's</i> personnel).</p> <p>13.1.2 The <i>Owner</i> shall indemnify and hold the <i>Contractor</i>, its agents and employees harmless from and against claims, demands, losses, costs, damages, actions, suits or proceedings arising out of the <i>Contractor's</i> performance of the <i>Contract</i> which are attributable to a lack of or defect in title or an alleged lack of or defect in title to the <i>Place of the Work</i>.</p> <p>13.1.3 The provisions of GC 13.1 - INDEMNIFICATION shall survive the termination of the <i>Contract</i>, howsoever caused and no payment or partial payment, no issuance of a final certificate of payment and no occupancy in whole or in part of the <i>Work</i> shall constitute a waiver or release of any of the provisions of GC 13.1</p> <p>13.1.4 Notwithstanding the provisions of GC1.1 - CONTRACT DOCUMENTS, GC 1.1.6, GC13.1 - INDEMNIFICATION shall govern over the provisions of GC 1.3.1 of GC1.3 – RIGHTS AND REMEDIES."</p>
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SC57 GC 13.2 WAIVER OF CLAIMS

SC57.13	13.2.1	In paragraph 13.2.1 in the third line after the word "limitation" <u>add</u> the words "claims for delay pursuant to GC 6.5 DELAYS" -and- <u>add</u> the words "(collectively " Claims ")" after " <i>Ready-for-Takeover</i> " in the fourth line.
SC57.14	13.2.1.1	In subparagraph 13.2.1.1, in each instance change the word "claims" to "Claims" and change the word "claim" to "Claim".
SC57.15	13.2.1.2	In subparagraph 13.2.1.2 change the word "claims" to "Claims".
SC57.16	13.2.1.3	<u>Delete</u> subparagraph 13.2.1.3 in its entirety.
SC57.17	13.2.1.4	In paragraph 13.2.1.4 change the word "claims" to "Claims".
SC57.18	13.2.2.1	In paragraph 13.2.2.1 <u>delete</u> the words "in paragraphs 13.2.1.2 and 13.2.1.3" and <u>replace</u> them with "in paragraph 13.2.1.2" -and- change the word "claims" to "Claims" in both instances and change the word "claim" to "Claim".
SC57.19	13.2.3	<u>Delete</u> paragraph 13.2.3 in its entirety.
SC57.20	13.2.4	<u>Delete</u> paragraph 13.2.4 in its entirety.
SC57.21	13.2.5	<u>Delete</u> paragraph 13.2.5 in its entirety.

SC57.22	13.2.6	In paragraph 13.2.6 change the word “claim” to “Claim” in all instances in the paragraph.
SC57.23	13.2.8	In paragraph 13.2.8 change “The party” to “The <i>Contractor</i> ” -and- change the word “claim” to “Claim” in all instances in the paragraph.
SC57.24	13.2.9	In paragraph 13.2.9 delete the words “under paragraphs 13.2.1 or 13.2.3” and <u>replace</u> them with “under paragraph 13.2.1” -and- change both instances of the words “the party” to “the <i>Contractor</i> ”. Change the word “claim” to “Claim” in all instances in the paragraph.

SC58 *NEW* PART 14 OTHER PROVISIONS

SC58.1	14.1	<p><u>Add</u> new PART 14 – OTHER PROVISIONS as follows:</p> <p>“PART 14 OTHER PROVISIONS</p> <p>GC 14.1 OWNERSHIP OF MATERIALS</p> <p>14.1.1 Unless otherwise specified, all materials existing at the <i>Place of the Work</i> at the time of execution of the <i>Contract</i> shall remain the property of the <i>Owner</i>. All <i>Work</i> and <i>Products</i> delivered to the <i>Place of the Work</i> by the <i>Contractor</i> shall be the property of the <i>Owner</i>. The <i>Contractor</i> shall remove all surplus or rejected materials as its property when notified in writing to do so by the <i>Consultant</i>.”</p>
SC58.2	14.2	<p><u>Add</u> new GC 14.2 – CONSTRUCTION LIENS as follows:</p> <p>“GC 14.2 LIENS</p> <p>14.2.1 Notwithstanding any other provision in the <i>Contract</i>, the <i>Consultant</i> shall not be obligated to issue a certificate, and the <i>Owner</i> shall not be obligated to make payment, subject to the <i>Owner’s</i> requirement to issue a <i>Notice of Non-Payment</i> (Form 1.1) to the <i>Contractor</i>, if at the time such certificate or payment was otherwise due:</p> <ul style="list-style-type: none"> .1 a claim for lien has been registered against the <i>Project</i> lands by a <i>Subcontractor</i> or a <i>Supplier</i> that has not been vacated or discharged by the <i>Contractor</i> in accordance with the requirements of this <i>Contract</i>, or .2 if the <i>Owner</i> or a mortgagee of the <i>Project</i> lands has received a written notice of a lien that has not been resolved by the <i>Contractor</i> through the posting of security or otherwise. <p>14.2.2 In the event a construction lien arising from the performance of the <i>Work</i> is registered or preserved against the <i>Project</i> lands by a <i>Subcontractor</i> or a <i>Supplier</i>, or a written notice of a lien is given or a construction lien action is commenced against the <i>Owner</i> by a <i>Subcontractor</i> or a <i>Supplier</i>, then the <i>Contractor</i> shall, at its own expense:</p> <ul style="list-style-type: none"> .1 within 10 calendar days of registration of the construction lien, vacate or discharge the lien from title to the premises (i.e. the <i>Place of the Work</i>). If the lien is merely vacated, the <i>Contractor</i> shall, if requested, undertake the

		<p><i>Owner's</i> defence of any subsequent action commenced in respect of the lien, at the <i>Contractor's</i> sole expense;</p> <p>.2 within 10 calendar days of receiving notice of a written notice of a lien, post security with the Ontario Superior Court of Justice so that the written notice of a lien no longer binds the parties upon whom it was served; and</p> <p>.3 satisfy all judgments and pay all costs arising from such construction liens and actions and fully indemnify the <i>Owner</i> against all costs and expenses arising from same, including legal costs on a full indemnity basis.</p> <p>14.2.3 In the event that the <i>Contractor</i> fails or refuses to comply with its obligations pursuant to paragraph 14.2.2, the <i>Owner</i> shall, at its option, be entitled to take all steps necessary to address any such construction liens including, without limitation and in addition to the <i>Owner's</i> rights under paragraph 13.2.4, the posting of security with the Ontario Superior Court of Justice to vacate the claim for lien from title to the <i>Project</i> lands, and in so doing will be entitled to a full indemnity from the <i>Contractor</i> for all legal fees, security, disbursements and other costs incurred and will be entitled to deduct same from amounts otherwise owing to the <i>Contractor</i>.</p> <p>14.2.4 In the event that any <i>Subcontractor</i> or <i>Supplier</i> registers any claim for lien with respect to all or part of the <i>Place of Work</i>, the <i>Owner</i> shall have the right to withhold, in addition to the statutory holdback, the full amount of said claim for lien plus either: (a) \$250,000 if the claim for lien is in excess of \$1,000,000 or (b) 25% of the value of the claim for lien and to bring a motion to vacate the registration of said claim for lien and any associated certificate of action in respect of that lien, in accordance with Section 44 of the <i>Act</i>, by paying into court as security the amount withheld.</p> <p>14.2.5 Nothing in this GC 14.2 serves to preclude the <i>Contractor</i> from preserving and perfecting its lien in the event of non-payment by the <i>Owner</i>."</p>
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**APPENDIX 1
to the Supplementary Conditions**

Project-specific requirements for a “*Proper Invoice*”

To satisfy the requirements for a *Proper Invoice*, the following criteria, as may be applicable in each case, must be included with the *Contractor's* application for payment:

- .1 the written bill or request for payment must be in writing;
- .2 the *Contractor's* name and current address;
- .3 the *Contractor's* HST registration number;
- .4 the date the application for payment was prepared by the *Contractor*;
- .5 the period of time in which the services or materials were supplied to the *Owner*;
- .6 the purchase order number provided by the *Owner*;
- .7 reference to the provisions of the *Contract* under which payment is being sought (e.g. GC 5.3 –PAYMENTS for progress payments, GC 5.4 – SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK GC 5.5 – FINAL PAYMENT for final payment, etc.);
- .8 a description, including quantities where appropriate, of the services or materials, or a portion thereof, that were supplied and form the basis of the *Contractor's* request for payment;
- .9 the amount the *Contractor* is requesting to be paid by the *Owner*, set out in a statement based on the schedule of values approved under GC 5.2.4, separating out any statutory or other holdbacks, set-offs and HST;
- .10 a sworn Statutory Declaration in the form CCDC 9A-2018, only for second and subsequent progress payments;
- .11 a current Workplace Safety Insurance Board clearance certificate;
- .12 a pre-approved schedule of values, supplied by the *Contractor*, for Divisions 1 through 14 of the *Specifications* (or equivalent Construction Specifications Institute Masterformat) of the *Work*, aggregating the total amount of the *Contract Price*, including all supporting invoicing;
- .13 a separate pre-approved schedule of values, supplied by each *Subcontractor*, for each of Division 15, 16, and 17 of the *Specifications* (or equivalent Construction Specifications Institute Masterformat) of the *Work*, aggregating the total amount of the *Contract Price*, including all supporting invoicing;
- .14 invoices and other supporting documentation for all claims against the cash allowance;
- .15 a current, acceptable, and up to date *Construction Schedule Update*;
- .16 if requested by the *Owner*, a current and valid certificate(s) of insurance as required under GC 11.1 – INSURANCE;
- .17 the name, title, telephone number and mailing address of the person at the place of business of the *Contractor* to whom payment is to be directed;
- .18 a current, up to date, and approved *Shop Drawing* log;
- .19 in the case of the *Contractor's* application for final payment, in addition to the foregoing requirements (as applicable):
 - (a) any *Close-Out Documentation*, together with complete and final as-built drawings;
 - (b) the *Contractor's* written request for release of the deficiency holdback, including a statement that no written notices of lien have been received by it;

- (c) the *Contractor's* written certification that there are no outstanding claims, pending claims or future claims from the *Contractor* or their *Subcontractors* or *Suppliers*; and
- (d) sufficient evidence of the *Contractor's* compliance with GC 3.11.

APPENDIX 2
to the Supplementary Conditions
SPECIAL SUPPLEMENTARY CONDITIONS

N/A

END OF AMENDMENTS TO CCDC 2 - 2020

1.1 GENERAL

- .1 The documents listed below are enclosed in the Supplementary Information, except for existing drawings which are made available as noted below.
- .2 Supplementary information is made available to assist the Contractor in the preparation of their bid.
- .3 Documents provided as supplementary information are the work of other consultants.

1.2 HAZARDOUS BUILDING MATERIALS ASSESSMENT

- .1 Hazardous Building Materials Assessment by Pinchin Ltd., File: 200584.030, dated March 1, 2018

1.3 ASBESTOS REASSESSMENT REPORT

- .1 Asbestos Reassessment Report by Pinchin Ltd., File: 200584.059, dated September 24, 2020.

1.4 LIST OF DRAWINGS

.1 ARCHITECTURAL DRAWINGS

A1.0 Plans, Elevations, Sections & Details

.2 MECHANICAL & ELECTRICAL DRAWINGS

M-1 Symbols List, Equipment Schedules & Control Diagrams - Mechanical
M-2 Carpentry Shop 112 - Existing & Demolition Work - Mechanical
M-3 Carpentry Shop 112 & Part of Roof Layout - New Work - Mechanical
M-4 Mechanical Details

E-1 Equipment Wiring Schedule, Legend, Wiring Diagram & General Notes - Electrical
E-2 Carpentry Shop 112 Power Plan - Existing & Demolition Work - Electrical
E-3 Carpentry Shop 112 Power Plan - New Work - Electrical
E-4 New Power Layout - Electrical

END OF SECTION

1.1 CONTRACT DOCUMENTS

- .1 Contract documents for work under this contract consists of the following:
 - .1 Standard Construction Document CCDC 2, 2020
 - .2 Supplementary Conditions
 - .3 Specifications as listed in Index to Specifications
 - .4 Drawings as listed in List of Drawings
 - .5 All Detail Drawings and Schedules as bound in Project Manual
 - .6 All Addenda issued prior to closing of the tender
 - .7 Amendments incorporated prior to the signing of the Contract, as agreed to between the signing parties.

1.2 PRODUCTS SUPPLIED BY OWNER

- .1 Products, including appliances, indicated on the drawings as "N.I.C.", or so noted in specifications, are not included in the Contract but will be supplied by the Owner. These are to be put in place and connected to services by the Contractor.
- .2 The Owner will provide manufacturer's installation instructions for each such product, when available.
- .3 The Contractor's duties with respect to products supplied by the Owner include:
 - .1 Unload and handle at site.
 - .2 Remove and dispose of packaging. Inspect delivered products notify Owner and Consultant of any damage or missing components.
 - .3 Temporarily store products in secure and suitable storage, if they are not to be installed immediately.
 - .4 Install and connect to services as applicable.
 - .5 Coordinate with millwork subcontractor to provide trim at items installed in cabinetry.
- .4 Where any item is fully specified, it is to be provided, regardless of any note on any drawings which may indicate it is supplied by others (or N.I.C.).

1.3 RELATION OF TRADES

- .1 These specifications have been divided generally into sections conforming to Construction Specifications Canada Master Format 2004 for the purpose of ready reference. They must be read as a whole. The responsibility for apportioning the work or of settling disputes related to same shall rest entirely with the Contractor.
- .2 The Contractor is responsible for co-ordinating all trades. He is solely responsible for determining the lines of demarcation between Contractor and/or trades. Neither the Consultant nor the Owner assume any responsibility for any such determination or for any dispute arising concerning it. No extras will be considered due to any such dispute concerning either labour or materials.
- .3 Specifications & drawings form an integral part of the Contract Documents. Any subject or item omitted from one but which is mentioned or reasonably implied in the other, shall be considered properly and sufficiently specified and will be part to the work.

SECTION 01 10 00 - GENERAL INSTRUCTIONS

1.4 EXAMINATION OF SITE

- .1 Examine existing building and site immediately prior to commencing Work to confirm that building and site as received by the Contractor, including adjoining Municipal lands, conform to information on tender documents.
- .2 Notify Consultant immediately if site conditions are not acceptable. Commencement of the Work of this Contract will be taken as acceptance of site conditions. No extras will be considered unless accepted in advance of performance of the work, in writing, by Owner and Consultant.
- .3 Contractor must make himself familiar with conditions on the roadway which may affect construction ie location of services, road widening, site access, etc.

1.5 ACCEPTANCE OF WORK IN PLACE

- .1 Before starting his work and from time to time as the work progresses, each subcontractor shall examine the work and materials installed by the other subcontractors insofar as it affects his own work, and shall promptly notify the Consultant IN WRITING, if any condition exists that will prevent him from giving a satisfactory result in his own work.
- .2 Should the subcontractor start his own work without such notification, it shall be construed as an acceptance by him of all preceding work and as a waiver of all claims or questions as to its suitability for receiving his work.
- .3 All Subcontractors installing building finishes and site work shall submit written confirmation of acceptance of existing conditions, to the Consultant, prior to commencing their work. Finishing work and landscaping work may not commence without submission of this confirmation. Receipt of this confirmation will be considered a prerequisite for certification of payment to the relevant Subcontractors.

1.6 MATERIALS AND WORKMANSHIP

- .1 All materials shall be new and the best of their respective kinds. Where a specific grade or brand is not indicated preference shall be given to materials of Canadian manufacture. Pre-packaged materials shall be delivered and stored in unopened containers.
- .2 All work performed under this Contract shall be done by mechanics skilled in their respective trades. They shall make use of such templates, jigs or special tools as may be required for the operation involved.
- .3 The Contractor is responsible for maintaining quality of workmanship. He shall report to the Consultant whenever the Work or material of any trade does not meet the required standard.
- .4 The acceptance of any materials or workmanship shall not be a bar to their subsequent rejection, if found defective.
- .5 Rejected materials and workmanship, and any work which is found defective, shall be removed and replaced or made good by the Contractor without cost to the Owner and to the satisfaction of the Consultant.

- .6 Adequate, dry storage facilities shall be provided and all stored materials shall be protected from damage and theft.
- .7 Perform Work in accordance with the best industry practice of the type of work specified, unless the Contract Documents stipulate more precise requirements, in which case, the more precise requirements shall govern.
- .8 Do Work in a neat, plumb & square manner. Ensure that various work components are properly installed, forming tight joints and appropriately aligned junctions, edges and surfaces, free of warps, twists, waves, or other such irregularities.
- .9 Wherever indicated on the drawings or specifications, or in the manufacturers'/suppliers' written instructions, arrange to have manufacturers'/installer's representatives inspect the Work which incorporates their materials, products or items.
- .10 Do not permit materials to come in contact with other materials such conditions may result in corrosion, staining, discolouration or deterioration of the completed Work. Provide compatible, durable separators where such contact is unavoidable
- .11 Where equipment (ie dust collector) or elements (ie dust collector) are supported by slab the walls or structure, shop drawings must be stamped by an Ontario Registered Professional Engineer confirming that the wall/structure is capable of supporting the equipment/element and that the anchorage provided is adequate to support the equipment/element together with any potential load or stress.
- .12 The design of the Work is based on the full interaction of its component parts. No provisions have been made for conditions occurring during construction. Ensure that no part of the Work is subjected to a load which will endanger its safety or which might cause permanent deformation.
- .13 Conceal pipes, ducts, conduit, wiring and other such items requiring concealment preferably in, wall or ceiling construction of all finished areas. If in doubt as to method of concealment, or intent of the Contract Documents in this regard, request clarification from the Consultant before proceeding with the Work.
- .14 Lay out mechanical and electrical work well in advance of concrete placement and furring installation to allow for proper concealment. Test and inspect Work before applying pipe covering and before it is concealed.
- .15 Provide and maintain control lines and levels required for the Work. Lay out the Work in accordance with these lines and levels and dimensions indicated on the drawings.
- .16 Verify lines, levels and dimensions and report any errors or inconsistencies on the drawings to the Consultants.
- .17 Final responsibility of satisfactory completion of all the Work, however, lies with the Contractor.

SECTION 01 10 00 - GENERAL INSTRUCTIONS

1.7 SECURITY

- .1 The Contractor shall be responsible for security of all areas affected by the Work of this Contract until taken over by the Owner. Steps shall be taken to prevent entry to the Work by unauthorized persons and to guard against theft, fire and damage by any cause.
- .2 A regular full-time watchman will be required on from Substantial Performance of the Work until Occupancy by the Owner. During this time the Contractor must have a watchman on site whenever construction personnel are not on site, ie nights, weekends, holidays, stoppages, etc.
- .3 If, in the opinion of the Consultant, the Work is not adequately protected by the Contractor at any time prior to this, the Owner may demand that a watchman be employed by the Contractor at no extra cost to the Contract. The cost of site security at any time during the contract shall be fully borne by the Contractor.

1.8 SCAFFOLDING

- .1 All necessary scaffolding shall be provided and constructed according to by-law and safety regulations.
- .2 Construct and maintain scaffolding in rigid, secure and safe manner.
- .3 Erect scaffolding independent of building walls.
- .4 Avoid interference with other trades.
- .5 Move when not in use to permit installation of other work and promptly remove when no longer required.
- .6 The provision of scaffolding shall be a matter of agreement between the Contractor and Subcontractors.

1.9 PROTECTION OF OTHER WORK

- .1 Each trade shall avoid damage to other trades and shall take all measures necessary and provide all masking and materials necessary to provide adequate protection.
- .2 Each Contractor and Subcontractor shall be held responsible for all damage to work installed by others that is caused by this work or by anyone employed by him.
- .3 Patching and repairing of damaged work shall be done by the contractor who installed the work, as directed by the Consultant, but the cost of same shall be paid for by the contractor who is responsible for the damage.

1.10 FASTENINGS

- .1 All fastenings must be permanent, of same metal or compatible with any metals with which they are in contact, of adequate size and spacing to ensure permanent anchorage against load or shear.

- .2 Exposed fastenings must be evenly spaced, neatly laid out and must not mar surfaces of prefinished materials.
- .3 No ram setting or similar techniques will be permitted without prior written approval of the Consultant.
- .4 No wood plugs and no anchorages which cause spalling or cracking will be accepted.
- .5 Generally use plain washers. Where vibration may occur, use lock type washers and where fasteners are stainless steel use resilient washers.
- .6 All fasteners exposed on the exterior must be stainless steel.

1.11 SUPPLY AND INSTALL

- .1 Unless specifically noted "supply only", any reference to supply intends the supply and installation of material or item so noted.

1.12 OCCUPATION BEFORE COMPLETION

- .1 If the Contractor, for any reason, does not have the job completed by the completion date and the Owner, of necessity, is forced to occupy any part of the building before the whole of the work is completed, the Contractor will not be entitled to any indemnity for interference with his operation.

1.13 GENERAL REQUIREMENTS

- .1 All Subcontractors shall examine carefully all drawings and specifications to inform themselves fully of all conditions and limitations pertaining to the work of the contract.
- .2 All Subcontractors shall co-operate and co-ordinate their work for the proper completion of the work, including co-ordination of delivery dates and commencement of sub-trades work.
- .3 The responsibility for all work, including temporary structures, shoring and erection shall at all times rest with the Contractor and his Subcontractors. The Consultant will review construction methods and shop drawings for general arrangements only. The method of obtaining the results contemplated by the Contract Documents shall be determined by the Contractor.
- .4 The undertaking of periodic site review by the Consultant or Owner's representative shall not be construed as supervision of actual construction, nor make him responsible for providing a safe place for work, visit, use, access, travel, or occupancy of their employees or agents.
- .5 The Contractor shall be fully responsible for co-ordinating and expediting the work of all Subcontractors and shall employ the necessary and qualified personnel to provide the required quality of labour and materials and to prevent delays in the progress of the project. Each trade shall be afforded all reasonable opportunities for the installation of its work and for the storage and handling of its materials.

SECTION 01 10 00 - GENERAL INSTRUCTIONS

1.14 COORDINATION

- .1 Coordinate all work and preparation on which subsequent work depends to facilitate mutual progress, and to prevent any conflict.
- .2 Review all drawings to identify interference issues prior to commencing construction. Request and review interference drawings from all mechanical and electrical trades. Review all shop drawings, samples, product data, mock-ups, and other required submittals for potential interference issues and co-ordinate with the trades to avoid these conflicts.
- .3 Where interference issues arise during construction, correct work at no expense to the Owner where the interference could have reasonably been foreseen.
- .4 Ensure that each trade makes known, for the information of the Contractor and other trades, the environmental and surface conditions required for the execution of its work; and that each trade makes known the sequence of others' work required for installation of its work.
- .5 Ensure that each trade, before commencing work, knows requirements for subsequent work and that each trade is assisted in the execution of its preparatory work by trades whose work depends upon it.
- .6 Mechanical and electrical trades in particular, shall ensure that items, such as electrical panels, outlets, diffusers, switches, etc., are located where they will not interfere with the installation or operation of other items.
 - .1 Check all drawings for the location of items to be installed later, such as millwork, visual display boards, and other wall or ceiling mounted items.
 - .2 Ensure items installed do not interfere with the operation of equipment or fittings, such as the swinging of doors, servicing of shop equipment, etc..
- .7 Review all shop and layout drawings, templates, and other required submittals for coordination purposes.
 - .1 Ensure that all information necessary for the location and installation of materials, openings, inserts, anchors, accessories, fastenings, connections and access panels are provided by each trade whose work requires co-operative location and installation by other trades and that such information is communicated to the applicable installer.
 - .2 Ensure that shop drawings for aluminum and hollow metal work are coordinated with the openings for doors, frames and windows; site measurements must be indicated on the drawings.
 - .3 Review millwork shop drawings to ensure adequate clearance from walls, doors, windows, writing boards, mechanical and electrical equipment, etc.
- .8 Deliver materials supplied by one trade to be installed by another well before the installation begins.
- .9 Trades giving installation information in error, or too late to incorporate in the work, shall be responsible for any extra work caused thereby.
- .10 Immediately remove any work which is unsatisfactory for subsequent work, as directed by the Consultant or by the appointed inspection firms.

- .11 Inform Commissioning Agent of all equipment installations and start ups.

1.15 ACCESS TO THE PROJECT

- .1 The Contractor for this work shall at all times allow the Owner or any other contractor or their employees in the building or around the premises, undisturbed, whether union or non-union, as may be required in the execution of other portions of the building work and installation of equipment, etc.
- .2 Cooperate fully with forces carrying out any work on behalf of the Owner.
- .3 The Contractor will not have access to occupied areas of the building during the school academic year. Refer to phasing notes on the drawings.

1.16 SUB-TRADE AWARDS

- .1 The Contractor shall, on notice of award of the contract, obtain the Consultant's approval of a complete list of all persons or firms to which he proposes to sublet any part of the work, the trades or divisions of work which are to be sublet to each, and the amount of each trade. He shall provide to the Consultant a financial breakdown showing all divisions of the work amounting to the full sum of the contract. Mechanical and Electrical trades shall be further broken down as required by the mechanical and electrical consultants.

1.17 SAFETY DATA SHEETS

- .1 The Contractor shall submit material and safety data sheets prior to commencing installation and application of at least the following:
 - .1 lead-free solder
 - .2 sealants and caulking
 - .3 resilient flooring
 - .4 painting and finishing
 - .5 fertilizers
 - .6 pesticides
 - .7 herbicides
 - .8 all adhesives
 - .9 any other product which may give off air borne particles after installation
- .2 The Contractor and all of his Subcontractors must note that specifically, Asbestos and Asbestos containing materials, solder for piping containing lead, and Painting & Coatings containing lead and/or mercury must be excluded from any part of the Work.
- .3 The Contractor must submit Certificates of Compliance, prior to the application for Substantial performance, for each of the following items:
 - .1 An affidavit relative to the use of Lead-free solder for all domestic water lines, regardless of location.
 - .2 Products for which Material Safety Data Sheets have been submitted and accepted.

SECTION 01 10 00 - GENERAL INSTRUCTIONS

- .3 Other Work/Products identified in the Contract Documents as requiring a Certificate of Compliance.
- .4 Each Certificate of Compliance must indicate names and addresses of the project, the Owner, the date of Issue, produce description including name, number, manufacturer, with a statement verifying that the Work/Product installed meets specified requirements and, if applicable, complies with the submitted and accepted Material Safety Data Sheets.
- .5 Each Certificate of Compliance must be issued on the trade's letterhead, properly executed, under whose work the respective Work/Product has been provided.
- .6 Each Certificate of Compliance must be endorsed by the Contractor with his authorized stamp/signature.
- .7 The Contractor must ensure that submissions are made to allow sufficient time for review without delaying progress of scheduled completion.
- .8 WHMIS Material Safety Data Sheets (MSDS) are required to be provided before or with the first delivery of every controlled product.
- .9 Ensure that worksite copies of MSDS's are available to workers wishing to consult them and to the health and safety representative and/or joint health and safety committee.
- .10 Ensure that workers are instructed in the purpose and content of MSDS.
- .11 Provide prescribed information on any workplace controlled product, including confidential business information, to a doctor or nurse who needs it for diagnosis or emergency medical treatment.
- .12 WHMIS MSDS sheets to be kept on site at all times.

1.18 REGULATING DOCUMENTS

- .1 Conform to the Ontario Building Code (Ontario Reg. 350/06), Ontario Fire Code (Ontario Reg. 388), National Building Code of Canada, Canadian Electrical Code (CEC), CSA B44, CSA W59, The Occupational Health and Safety Act, Ontario (Bill 208), the National Fire Code, the local municipal Fire Code, and all other applicable Codes and Building By-Laws. Conform to the requirements of the authorities having jurisdiction, such as public utilities. Where required under The Occupational Health and Safety Act, engage a Professional Engineer to design formwork and falsework for concrete.
- .2 Contract forms, codes, standards and manuals referred to in these specifications are the latest published editions at the date of close of tenders. Meet or exceed requirements of specified standards.
- .3 Provide copies of documents referred to in the Specification for joint use of Contractor and Consultant, on site.

1.19 CONTRACTOR'S RESPONSIBILITY

- .1 The Contractor will be responsible to take all necessary steps to protect personnel (workers, visitors, general public, etc.) and property from any harm during the course of the contract. The list of Contractor's responsibilities identified below is by no means comprehensive, nor is it in any priority or critical order. It is here, merely to identify the most often forgotten or ignored responsibilities of the Contractor and is reproduced only as a reminder. The Consultants and the Owner advise the Contractor that it is he who is responsible for all aspects and facets of the Project, from start to completion, from compliance with Occupational Health and Safety regulations to compliance with all codes and statutes.
- .2 The Owner may perform periodic monitoring to ensure that safety requirements are met, and that safety records are properly kept and maintained. Continued disregard for safety standards can cause the Contract to be cancelled and the Contractor removed from the site.
- .3 All work procedures and equipment shall be in accordance with Owner and Legislation standards.
- .4 All equipment shall be in safe operating condition and appropriate to the task.
- .5 Only competent personnel will be permitted on site. During the site introduction, the Owner will determine who is competent. The Contractor will cause to remove from the site any persons not observing or complying with safety requirements.
- .6 The Contractor shall comply with all Federal, Provincial and Municipal Safety Codes and Regulations and the Occupational Health and Safety Act. He shall insure that all of his Subcontractors, suppliers, installers, etc. comply with all applicable codes, regulations, and acts.
- .7 The Contractor shall supply competent personnel to implement his safety program and ensure that the Owner's standards, and those of the Occupational Health and Safety Act, are being complied with.
- .8 The Contractor shall report to the Owner and jurisdictional authorities any accident or incident involving personnel and/or property of the Contractor, Owner, or Public, arising from the Contractor's or any of his Subcontractors, execution of the work.
- .9 Provide the Owner with a copy of each site visit report by the Ministry of Labour, as soon as the report is issued.
- .10 The Contractor shall include all provisions of this contract in any agreement with Subcontractors, and hold all subcontractors equally responsible for safe work performance.
- .11 If the Contractor is responsible for a delay in the progress of the work due to an infraction of legislation or Owner Health and Safety requirements, the Contractor will, without additional cost to the Owner, work such overtime, and acquire and use for the execution of the work such additional labour and equipment as to be necessary, in the opinion of the Owner's Representative, to avoid delay in the final completion of the work or any operations thereof.

SECTION 01 10 00 - GENERAL INSTRUCTIONS

1.20 MANUFACTURER’S INSTRUCTIONS

- .1 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods.
- .2 Notify Consultant in writing of any conflict between these specifications and manufacturer's instructions. Consultant will clarify any such conflict when requested.

1.21 AIR, VAPOUR, AND THERMAL SEAL

- .1 Ensure that exterior walls, windows, floor and roof surfaces provide an air-tight and vapour-tight membrane to prevent problems due to building vapour migration.
- .2 In general, the air/vapour barrier must be achieved on the interior side of the thermal insulation.
- .3 The air barrier/vapour retarder membrane, together with flashings and caulking shall provide a complete and continuous air barrier/vapour retardant envelope. All trades must co-ordinate their work with the work of other trades to ensure that the continuity and integrity of the envelope is maintained.

1.22 SAFETY REQUIREMENTS

- .1 Comply with safety requirements outlined in Section 01 35 20.

1.23 TRUCKING COSTS

- .1 The Contractor is responsible for all costs related to trucking required for the Contract. No extra costs will be considered for weight load or limits due to seasonal conditions or restrictions on load capacities imposed by any authorities or any similar limitations or factors.

1.24 WARRANTIES

- .1 The following is a summary of the warranties required by the contract:

	# Years
Entire Building, General Contract	1
Concrete Slabs	3
Fibre Reinforced Cementitious Panel Siding	3
Sheet Metal Flashing and Trim	5
Caulking and Sealants	3
Painting	2

Additional warranties may be noted within the specification sections.

1.25 INDEPENDENT TESTS AND INSPECTIONS

- .1 The Contractor shall appoint inspection firms as directed by Consultant and make payments from the cash allowances specified in Division noted, except for the following, which shall be included in the contract.
 - .1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
 - .2 Inspection and testing performed exclusively for Contractor's convenience.
 - .3 Testing, adjustment and balancing of mechanical and electrical equipment and systems.
 - .4 Mill tests and certificates of compliance.
 - .5 Re-testing as described under the Quality Control subsection, below
- .2 The Consultant will authorize payment of inspection services from specified cash allowances.
- .3 Where tests or inspections reveal work not in accordance with Contract requirements, Contractor shall pay costs for additional tests or inspections as Consultant may require to verify acceptability of corrected work. In the case of soil compactions, the first retest only will be considered as part of inspection allowance.
- .4 The Contractor shall furnish labour and facilities to:
 - .1 Provide access to work to be inspected and tested.
 - .2 Facilitate inspections and tests.
 - .3 Make good work disturbed by inspection and test.
 - .4 Pour concrete test cylinders and store as directed by Inspection Firm.
- .5 Notify Inspection Firms sufficiently in advance of operations to allow for assignment of laboratory personnel and scheduling of test.
- .6 Where materials are specified to be tested, delivery representative samples in required quantity to testing laboratory.
- .7 Pay costs for uncovering and making good work that is covered before required inspection or testing is completed and approved by Consultant.

1.26 CASH ALLOWANCES

- .1 Include in the Contract Price, a stipulated sum Cash Allowance in the amount of **\$60,000.00**, to be expended as outlined below, which shall apply to the following aspects of the Work:
 - Hazardous Materials Abatement
 - Concrete Inspection
 - Existing Masonry & Mortar Inspection
 - Compaction Testing and Inspection
 - Steel Inspection
 - Record Drawings- Architectural, Mechanical and Electrical
 - Building Automation System (Controls)

SECTION 01 10 00 - GENERAL INSTRUCTIONS

- .2 Additional cash allowances, to be carried by mechanical and electrical Subcontractors, are included in mechanical and electrical specifications.
- .3 Cash Allowances, unless otherwise specified, cover the net cost to the Contractor of services, products, construction, machinery and equipment, freight, handling, unloading, storage installation and other authorized expenses incurred in performing the Work.
- .4 The Contract Price, and not the Cash Allowance, includes the Contractor's profit in connection with such cash allowance.
- .5 The listing of a cash allowance in this section shall not be construed to imply the deletion from the base contract of any work which may be specified elsewhere. Where the expenditure of a cash allowance is not specifically outlined in the specifications, it shall be expended as per instructions and specifications to be provided by the Consultant at a later date.
- .6 The Contract Price will be adjusted by written order by the Consultant to provide for an excess or deficit to the Cash Allowance. Any unused portion of the allowance shall be returned to the Owner at the conclusion of the Contract.
- .7 A schedule shall be prepared by the Contractor to show when items called for under Cash Allowances are required, so that the progress of the Work is not delayed.
- .8 Expend cash allowances as directed by Consultant in writing. Allowances will be adjusted to actual cost with no adjustment to Contractor's charges. Cash expenditure must identify the H.S.T. separately.
- .9 Material Allowances
 - .1 Material allowances shall include the following:
 - .1 Net cost of material
 - .2 Applicable taxes and duties, excluding H.S.T.
 - .3 Delivery to site
 - .2 For Material Allowance, the contract shall include:
 - .1 Handling at site, including unloading, uncrating, storage and hoisting.
 - .2 Protection from elements, from damage.
 - .3 Labour, installation, and finishing.
 - .4 Other expenses required to do cash allowance work (ie contract co-ordination).
 - .5 Overhead and profit.
- .10 Material and Installation Allowances:
 - .1 Material and Installation Allowances shall include the following:
 - .1 Net cost of material
 - .2 Applicable taxes and duties, excluding H.S.T.
 - .3 Deliver to site
 - .4 Handling at site, including unloading, uncrating, storage and hoisting
 - .5 Labour, installation and finishing

- .2 For Material and Installation Allowances, the contract shall include:
 - .1 Protection from elements, from damage
 - .2 Overhead and profit
 - .3 Other expenses required to do cash allowance work (ie contract co-ordination)

- .11 Testing and Inspection Allowances:
 - .1 Testing and Inspection Allowances shall include the following:
 - .1 Net cost of testing and inspection firm, and laboratory services, designated and authorized by Consultant.
 - .2 Applicable Taxes, excluding H.S.T.

 - .2 For Testing and Inspection Allowances, the contract shall include:
 - .1 Overhead and profit
 - .2 Supply of material tested
 - .3 Other testing and re-testing work specified
 - .4 Other expenses required to do cash allowance work (ie contract co-ordination)

1.27 ADDITIONAL DRAWINGS

- .1 Consultant may furnish additional drawings to assist proper execution of the Work. These drawings will be issued for clarification only. Such drawings, however, shall have the same meaning and intent as if they were included with plans referred to in the Contract Documents.

1.28 QUALITY CONTROL

- .1 The Consultants and authorized Owner staff shall have access to all areas of the Work, including any off site construction facilities.

- .2 The Contractor shall give timely notice requesting inspection if Work is designated for special tests, inspections, or approvals by the Consultants, or any other authorized Owner staff, or testing and inspection company.

- .3 If the Contractor covers, or permits to be covered Work that has been designated as outlined above, he shall uncover such work, have the inspections and tests satisfactorily completed and make good such work at no additional cost to the Owner.

- .4 The Consultants or the authorized Owner Staff may order any part of the Work to be examined, if such Work is suspected not to be according to the Contract Documents. If, upon examination, such work is found not to be in accordance with the Contract Documents, then the Contractor shall correct such Work and pay for cost of examinations and correction. If such Work is found to be in full accordance with the Contract Documents, the Owner shall pay for the cost of examination and making good.

- .5 If defects are revealed during inspection and/or testing, the appointed agency may request additional inspection and/or testing to ascertain the full degree of defects. The Contractor shall correct the defects and irregularities as reported by the inspection and/or testing agency, at no additional cost to the Owner and the Contractor shall pay all associated costs for retesting and reinspection.

SECTION 01 10 00 - GENERAL INSTRUCTIONS

- .6 The Contractor shall provide any tools, materials or equipment that may be required by the inspection and/or testing agencies in retesting the Work. (E.g. Video camera rental to reinspect incorrectly installed sewer lines.)
- .7 The employment of inspection and/or testing agencies does not, in any way, affect the Contractor's responsibility to perform the Work in strict accordance with the Contract Documents.
- .8 The Contractor shall remove all defective work, whether the result of poor workmanship by him or his subtrades, use of defective or damaged products, whether or not incorporated into the Work and any Work that has been rejected by the Consultants or authorized Owner Staff as failing to conform to the Contract Documents. Replacement and execution of the affected Work shall be done in full accordance with the Contract Documents, making good other trades' work damaged by such removals or replacements at no additional charge to the Owner.
- .9 If, in the opinion of the Consultant and/or the authorized Owner Staff, it is not expeditious to correct the defective Work, or Work not performed in accordance with the Contract Documents, the Owner, may, at its sole discretion, deduct from the Contract Price, the difference in value between the work performed and that required by the Contract Documents, the amounts of which shall be determined by the Owner.
- .10 The notable exception to the above item is a faulty installation of base and asphalt paving. If, the inspection agency, after performing random test holes to determine compaction and thickness of sub base, base and asphalt, determines that either one or both, are not according to what was specified in the Contract Documents, the Owner will not accept credits for such inconsistencies but rather, demand that any such installation be removed and redone in its entirety, at the convenience of the Owner, but within the first year of the warranty period.

1.29 ENVIRONMENTAL DESIGN REQUIREMENTS

- .1 Indoor air quality is of major importance in the building. It is the intention of this Contract that the materials and products used be as low as possible in emissions of volatile organic compounds (VOCs). Low or no VOC products shall be used where these are available and suitable for the application. This is particularly of concern with regard to paints and other finishes, adhesives, sealants, and products manufactured using these materials.
- .2 Any cleaners, solvents, fuels, aerosol sprays and other chemical products used during construction should also be low VOC emitting where possible. Provide good ventilation when using any products that may emit VOCs.

1.30 PAYMENT PROCEDURES

- .1 Refer to CCDC2 2020, Stipulated Price Contract, Part 5, Payment, and amendments included in Supplementary Conditions.
- .2 Before submitting first request for payment, submit a Schedule of Values, which shall be a detailed breakdown of the Contract price, as directed by the Consultant and as per the Owner's format. Breakdown must equal Contract price. After approval by Consultant, cost breakdown will be used as basis for progress payments.

- .3 Notwithstanding the amounts indicated on the Schedule of Values for the various aspects of the Work, the Owner reserves the right to retain additional funds for some items, where listed in the specifications. This includes amounts to be retained for maintenance manuals and for commissioning, as outlined in the applicable specification sections.
- .4 Applications for payment shall list HST separately.

1.31 REQUESTS FOR SUBSTITUTIONS

- .1 Products, materials, equipment, and methods of construction included in the Contract Documents are to be used in the execution of the Work of this Contract unless otherwise accepted by the Consultant in writing. Substitute products and materials may not be ordered or installed without written acceptance from the Consultant.
- .2 Changes proposed by the Contractor are considered requests for "Substitutions". Requests for Substitutions are to be submitted only by the Contractor.
- .3 Submit a complete package, including information and documentation outlined below, for evaluation by the Consultant.
- .4 A Request for Substitution must include the following information:
 - .1 Data sheets for both the specified item and the proposed substitution, enabling side by side comparisons.
 - .2 Complete description of the proposed alternative product or material, including:
 - .1 Laboratory tests results
 - .2 dimensions, gauges, weights, etc.
 - .3 An explanation of how the proposed substitute differs from the specified product
 - .1 in physical properties
 - .2 in quality and performance
 - .4 A list of any effects the proposed substitution would have
 - .1 on service connections (wiring, piping, ductwork, etc.)
 - .2 on the work of other trades
 - .3 on construction Schedules
 - .5 Evidence that manufacturers warranties and guarantees for the proposed substitutes are the same, or exceed those required under the Contract.
 - .6 Information on the availability of maintenance services and replacement materials for proposed substitute.
 - .7 Names, addresses, and phone numbers of fabricators and suppliers for proposed substitute(s).
 - .8 Confirmation that the proposed substitution, if accepted, would have no cost impact, or indication of a credit (or extra cost) associated with the substitution.
- .5 Submissions of Requests for Substitution must be received by the Consultant well prior to any shop drawing submissions. The Shop Drawing process is not an acceptable means of requesting a substitution, and submission of drawings for products that have not been accepted will result in the automatic rejection of the Shop Drawing submission.
- .6 The burden of proof of the merit of the proposed substitution lies with the Contractor.

SECTION 01 10 00 - GENERAL INSTRUCTIONS

- .7 Substitution requests deemed incomplete or incorrect by the Consultant will be rejected.
- .8 The Consultant may require the submission of further information in order to make an informed determination on the suitability of the proposed substitution. Allow a minimum of 10 working days, upon receipt of all required information, for the Consultant's decision. Substitutions requested too late, not allowing sufficient time for thorough review by the Consultant, will be rejected.
- .9 The Owner's decision, based upon recommendations of the Consultant, of acceptance or rejection, of a proposed substitution shall be final.

END OF SECTION

PART 1 - GENERAL

1.1 GENERAL PROCEDURES

- .1 Changes in the Work ordered by the Consultant in accordance with the General Conditions of the Stipulated Price Contract shall be valued in accordance with the General and Supplementary Conditions of the Stipulated Price Contract and as more fully specified herein.
- .2 The standard documentation for effecting changes in the Work shall be as follows:
 - .1 Consultant's Notice of Contemplated Change issued to the Contractor on standard form and accompanied by necessary Drawings, Schedule, Details and Specifications.
 - .2 Contractor's Quotation submitted to the Consultant showing amount by which the Contract Sum shall be adjusted by way of increase or decrease if the change is ordered.
 - .3 Consultant's formal Change Order issued to the Contractor on Standard Form after Owner's approval. Formal Change Order becomes valid when signed by Consultant, Contractor, and Owner.
- .3 Where a change is not expected to result in an increase or decrease to the scope or cost of work, the Consultant may issue such change as a Jobsite Instruction. Should the Contractor determine that any part of a Jobsite Instruction will result in extra costs, or credits, they shall notify the Consultant, and request the issuance of a Notice of Contemplated Change for the relevant portion of the work. A Jobsite Instruction does not authorize work which will result in a change in the Contract Price.
- .4 Standard form of Jobsite Instruction, Notice of Contemplated Change and Change Order may be viewed at the Consultant's office during normal working hours.

1.2 VALUATION OF CHANGES

- .1 Quotations submitted by the Contractor in response to Consultant's Notice of Change shall be fully detailed and itemized to facilitate checking and processing by the Consultant. Quotations shall be submitted in triplicate and shall:
 - .1 List Work proposed to be carried out by Contractor's Own Forces showing labour, material, and equipment charges together with quantities and costs (unit rates if applicable) in the assessment of such charges.
 - .2 List Work proposed to be carried out by Subcontractors showing the amount quoted by each Subcontractor as verified by the Subcontractor's quotation which shall show labour, material, plant and equipment charges together with quantities and costs (unit rates if applicable) upon which the quotation is based.
 - .3 In evaluating a change, the net cost shall be the net difference in quantity between the original and revised Work. For example: If the change affects the omission of 3m³ and the addition of 4m³ of an item, the value of the change will be assessed by applying the net difference of 1m³ (extra) and applying the appropriate mark-up specified herein.

01 24 00 - VALUATION OF CHANGES

- .2 Unit rates are only applicable if they have been accepted by the Owner in advance and included in the Contract.
- .3 Where unit rates are not established in the Contract, quote costs as follows:
 - .1 material prices shall be the net price paid by the Contractor (or Subcontractor) after deduction of all trade discounts and the like other than reasonable discount for prompt payment.
 - .2 plant and equipment costs shall not be more than rates quoted in the latest edition of "Rental Rates on Contractor's Equipment" published by the Canadian Construction Association.
 - .3 labour costs shall be the actual rate paid to the workers in accordance with the fair wage provision of the Contract plus a "fair wage burden" mark-up of thirty-eight percent to cover Welfare contribution, Pension contribution, Vacation Pay, Trade Improvement Fund, Promotional Fund, Training Fund, Supplementary Unemployment Benefits, Check Off, Apprenticeship, Trust Fund and similar labour contract payments; Worker's Compensation Insurance, Canada Pension Scheme and other statutory charges on labour..
- .4 Unless otherwise specified in the Form of Tender, unit rates quoted in Tender and incorporated in the Contract shall include the "fair wage burden" for labour as specified in paragraph 1.2.3.3 hereof, but shall be exclusive of mark-up for overhead and profit.
- .5 Where Contract unit rates (if applicable) are to be modified:
 - .1 Where a change involves an extra/credit of more than \$10,000.00 (using Contract unit rates), a new unit rate must be negotiated to reflect a fair rate considering the volume of work involved.
- .6 "Overhead", means all expenses to carry on work, except items included in the cost as defined above, and shall include but shall not be limited to: use of Plant, tools; administrative and supervisory staff; personal vehicles, travel; bonds, insurance; health and safety protocols ; and closeout submissions.
- .7 The value of a change shall be determined in one or more of the following methods as directed by the Consultant.
 - .1 by estimate and acceptance of a lump sum;
 - .2 by negotiated unit prices which include the Contractor's Overhead and profit, or;
 - .3 by the actual cost to the Owner, such costs to be the actual cost after all credits included in the change have been deducted, plus the following ranges of mark-up on such costs:
 - .1 for Change Orders with a value of \$0 to \$15,000 the total Subcontractor/Supplier mark-up including Overhead and profit shall be 10% and the total Contractor mark-up including overhead and profit shall be 5%.
 - .2 For Change Orders in excess of \$15,000, the total Subcontractor/Supplier mark-up including Overhead and profit shall be 5% and the total Contractor mark-up including Overhead and profit shall be 3%.

- .8 When work deleted from the Contract is later added back into the Contract, additional overhead and profit will not apply to the reinstated work. Overhead and profit amounts are not included in credits and so remain included in the Contract amount.
- .9 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 be site or head office overhead, profit, supervision, administration and labour costs.
- .10 Claims for extras will not be considered unless they can be verified by the Consultant. Site work, excavation, backfill, footings and all below grade work must be visually inspected by the Consultant and documented by an independent third party (ie Surveyor) BEFORE the work is hidden.
- .11 The signing of a Change Order by all parties shall be deemed to be formal acceptance by the Owner of the Contractor's quotation. 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.
- .12 Under no circumstances will a claim for extra be considered if it is for work recommended by the Inspection Company unless the Consultant has been advised and his approval obtained PRIOR TO THE EXECUTION OF THE WORK.

END OF SECTION

PART 1 - GENERAL

1.1 SITE SUPERVISOR

- .1 The Contractor shall be fully responsible for co-ordinating and expediting the work of all Subcontractors and shall employ a qualified Site Supervisor who shall be in full time attendance on this project.
- .2 Prior to the Preconstruction Meeting, the Contractor shall provide the resume of the Site Supervisor, as named on the Form of Tender, outlining qualifications and related work experiences. The Owner and the Consultant reserve the right to reject the proposed Supervisors should they feel that they are not fully qualified to assume the responsibilities of the positions.
- .3 The Supervisors must be assigned to projects for the duration of the construction period, until the buildings are fully occupied by the Owner. Once the Supervisors are confirmed, there will be no change permitted without the written consent of the Consultant.
- .4 Site Supervisor must carry a cell phone at all times during construction with the ability to be reached directly during all work hours and the ability to have voicemail recorded during all non-work hours including weekends and holidays.

1.2 PRE-CONSTRUCTION MEETING

- .1 Immediately prior to construction, upon notification, attend at location of Owner's choice, pre-construction meeting, along with authoritative representatives of certain key Subcontractors as specifically requested by the Consultant.
- .2 Purpose of meeting is as follows:
 - .1 Review project communications procedures.
 - .2 Review contract administration requirements including submittals, payment and change order procedures.
 - .3 Identify all critical points on Construction Schedule for positive action.
 - .4 Identify any product availability problems and substitution requests.
 - .5 Establish site arrangements and temporary facilities.
 - .6 Review any items which, in the Board's, Consultant's and Contractor's opinion, require clarification.
 - .7 Exchange names & addresses of all key personnel representing Owner, Consultant, Contractor and Subcontractors.
 - .8 Identify Consultant's inspection requirements.

1.3 PROJECT MEETINGS

- .1 Prior to the commencement of the Work, the Contractor together with the Consultant shall mutually agree to a sequence for holding regular "site meetings" on same day (to be determined) of every week.
- .2 Consultant shall Chair project meetings on Site and will issue minutes to Owner's Representative, Consultants, and Contractor.

01 30 00 - ADMINISTRATIVE REQUIREMENTS

- .3 Contractor shall provide suitable on site accommodation for meeting, attend all meetings, arrange for attendance of all necessary Subcontractors, and distribute minutes of previous meeting to Subcontractors and Suppliers as appropriate.
- .4 The Contractor's representatives at site meetings must include the project co-ordinator as well as site Supervisor.
- .5 Contractor shall hold regular co-ordination meeting with Subcontractors and shall chair and minute each meeting. Copies of minutes shall be distributed to relevant Trades and Consultants and Owner.
- .6 In addition to jobsite meetings, Contractor shall arrange for, chair, and record safety meetings and regular meetings with his Subcontractors and suppliers. He shall distribute copies of the minutes of these meetings to all Subcontractors, Owner and Consultant.

1.4 ON SITE DOCUMENTS

- .1 The Contractor shall maintain the following documents, up to date, in the site office:
 - .1 Contract Documents
 - .2 Reviewed Shop Drawings
 - .3 All instructions and changes, i.e. Work Authorization, Jobsite Instructions, Notices of Contemplated Change, Change Orders, etc.
 - .4 All inspection and test reports
 - .5 Permit drawings and specifications
 - .6 As-Built drawings.
- .2 Maintain copies of Regulating Documents referred to in the specifications, up to date, in the site office.
- .3 Maintain a file of Material Safety Data Sheets (MSDS) for all materials being used on site and make available to all concerned, in the site office.

1.5 CONSTRUCTION SCHEDULE

- .1 Within seven (7) days of contract award, submit a detailed construction schedule. Base the submission on the commencement of completion dates of the Contract and indicate specified restraints and milestones, activities and durations for shop drawing submission and approval, testing, fabrication and delivery, construction sequence and timing, interdependencies and constraints. Include the procurement activities for major structural elements, cladding, windows, and mechanical and electrical equipment. Ensure the participation of all major Subcontractors and Suppliers. Schedule must include reasonably detailed breakdown of mechanical, and electrical work.
- .2 Schedule shall show:
 - .1 Commencement and completion dates of Contract.
 - .2 Commencement and completion dates of stipulated stages.
 - .3 Commencement and completion dates of Trades.
 - .4 Order and delivery times for materials and equipment, required delivery dates for products supplied by Owner.
 - .5 Dates for submission of Shop Drawings, material lists and samples.

- .6 Any other information relating to the orderly progress of Contract, considered by Contractor to be pertinent.
 - .3 The Construction Schedule shall be reviewed at every Site meeting and updated. Update shall clearly indicate late deliveries and anticipated impact on construction schedule.
- 1.6 CONTRACTOR PROGRESS RECORD**
- .1 Keep a permanent written report on the Site of progress of the Work. This record to be open to review by the Consultant. A copy to be furnished to the Consultant upon request.
 - .2 Indicate daily the number of persons engaged on the work (including subtrades) and the division and section of the work upon which each group of workers is engaged, in sufficient detail to record dates of construction of each particular section of work.
 - .3 Report delays (and potential delays) giving reason for delay and action being taken to resolve the problem.
- 1.7 QUALITY OF WORK / STATUS REPORTS**
- .1 The Contractor shall take full responsibility for the quality of work on site. The Contractor shall furthermore notify workers of deficient work immediately upon receipt of notification of deficiencies by the Consultant, Subconsultants and/or Owner.
 - .2 The Contractor shall provide a monthly status report on the status of deficiencies identified by the Consultant and Subconsultants. The report shall include a description of each deficiency, status of the deficiency, description of corrective action taken, value (cost) to the correct deficiency and trade (person) responsible for deficiency. Submit monthly status reports with each progress draw.
 - .3 After Substantial Performance, the Contractor shall continue provide the deficiency status reports on a monthly basis, including updated lists of deficiencies identified by the Owner and consultants.
- 1.8 SUBMITTALS REQUIRED BEFORE COMMENCEMENT OF WORK**
- .1 Obtain the documents listed under this heading and supply to Consultant within the time stipulated in the Specification, or if not so stipulated, before issue of the first Certificate.
 - .1 Performance Bond/Labour and Material Bond.
 - .2 Insurance Policies required under General Conditions of Contract - Insurance.
 - .3 Certificates of good standing from the Workplace Safety & Insurance Board for the Contractor and all Subcontractors.
 - .4 Permits required for work of Mechanical Trades and Electrical Trades.
 - .5 Schedule of Values
 - .6 Estimate of monthly progress claims (cash flow schedule).
 - .7 Construction Schedule.
 - .8 Shop Drawing Schedule.

01 30 00 - ADMINISTRATIVE REQUIREMENTS

- .2 Schedule of Values:
 - .1 Submit a detailed breakdown of the Contract price, as directed by the Consultant and as per the Owner's format. Breakdown must equal Contract price. After approval by Consultant, cost breakdown will be used as basis for progress payments.

1.9 DOCUMENTS AND ACTION REQUIRED DURING PROGRESS OF CONTRACT

- .1 Perform the action and/or obtain the documents listed under this heading and supply to the Consultant, within the time stipulated in the Specification or, if not so stipulated, as soon as possible following Consultant's request.
- .2 Adjust Cash Allowances by award of separate contracts, where appropriate.
- .3 Shop Drawings, Product Data and Samples.
- .4 Any permits required from Authorities Having Jurisdiction enabling Owner to occupy the work (or part thereof) prior to Substantial Performance of the Contract.
- .5 Progress photographs.
- .6 As-Built Documents

1.10 AS-BUILT DOCUMENTS

- .1 The Owner requires as-built documents for all changes on completion of the construction.
- .2 The Contractor shall obtain, from the Consultant, a complete and separate set of white prints of Contract Drawings and Project Manual to keep on the site at all times.
- .3 The drawing prints shall be marked up by responsible personnel of the Contractor and Subcontractors to record clearly, neatly, accurately and promptly showing all locations of buried structural, mechanical and electrical work and deviations from the contract documents.
- .4 The Project Manual shall be similarly marked up to reflect deviations from the Contract Documents, as well as indicate materials used, colours selected, etc.
- .5 The accurate location, depth, size and type of each underground utility and service line shall be recorded before concealment to ensure accurately directed future access to these buried lines.
- .6 The as-built documents will be reviewed at regular intervals by the Consultant and the quality of performance by the Contractor and Subcontractors in developing these records will be taken into consideration when reviewing the monthly applications for payment submitted by the Contractor.
- .7 Prior to the date of Substantial Performance, request from the Consultant updated drawings incorporating all changes made to the building through Change Orders and Jobsite Instructions. Transfer all recordings from the white prints to these updated drawings and return them to the Consultant, as specified in Section 01 70 00, Execution and Close-out Requirements.

- .8 Mark "as-built" changes in red coloured ink.
- .9 Record following information:
 - .1 Location of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure.
 - .2 Field changes of dimension and detail.
 - .3 Changes made by Change Order or Supplementary Instructions.
- .10 Clearly mark each of the drawings, "Project As-Built Copy".
- .11 Final completion of these Drawings shall be a condition precedent to the issuance of Consultant's final payment certificate.

1.11 SHOP DRAWING SCHEDULE

- .1 Within 5 working days after award of Contract, prepare and submit to Consultant for comment, a schedule fixing the dates for the submission of all Shop Drawings, product data and samples.
- .2 Note any critical dates for return of shop drawings to meet schedule.
- .3 Allow reasonable promptness for Consultant to review submissions, exclusive of time required for inter-office(s) transmission and mail.

1.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- .1 Contractor shall check, and certify as correct, Shop Drawings, Product Data and Samples prior to submission to the Consultant.
- .2 Submit to Consultant, for review, Shop Drawings, Product Data and Samples, in conformance with the shop drawing schedule.
- .3 Notify Consultant, in writing at time of submission of any deviations in submittal from requirements of Contract Documents.
- .4 The Contractor must include for delivery and pick up of shop drawings, product data and samples to/from the Consultant by hand or courier.
- .5 With reasonable promptness from the receipt of samples and shop drawings, the Consultant shall review them and return them to the Contractor. Allow 10 working days for review of shop drawings. Should quicker response be critical to the construction schedule, discuss with Consultant.
- .6 Until submittal is reviewed, Work involving relevant product may not proceed.
- .7 Co-ordinate each submittal with requirements of Work and Contract Documents.

01 30 00 - ADMINISTRATIVE REQUIREMENTS

1.13 SHOP DRAWINGS

- .1 Shop Drawings shall be copies of original drawings prepared by Contractor, subcontractor, supplier or distributor, for the work of the Contract which illustrate appropriate portions of the Work; showing fabrication layout, setting or erection detail as specified in appropriate Sections.
- .2 All dimensions on shop drawings must be in metric.
- .3 Submit Shop Drawings with transmittal forms listing the name of the manufacturer, the job, the Drawing number, the number of copies and reference in the Specification to which the Shop Drawings refer.
- .4 Submit Shop Drawings to authorities having jurisdiction and obtain any approvals required.
- .5 On Shop Drawings for fire rated assemblies show required fire rating and ULC design numbers.
- .6 Submit three (3) copies of required shop drawings. Drawings shall be of a size and quality which will be readily reproduced. Shop drawings must be certified to have been reviewed and corrected by Contractor and sub-contractor responsible for forwarding to Architect. Shop drawings are to be to scale.
- .7 Note that some shop drawings are required to be approved by a Professional Engineer in the Contractor's employ. These include reinforcing steel.
- .8 All requirements for shop drawings apply also to resubmissions of shop drawings, as may be required by the Consultant.
- .9 Revise all reviewed shop drawings to incorporate Consultant's comments. One complete set of final, revised Shop Drawings, used for construction, shall be supplied to the Consultant.
- .10 Contractor's Responsibility:
 - .1 Verify:
 - .1 Field measurements.
 - .2 Field construction criteria.
 - .3 Catalogue numbers and similar data.
 - .2 Stamp, initial or sign each Drawing, certifying approval of submission, verification of field dimensions and measurements and compliance with Contract Documents, prior to submission to the Consultant(s).
 - .3 The Contractor shall be responsible for reproducing and distributing reviewed shop drawings, except for those copies required by the Consultant and Subconsultants .

- .4 After Consultant's review, distribute copies, as follows:
 - .1 Job Site file (2 copies)
 - .2 Record documents file.
 - .3 Other prime contractors.
 - .4 Subcontractors.
 - .5 Supplier.
 - .6 Fabricator.
 - .7 Authorities having jurisdiction, where required by Codes and/or By-Laws, i.e. structural steel and sprinklers.
 - .8 Maintenance Manuals.

- .5 The Contractor shall advise all Trades, Subcontractors and suppliers of the limits of the Consultant's responsibility with respect to Shop Drawings and other submittals as detailed below.

- .11 Consultant's Responsibility:
 - .1 Review by the Consultant is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that the Consultant approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawings or of his responsibility for meeting all requirements of the Contract Documents. The Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the processes or techniques of construction and installation and for co-ordination of the work of all subtrades.

 - .2 Shop drawings marked "REVIEWED" by Consultant and/or Subconsultants are released for construction. Shop drawings marked "REVIEWED AS NOTED" by the Consultant or his Subconsultants are also released for construction, after revisions noted are made; with final copies sent to the Consultant. Those marked "REVISE AND RESUBMIT" by the Consultant or his Subconsultants are NOT released for construction and must be resubmitted after being revised in accordance with the consultants' comments. Shop Drawings marked with the Consultant's "RECEIVED" stamp only have not been reviewed by the Consultant.

 - .3 Review by the Architect does not in any way constitute review of the design of engineering elements.

 - .4 Shop drawings which have not been requested will be returned to the Contractor with no action taken by the Architect.

- .12 Do not use for construction, Shop or setting Drawings or diagrams which do not bear Consultant's stamp and signature.

- .13 Shop drawing reviews do not authorize changes in cost or time, which may only be accomplished by an appropriate Change Order issued through the Consultant.

- .14 Submission and subsequent review of Shop Drawings constitute a service and does not entitle the Supplier or Subcontractor to the right to remuneration until the materials are supplied and installed on the Site in accordance with the Contract.

01 30 00 - ADMINISTRATIVE REQUIREMENTS

1.14 PRODUCT DATA

- .1 Certain Specification Sections specify that manufacturer's standard schematic drawings, catalogue sheets, diagrams, schedules, performance charts, illustrations and other standard descriptive data will be accepted in lieu of Shop Drawings.
- .2 The above will be accepted if they conform to the following:
 - .1 Delete information which is not applicable to project.
 - .2 Supplement standard information to provide additional information applicable to project.
 - .3 Show dimensions and clearances required.
 - .4 Show performance characteristics and capacities.
 - .5 Show wiring diagrams and controls.
 - .6 Add to standard sheet the Project identification data.

1.15 SAMPLES AND MOCK-UPS

- .1 Where specified, shown or considered necessary, submit duplicate samples for Consultant's approval.
- .2 Where colour, pattern or texture is criterion, submit full range of samples.
- .3 Samples must correspond in every respect to materials supplied for project.
- .4 Construct field samples and mock-ups at locations acceptable to Consultant.
- .5 Construct each sample or mock-up complete, including work of all trades required to finish work.
- .6 Do not proceed with fabrication or delivery of materials until samples are approved.
- .7 Reviewed samples or mock-ups will become standards of workmanship and material against which installed work will be checked on project.
- .8 Approval of samples does not imply acceptance of finished work.
- .9 Distribute samples as directed by the Consultant.
- .10 Ensure that all samples are approved by Authorities Having Jurisdiction, Supplier for correct application in Project, and other parties such as Owner in time to permit approval prior to ordering of quantity delivery to Site.

1.16 HAZARDOUS MATERIALS

- .1 The Ontario Occupational Health and Safety Act requires the Owner to provide a list of Designated Substances to all prospective Contractors and they in turn must supply the list to their sub-trades who are likely to handle or disturb the material.
- .2 Should any suspected hazardous materials be uncovered during construction, the Contractor shall immediately notify the Consultant and Owner, who will arrange for suspected hazardous materials to be tested.

- .3 In accordance with the Ontario Health and Safety Act and regulations enacted under the Act the Contractor and sub-trades shall take appropriate precautions for the building and their work force.

1.17 SAFETY DATA SHEETS

- .1 The Contractor shall submit material and safety data sheets prior to commencing installation and application of at least the following:
 - .1 lead-free solder
 - .2 sealants and caulking
 - .3 all adhesives
 - .4 any other product which may give off air borne particles after installation
- .2 The Contractor must submit Certificates of Compliance, prior to the application for Substantial performance, for each of the following items:
 - .1 An affidavit relative to the use of Lead-free solder for all domestic water lines, regardless of location.
 - .2 Products for which Material Safety Data Sheets have been submitted and accepted.
 - .3 Other Work/Products identified in the Contract Documents as requiring a Certificate of Compliance.
- .3 Each Certificate of Compliance must indicate names and addresses of the project, the Owner, the date of Issue, produce description including name, number, manufacturer, with a statement verifying that the Work/Product installed meets specified requirements and, if applicable, complies with the submitted and accepted Material Safety Data Sheets.
- .4 Each Certificate of Compliance must be issued on the trade's letterhead, properly executed, under whose work the respective Work/Product has been provided.
- .5 Each Certificate of Compliance must be endorsed by the Contractor with his authorized stamp/signature.
- .6 The Contractor must ensure that submissions are made to allow sufficient time for review without delaying progress of scheduled completion.
- .7 Ensure that a current Material Safety Data Sheet (MSDS) arrives before or with the first delivery of every controlled product.
- .8 Ensure that worksite copies of MSDS's are available to workers wishing to consult them and to the health and safety representative and/or joint health and safety committee.
- .9 Ensure that workers are instructed in the purpose and content of MSDS.
- .10 WHMIS sheets to be kept on site at all times.
- .11 The completion security account will not be paid to the Contractor without submission of all required affidavits and requested material and safety data sheets.

01 30 00 - ADMINISTRATIVE REQUIREMENTS

1.18 CONSTRUCTION SAFETY

- .1 Observe and enforce construction safety measures required by the National Building Code of Canada, Canadian Construction Safety Code, Ontario Occupational Health and Safety Act, Workplace Safety & Insurance board (WSIB), the Ontario Construction Safety Act, the Ontario Department of Labour, Ontario Hydro Safety Requirements, and Municipal Statutes and Authorities.
- .2 In the event of conflict between any provisions of Authorities Having Jurisdiction, the most stringent provision will apply.
- .3 The Contractor is responsible for Occupational Health and Safety on this project, and shall be the "Constructor" within the meaning of the Occupational Health and Safety Act. The Contractor shall ensure that all supervisory personnel on job site are fully aware of, and comply with, all requirements and procedures.
- .4 Report Accidents:
 - .1 Promptly report in writing to the Consultant and Owner all accidents which cause death, personal injury or property damage, arising out of or in connection with the performance of the work on or adjacent to the site. Where death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to the Consultant and to the Ministry of Labour and other relevant public authorities.
 - .2 The Contractor is advised that an accident scene comes under the jurisdiction of the Ministry of Labour and no wreckage, articles, etc., shall be interfered with, disturbed, destroyed, altered or carried away at the scene, or connected with the occurrence, until the Ministry of Labour has given permission.
 - .3 If any claim is made by anyone against the Contractor or Subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the Consultant giving full details of the claim.
- .5 First Aid Facilities
 - .1 Provide at the site the equipment and medical facilities necessary to supply first-aid service to anyone who may be injured in connection with the Work, and to conform to the requirements of the authorities having jurisdiction over the Work.
- .6 Overloading:
 - .1 Ensure no part of Work is subjected to a load which exceeds the design live loads shown on the structural drawings. Ensure that scaffolding and false work are not overloaded. Do not cut load bearing members without approval of Consultant.
- .7 Falsework
 - .1 Design and construct falsework in accordance with CSA S269.1 latest version.
- .8 Visitors
 - .1 Provide hard hats for use by all visitors.
- .9 Signage
 - .1 Provide signage indicating " Danger - Keep Out", "Hard Hats must be worn at all times", "Safety Shoes must be worn at all times", "No Trespassing", etc., and additional signs as necessary to adequately warn the public and workmen of the inherent dangers of the site and requirements to maintain personal safety.

1.19 FIRE SAFETY REQUIREMENTS

- .1 Comply with requirements of standard for Building Construction Operations FCC No.301, issued by Fire Commissioner of Canada.
- .2 This standard may be viewed at Regional Engineer's office and copies may be obtained from:

Ontario Fire Marshal
5775 Yonge Street , 7th Floor
North York , ON M2M 4J1
Tel:(416) 325-3100
- .3 Provide sufficient temporary standpipes and connections, fire hose, valves, temporary cabinets, extinguishers, etc. to comply with the requirements of the governing Municipal and Provincial authorities.
- .4 Make necessary adjustments and modifications to temporary fire protection as required during progress of the work. Remove such temporary work when permanent system is installed and operating.
- .5 Conform to "Guidelines for Maintaining Fire Safety During Construction in Existing Buildings", provided by the Office of the Ontario Fire Marshal.

1.20 ADDITIONAL REQUIREMENTS FOR OCCUPIED SITES

- .1 The existing school will be occupied throughout the academic year. Work cannot be performed while school is in session, except with the written permission of the Owner. If at any time the contractor will perform work while school is in session, additional safety requirements will apply, as outlined below:
- .2 Flagman:
 - .1 Provide a full-time flagman at each vehicular construction entrance.
 - .2 The location of the Flagman shall be coordinated with the Owner, to ensure the safe guarding of staff, students, and the general public.
 - .3 Flagman shall be a designated person, not the Site Supervisor or other construction worker, and shall not be changed during the Project unless approved by the Owner.
 - .4 Flagman must have means of communication with Site Supervisor (phone or walkie-talkie).
 - .5 Flagman shall meet and escort all construction traffic from the site entrance into and out of the fenced construction area, from street through entrances to hoarding. No unaccompanied construction vehicles will be permitted on School Board property, outside of construction enclosure.
 - .6 Flagman shall control construction parking at the school site. Parking shall be as designated by Owner and school Principal.
 - .7 Contractor may provide a temporary shelter for the flagman, if necessary or desired, the cost of which shall be included in the Tender Price.
 - .8 Flagman shall be properly outfitted to carry out his duties, with appropriate safety clothing and equipment, including reflective vest, hand-held "Stop" sign and a visible identification tag.

01 30 00 - ADMINISTRATIVE REQUIREMENTS

- .3 Access Control:
 - .1 The Contractor shall instruct all suppliers and subcontractors that they are required to contact the Site Supervisor by cell phone prior to entering the site, and await escort by the flagman.
 - .2 Site Supervisor shall then advise the flagman to meet and escort the vehicle.
 - .3 Gates of construction enclosure must remain closed and locked at all times and only opened for the time required for access/egress of authorized vehicles or personnel.

- .4 Site Communication
 - .1 The Contractor shall provide the Owner and Principal with an emergency contact telephone number at which the Site Supervisor or other Contractor representative can be contacted directly during work hours and with voicemail available at all other times, including weekends and holidays, which will be checked regularly.
 - .2 Site Supervisor and flagman must have means of direct communication available at all times during work hours.
 - .3 Contractor shall be in daily communication with the school Principal to determine any activities which may involve safety concerns, whether school related or construction related.

1.21 **SECURITY**

- .1 The Contractor shall be responsible for security of all areas affected by the Work of this Contract until taken over by the Owner. Steps shall be taken to prevent entry to the Work by unauthorized persons and to guard against theft, fire and damage by any cause.

- .2 The Contractor is responsible for the prevention of vandalism and theft of all tools, equipment and materials until date of Substantial Performance of Contract.

END OF SECTION

PART 1 - GENERAL

1.1 SITE ENCLOSURE

- .1 Erect enclosure so as to provide a secure compound for construction equipment & supplies. Hold the Owner harmless from any damage or expense arising from failure to properly execute such work.
- .2 Provide, erect, and maintain hoarding for construction as required for safety or as otherwise agreed to with the Consultant, or as directed by Authorities Having Jurisdiction. Confirm that hoarding is designed to resist wind loads.
- .3 Maintain hoarding during the period of the Contract.
- .4 Should the project be stopped for any reason, provide and maintain all necessary fencing and protection to protect building & site from damage.
- .5 On completion of the contract, take down and remove hoarding and gates from the site.

1.2 TELEPHONE AND FAX

- .1 Install and pay for all telephone and fax machine services for Contractor's own use.

1.3 POWER AND WATER SUPPLY

- .1 Existing building services may be used, as available.
- .2 Provide all temporary light and power required, complete with all wiring, lamps and similar equipment as required for completion of the Work. Provide adequate lighting for all workmen, sufficient for safety and for execution of good workmanship, taking particular care to observe all safety requirements. Adequate temporary lighting will be insisted upon. The Owner will not be liable for any loss, damage, delay, or claims for extra costs resulting from lack of services.
- .3 Provide an adequate pure fresh water supply for the use of trades. Keep existing or temporary sources in good condition.
- .4 Refer to Section 01 70 00 for temporary removal and replacement of utilities.

1.4 FIRE EXTINGUISHERS

- .1 An adequate number of ABC type fire extinguishers shall be provided for the protection of the work during construction.

1.5 CONTRACTOR'S SITE OFFICE

- .1 Provide and maintain a site office heated to 22°C, lighted 750 Lx and ventilated, of sufficient size to accommodate 10 persons for site conference and job meetings.

01 50 00 - TEMPORARY FACILITIES AND CONTROLS

- .2 The site office shall be furnished with the following as a minimum requirement:
 - .1 Desk and chair
 - .2 File cabinets as required for storage
 - .3 Plan file for storage of drawings
 - .4 Table and stacking chairs to provide seating at job meetings
 - .5 Telephone and fax machine.

- .3 The Contractor shall maintain the following documents, up-to-date, in site office:
 - .1 Contract Documents
 - .2 Reviewed shop drawings
 - .3 All instructions and change documents, ie Work Authorizations, Jobsite Instructions, Notices of Contemplated Change, Change Orders
 - .4 All inspection and test reports
 - .5 Permit drawings and specifications
 - .6 As-built drawings

1.6 STORAGE SHEDS

- .1 Provide adequate weather-tight sheds with raised floors, for storage of materials, tools and equipment which are subject to damage by weather.
- .2 Storage sheds shall be painted and doors shall be fitted with locks.
- .3 Locate storage sheds adjacent to building away from road to approved of the Consultant.
- .4 Material stored on site must be protected by tarpaulins until enclosed in building.

1.7 SANITARY FACILITIES

- .1 Furnish and maintain in a sanitary condition, suitable sanitary accommodation for all workmen in accordance with local Municipal and Provincial sanitary regulations, and to the approval of Public Health Authorities and the Consultant.
- .2 Maintain facilities in a sanitary condition, and in accordance with local Municipal and Provincial regulations and to the approval of Public Health Authorities and the Consultant, with all necessary water, sewage, light and heat supplied in sufficient quantity.
- .3 Post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.8 TREE PROTECTION

- .1 Protect all existing trees from damage during the construction period. Protection to be in accordance with municipal standards and approvals.
- .2 Confine movement of heavy equipment, storage of same, and storage of materials to a predetermined area. Do not store materials or place equipment over root systems of any existing trees.

01 50 00 - TEMPORARY FACILITIES AND CONTROLS

- .3 If any existing tree to remain is injured and does not survive the following year, replace with a tree of similar size and value, as directed by the Consultant, at no additional cost to Owner.
- .4 Should the destroyed tree be of such a size or shape that it cannot be feasibly replaced, then the Contractor shall compensate the owner for the minimum sum of one thousand dollars (\$1,000.00) per destroyed tree.

1.9 SITE PROTECTION

- .1 Supply, install and maintain all guard rails, barriers, night lights, sidewalk and curb protection as may be necessary or as the by-law may require.
- .2 Supply, install and maintain all necessary temporary coverings to protect work areas.
- .3 Protect existing asphalt and concrete paving and curbs from damage and make good any damage at completion of project.
- .4 Protect masonry, mortar, and all frost susceptible materials from cold weather and rain. Protect all of the work from damage by the elements.
- .5 Properly protect floors and roof from any damage. Take special precautions when moving heavy loads or equipment over floors and roof.
- .6 Keep floors free of oils, grease or other such materials likely to discolour them and/or affect bonding of applied surfaces.
- .7 Ensure that no part of the Work is loaded greater than it was designed for, when completed. Make any temporary support as strong as the permanent support. Place no load on concrete structure until it has sufficient strength to safely bear such load.
- .8 Protect glass and other finishes against heat, slab and weld splatters, using appropriate protective shields and covers.
- .9 Provide and maintain, in good working order, appropriately labelled ULC fire extinguishers, to the approval of Authorities Having Jurisdiction.
- .10 Provide a minimum of two safety helmets on site at all times for the use of any other Owner authorized visitors to the site. It is the Contractor's responsibility to make certain that any such visitors wear the protective headgear and any other safety gear which may be necessary at that particular time of construction.
- .11 Should the job be stopped for any cause, the Contractor shall be responsible for and provide all necessary protection to prevent damage by weather or other cause until the cause of stoppage has been cleared.
- .12 The Contractor shall be entirely responsible for supervision of project and for protection of public from vehicles in movement, stockpiled materials and construction.
- .13 The Contractor is responsible for the prevention of vandalism and theft of all tools, equipment and materials.

01 50 00 - TEMPORARY FACILITIES AND CONTROLS

- .14 Any damage to roadways must be repaired immediately, to municipal standards.
- .15 Any damage to site by the Contractors forces, delivery vehicles, etc., must be made good at the end of the job. Similarly any damage to curbs, sidewalks, or other municipal property shall be made good by the Contractor.
- .16 Vehicular parking and stockpile materials must be maintained on the construction site only. No street parking or stockpiling will be allowed on the Municipal streets.

1.10 SCAFFOLDING

- .1 All necessary scaffolding shall be provided and constructed according to by-law and safety regulations.
- .2 Construct and maintain scaffolding in rigid, secure and safe manner.
- .3 Erect scaffolding independent of building walls.
- .4 Avoid interference with other trades.
- .5 Move when not in use to permit installation of other work and promptly remove when no longer required.
- .6 The provision of scaffolding shall be a matter of agreement between the Contractor and Subcontractors.

1.11 SITE SIGNBOARD AND NOTICES

- .1 Contractor may place his own sign on site, in location approved by the Consultant. Other than Contractor's sign, only safety and necessary instructional signs may be erected on site.
- .2 Signs and notices for safety or instruction to be in English language, or commonly understood graphic symbols.
- .3 All signs must be removed entirely and site made good, at the time of Substantial Performance, or when so directed by the Consultant.

1.12 REMOVAL OF TEMPORARY PROVISIONS

- .1 Remove temporary facilities, barriers, enclosures and utilities from site when directed by Consultant and/or at the completion of the project.

END OF SECTION

PART 1 - GENERAL

1.1 DIMENSIONS

- .1 Ensure that necessary job dimensions are taken and trades are co-ordinated for the proper execution of the work. Assume complete responsibility for the accuracy and completeness of dimensions and for all co-ordination.
- .2 Verify that work is executed in accordance with dimensions indicated, that levels and clearances are maintained, and that work installed in error is rectified before construction continues.
- .3 Do not scale directly from the drawings. If there is ambiguity or lack of information, immediately inform the Consultant. Any change caused by lack of such review shall be the responsibility of the trade concerned.

1.2 CUTTING AND PATCHING

- .1 Before cutting, drilling or sleeving load-bearing elements, obtain approval of location and method.
- .2 Do not endanger work or property by cutting, digging, or similar activities. No trade shall cut or alter the work of another trade who has installed it unless approved by that trade.
- .3 Cut and drill with true smooth edge to minimum suitable tolerances.
- .4 Fit construction tightly to ducts, pipes and conduit. The trade performing work that penetrates a fire, air, vapour, moisture, thermal or acoustic separation element of the building shall pack voids tightly with mineral wool insulation, rated where required; seal air, vapour and moisture barriers; and caulk joints as may be required to ensure that no air movement through the penetration is possible.
- .5 Cutting, drilling and sleeving of work shall be done only by the trade who has installed it. The trade requiring drilling and sleeving shall inform the trade performing the work of the location and other requirements for drilling and sleeving. The Contractor shall directly supervise performance of cutting and patching.
- .6 Replace and/or make good damaged work.
- .7 Patching or replacement of damaged work shall be done by the Subcontractor under whose work it was originally executed, and at the expense of the subcontractor who caused the damage.

1.3 CONCEALMENT

- .1 Conceal all pipes, ducts and wiring except where indicated otherwise. This includes existing items to remain in new surfaces.

1.4 MECHANICAL AND ELECTRICAL WORK

- .1 Mechanical and Electrical services must be temporarily capped or relocated to permit work to proceed.

01 70 00 - EXECUTION AND CLOSEOUT REQUIREMENTS

- .2 All electrical work shall be done by an experienced, licensed electrician.
- .3 Temporarily remove telephone and cable television wiring as required to facilitate work, and reinstall prior to occupancy of the building.
- .4 Temporarily relocate electrical conduits as required to facilitate work, reinstalling in original location unless otherwise agreed upon with Owner and Consultant.
- .5 Maintain fire alarm and security connections to buildings and portables at all times.
- .6 Remove wall-mounted pole and satellite dish at Bowmanville High School. Hand over to Owner. Reconfirm with School Principal and Owner to ensure removal is still required, prior to removing these items.

1.5 GENERAL

- .1 Conduct cleaning and disposal operations to comply with local ordinances, anti-pollution laws, and recommendations of Construction Safety Association.
- .2 Store volatile wastes in covered metal containers, and remove from premises daily.
- .3 Prevent accumulation of wastes which create hazardous conditions.
- .4 Provide adequate ventilation during use of volatile or noxious substances.
- .5 Provide instructions designating proper methods and materials to be used in final cleaning of Work.
- .6 Do not bury or burn any rubble, waste or packaging, or surplus materials. No dumping of waste, such as oil or paint, into sewers will be permitted.

1.6 CLEANING MATERIALS

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

1.7 DISPOSAL OF WASTES

- .1 Disposal of waste or volatile materials, such as mineral spirits oil or paint thinner into storm or sanitary sewers prohibited.
- .2 Meet Ministry of the Environment Standards and Guidelines.

1.8 FIRES

- .1 Fires and burning of rubbish on Site is not permitted.

1.9 CLEANING DURING CONSTRUCTION

- .1 Maintain entire site and adjoining municipal and/or private property free from accumulations of waste materials and rubbish. Do not allow rubbish to accumulate in work under construction or on roofs. Clean site daily.
- .2 Maintain entire site free from accumulations of snow and ice.
- .3 Provide on-site containers for collection of waste materials, and rubbish. Empty containers on a regular basis in conformance with Municipal and Provincial Regulations.
- .4 Cleaning operations shall include those areas used for temporary site access or used on a temporary basis to facilitate the Work.
- .5 Keep all areas of the Work clean and orderly, free from accumulation of dirt, debris, garbage, oily rags, excess material, or such other trash items. Remove such items from all areas of the Work on a daily basis.

1.10 CLEANING AT COMPLETION OF WORK

- .1 In addition to the progressive removal of rubbish from the entire building and Site, the Contractor shall perform the following work in preparation for Substantial Performance.
- .2 Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from all exposed finishes, including glass and other polished surfaces. Clean glass in work areas.
- .3 Remove stains, spots, marks and dirt from work. Remove protective materials.
- .4 Remove debris and surplus materials from the roof areas and accessible concealed spaces.
- .5 Broom clean paved surfaces and rake clean other disturbed surfaces in the area of the Work, to remove site debris caused by the Work of this Contract. Inspect for damages and make good.
- .6 Clean all exterior walkways, driveways and the like.
- .7 Conduct final inspection of site and exterior surfaces, and concealed spaces.
- .8 Leave premises ready for immediate occupation without further cleaning, all to the Consultant's approval.

1.11 TAKEOVER PROCEDURE

- .1 Subject to detailed instructions included in these specifications, conform to OAA-OGCA Take-Over Procedures - Document 100-2025 for takeover procedures.

1.12 ACTION REQUIRED AT SUBSTANTIAL PERFORMANCE

- .1 Perform the actions listed below prior to issue of the Certificate of Substantial Performance of the Contract. Provision of all documents is a condition precedent to the issue of a final Certificate for Payment.

01 70 00 - EXECUTION AND CLOSEOUT REQUIREMENTS

- .2 Remove all protection erected, and make good all damage to the Work and adjoining Work due to the lack or failure of such protection. In addition, all debris, surplus materials tools equipment shall be removed from the work areas and the site, and the Project shall be left clean and tidy to the full and complete satisfaction of the Consultant and Owner.
- .3 Submit the documents and material detailed herein. Deliver all required submittals to the Consultant for approval PRIOR to Substantial Performance of the Work. Final payment will not be made until all these items have been received and approved.
- .4 Request letters confirming General Review from Consultant, and Structural, Mechanical and Electrical Engineers, for submission to Authorities Having Jurisdiction.
- .5 Perform final adjustment of Cash Allowance, specified in Section 01 10 00, General Instructions.
- .6 Arrange for Consultant to prepare CAD drawing files for the Owner using the final as-built drawings. In addition, have the Consultant prepare an updated Project Manual, in WordPerfect format.
- .7 Ensure all sub-systems ie fire alarm, security, E.M.S., are fully operational prior to Substantial Performance.
- .8 At time of Substantial Performance, instruct the Owner's personnel in operation, adjustment and maintenance of equipment and systems, using operation and maintenance manuals as the basis for instruction.
- .9 Prior to final site review, start up and demonstrate operation of all systems to the Owner and the Consultant.
- .10 Expedite and complete deficiencies and defects identified by the Consultant. Final Certificate for Payment will not be issued until all deficiencies are satisfactorily corrected, inspected, and approved by the Consultant, and all documentation has been handed to the Consultant.
- .11 Review cash and contingency allowances in relation to contract price, change orders, hold-backs and other contract price adjustments.
- .12 Review inspection and testing reports to verify conformance to the intent of the documents.
- .13 Review condition of all equipment, which has been used in the course of the Work to ensure turnover at completion in "as new condition" with warranties, dated and certified from time of Substantial Performance of the Contract.
- .14 When partial occupancy of uncompleted project is required by the Owner, co-ordinate the Owner's uses, requirements and access with the construction requirements to complete project.
- .15 Provide on-going review, inspection, and attendance to building call back, maintenance and repair problems during the warranty periods.
- .16 Arrange for and pay related fee for all necessary inspections required for occupancy such as Hydro, Fire Department and Building Department.

- .17 Continue to submit monthly deficiency status reports.

1.13 TOTAL PERFORMANCE

- .1 Upon completion of all items noted on the deficiency list, clean all areas, surfaces, and components affected by corrections and completion of deficient items.
- .2 Ensure that all services, equipment, and apparatus are properly tested and adjusted.
- .3 Letter of Completion:
 - .1 Submit a Letter of Completion to the Consultant stating that the Contract is complete, that all deficiencies identified by the Consultant, Subconsultants, Inspectors and Owner have been rectified, and requesting final reviews by Consultant and Subconsultants.
 - .2 Sign and return deficiency lists, issued by Consultant and Subconsultants, to confirm completion of all deficiencies identified thereon.
- .4 Final Site Review:
 - .1 Consultant will conduct one site review for Total Performance, within ten (10) working days of the request by the Contractor. Should the Contractor fail to provide the Letter of Completion, the Consultants will be under no obligation to perform a site review within the above noted time.
 - .2 Additional site reviews, as requested by the Contractor or as necessitated due to the Contractor's failure to complete work as required, shall be paid for by the Contractor at a rate of \$500 per visit, per consultant, plus the cost to prepare additional site review reports at per diem rates (rates as recommended by the OAA or PEO, or as negotiated in advance).
- .5 Submit a final request for payment, incorporating all approved changes to the Contract price, and adjustments to the Cash Allowance.
- .6 Final Certificate for Payment will not be authorized until all deficiencies are satisfactorily corrected, reviewed and signed off by the Consultant, and required submittals have been completely and accurately provided.

1.14 WARRANTY PERIOD

- .1 The Warranty Period on this Project will expire twelve months from the date of Substantial Performance of the Work, except for extended warranties as called for throughout the Specifications or equipment not certified by Consultant at time of Substantial Performance.

1.15 UTILITY CHARGES

- .1 The Owner will assume responsibility for utility service billing from day following date of Substantial Performance, or on day of occupancy of building by Owner, whichever is earliest.
- .2 Contractor to arrange for reading of meters at this time.

01 70 00 - EXECUTION AND CLOSEOUT REQUIREMENTS

1.16 SUBMITTALS REQUIRED AT SUBSTANTIAL PERFORMANCE

- .1 Prior to Substantial Performance of the Contract, submit the following documents and materials:
 - .1 Deficiency list prepared by Contractor for both interior and exterior areas of the project.
 - .2 Certificates of good standing from the Workplace Safety & Insurance Board for the Contractor and all Subcontractors
 - .3 Operations and Maintenance Manuals, including warranties
 - .4 Maintenance materials
 - .5 As-Built Documents as specified in Section 01 33 00, Submittal Procedures
 - .6 Inspection Certificates required by Provincial, Municipal and other authorities having jurisdiction.
- .2 Deliver all required submittals to the Consultant for approval PRIOR to Substantial Performance of the Work. Final payment will not be made until all these items have been received and approved. These submittals include:

1.17 MAINTENANCE MANUALS

- .1 At Substantial Performance submit to Consultant three (3) copies of Operations Data and Maintenance Manuals for each school site, made up as follows:
 - .1 Bind data in vinyl hard covered, three-ring loose leaf binder for 212.5mm x 275mm (8-1/2" x 11") size paper.
 - .2 Enclose title sheet, labelled "Operation Data and Maintenance Manual" , School Name, and date, with list of contents.
 - .3 Organize contents into applicable sections of work to parallel project specification break-down. Mark each section by labelled tabs protected with celluloid covers fastened to hard paper dividing sheets.
 - .1 name of project
 - .2 name of Owner
 - .3 name of Consultant
 - .4 name of Contractor
 - .5 date of Substantial Performance.
 - .4 One copy of each of the following in one of the binders:
 - .1 statutory declarations on CCA forms 9A and 9C
 - .2 Workers' Compensation Board certificate
 - .3 certificates of approval of the work by the Building Department (if available)
 - .4 Ontario Hydro certificate of inspection.

01 70 00 - EXECUTION AND CLOSEOUT REQUIREMENTS

- .2 Include following information plus data specified.
 - .1 List of all Subcontractors, major suppliers, and local equipment service representatives, their addresses and telephone numbers.
 - .2 Date of Substantial Performance (commencement of warranty periods) and termination dates of warranties.
 - .3 Maintenance instructions for all materials and finishes. Include instructions for cleaning, repairing, refinishing and freshening, and warnings of damaging or dangerous practices where necessary.
 - .4 All warranties, guarantees, bonds, etc., properly completed and signed, which extend beyond the general warranty period, for all work and equipment as specified or as otherwise supplied and installed, from manufacturers and trades. Warranties, guarantees and bonds shall include:
 - .1 Name and address of project.
 - .2 Warranty commencement date.
 - .3 Duration of warranty.
 - .4 Clear indication of what is being warranted and what remedial action will be taken under warranties.
 - .5 Signature and seal of Contractor.
- .3 List additional material used in project showing name of manufacturer and source of supply.
- .4 Neatly type lists and notes. Use clear drawings, diagrams or manufacturer's literature.
- .5 Include one complete set of final approved Shop Drawings (bound separately) indicating corrections and changes made during fabrication and installation.
- .6 Supply 3 copies of inspection and testing reports, inspection and acceptance certificates, balancing reports, all bound in manuals.
- .7 Submit one copy of all Material Safety Data Sheets, bound separately.
- .8 Manuals must bear seal and signature of Contractor.
- .9 Maintenance Manuals must be delivered, complete and in one package, to Consultant. The final Certificate for payment will not be issued until ALL documentation has been received, reviewed, and approved, by Consultant.
- .10 For the purpose of project administration and calculation of Substantial Performance, these manuals will be given a value of \$5,000.00 per school site.

01 70 00 - EXECUTION AND CLOSEOUT REQUIREMENTS

1.18 MAINTENANCE MATERIALS

- .1 Where supply of maintenance materials is specified, deliver items as follows:
 - .1 Materials in unbroken cartons or, if not supplied in cartons, they shall be strongly packaged.
 - .2 Clearly mark as to content.
 - .3 If applicable give colour, room number of area where material used.
 - .4 Obtain signed receipt from the Owner's designated representative and store in an assigned, lockable room.
- .2 Copies of signed receipts for maintenance materials are to be included in the maintenance manuals.
- .3 Replacement materials are for the sole use of the Owner and must not be used by Contractor to replace deficient work.

1.19 AS-BUILT DRAWINGS AND RECORD DOCUMENTS

- .1 Provide As-Built Drawings, as specified in Section 01 30 00.
- .2 Prior to the date of Substantial Performance, request updated drawings from the Consultant. Transfer all "as-built" markups from the site drawings to these updated drawings and return them to the Consultant for preparation of Record Drawings.
- .3 Record documents shall consist of the original documents altered to reflect all changes and information indicated on as-built documents.
- .4 The Consultants shall prepare record documents and be reimbursed for costs by the Contractor through the Cash Allowance.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED WORK

- .1 Execution Section 01 70 00
- .2 Clearing, grading, excavation and fill Section 31 20 00

1.2 REFERENCES

- .1 Conform to all laws, By-Laws and regulations of the authorities having jurisdiction and, in particular, the Ontario Occupational Health and Safety Act; The Environmental Protection Act; The Ontario Building Code, Ontario Regulation 350/06; The Ontario Fire Code, Ontario Regulation 388; The National Building Code; and the National Fire Code; current editions of each.
- .2 CSA S350-M, code of practice for safety in demolition of structures.
- .3 Ontario regulations under the Environmental Protection Act:
 - .1 O.Reg. 102/94 Waste Audits and Waste Reduction Work Plans
 - .2 O.Reg. 103/94 Industrial, Commercial and Institutional Source Separation Programs
 - .3 O.Reg. 347/90 General - Waste Management; refer to "Definitions"
- .4 Ontario regulations under the Occupational Health and Safety Act:
 - .1 O.Reg. 213/91 Construction Projects
 - .2 All regulations regarding "Designated Substances"
 - .3 O.Reg. 860/90 Workplace Hazardous Materials Information System (WHMIS)
- .5 Conform to "Guidelines for Maintaining Fire Safety During Construction in Existing Buildings", provided by the Office of the Ontario Fire Marshal.

1.3 EXAMINATION OF EXISTING SITE AND STRUCTURE

- .1 Examine the existing site and building before tendering to be familiar with the detailed extent of demolition, dismantling, relocation and reassembly required.
- .2 No allowance will be made for failure to obtain complete information prior to close of tenders.

1.4 SUMMARY OF WORK

- .1 Remove existing site work as indicated on drawings, and as required for new construction.
- .2 Carry out all alteration and demolition work required to accommodate new work indicated on drawings. Make good any damage caused by alterations required.
- .3 Remove HVAC equipment, electrical fixtures and all other items so noted on drawings as required for the new work, unless otherwise noted.
- .4 Unless noted otherwise, building materials resulting from demolition under this contract shall become the property of the Contractor, and shall be removed by the Contractor.

02 40 00 - DEMOLITION AND ALTERATIONS

1.5 SCHEDULE OF WORK

- .1 Occupant safety and required exiting from the existing building must be maintained at all times, particularly if any work is done during the school's operating hours and scheduled events. Work must be suspended if the Principal advises that noise and/or dust is interfering with the school program.
- .2 Construction fence must be installed and construction area secured before any work is undertaken. Enclosure must conform to Ministry of Labour and Municipal requirements as well as these specifications.
- .3 Dust proof partition must be installed prior to any work being undertaken inside the building.

1.6 PROTECTION

- .1 Protect adjacent properties against damage which might occur from falling debris or other cause. Make good damage to adjacent public or private properties resulting from Work of this Contract.
- .2 Protect existing building from damage and contamination during demolition activities. All openings must be made weatherproof. Provide temporary barriers, dust control measures, security controls, supports, and such additional protection as may be required by specific demolition work.
- .3 Prevent movement, settlement, and damage to existing building to remain, services, paving, landscaped areas to remain, and adjacent structures. Provide temporary supports, including shoring and bracing, as required. All shoring must be designed by a professional engineer licenced in the Province of Ontario.
- .4 Employ licensed rodent and vermin exterminators to destroy all discovered vermin and rodents.
- .5 Remove contaminated and dangerous material from the site and dispose of safely and legally. Meet all M.O.E. requirements.
- .6 During demolitions operations, keep work wetted down to prevent dust and dirt from rising. Provide water line for this purpose, furnish connections that may be required. Upon completion, remove installed temporary water lines.
- .7 Take precautions to guard against movement or settlement of adjacent land, existing building, and remaining services and utilities. Provide and place bracing or other means of support.
- .8 Take precaution against contamination of air and adjacent properties.
- .9 Maintain all required exiting for safe operations within the existing building.

1.7 SERVICES

- .1 Seal and cap mechanical and electrical services in order to facilitate removals indicated on drawings. Mark location and type of service of all capped services at the site. Submit record drawing showing locations and dimensions of all capped services.
- .2 Any suspension of building services must be scheduled with the Owner.

PART 2 - PRODUCTS

2.1 Not Used

PART 3 - EXECUTION

3.1 DEMOLITION

- .1 Demolish any masonry in small sections. Do not permit masonry to fall in mass from one level to another.
- .2 Remove and carefully lower wood or structural steel framing if applicable.
- .3 Remove exterior caulking at perimeter of existing windows where required for new work. Leave clean, ready for installation of new caulking.
- .4 Remove mechanical and electrical equipment and piping and similar materials, as required to accommodate new work.
- .5 Any items noted to be re-used or re-located are to be removed carefully, packaged appropriately, and handed over to Contractor.
- .6 Upon discovery of mould or mouldy materials remove and dispose of these separately.
- .7 If any materials suspected to contain asbestos and other designated substances are encountered, do not disturb these materials. Inform the Consultant of the location and extent of suspect material. Do not resume work in this area until it has been cleared by an Abatement Consultant.
- .8 At the end of each day's work, leave work in a safe condition so that no part of the remaining structure is in danger of collapse.
- .9 Do not burn any refuse or debris at the site.
- .10 Remove all necessary trees, shrubs and all stumps, brush and perishable matter. Tree stumps shall be removed sufficiently so that they may not constitute a later obstruction to services and underground work and may not cause settlement of paved areas. Refer also to section 31 20 00, Earth Moving.

3.2 MECHANICAL AND ELECTRICAL WORK

- .1 Mechanical and Electrical services must be temporarily capped or terminated to permit work at exterior and interior areas to proceed.
- .2 Cutting of holes up to 100mm in size in the existing structure and surfaces required by the mechanical and electrical trades shall be by those Subcontractors. Cutting and patching of openings greater than 100mm in size shall be by the Contractor in co-ordination with those trades. **PATCHING OF ALL HOLES IN EXPOSED FINISHED SURFACES SHALL BE BY THE CONTRACTOR.** Mechanical and Electrical trades shall do their own coring of existing slabs as required.

02 40 00 - DEMOLITION AND ALTERATIONS

3.3 REMOVAL OF EXTERIOR AND SLAB

- .1 Remove existing granular material and concrete slab at area indicated on Drawings.
- .2 Granular base materials may NOT be reused.

3.4 COMPLETION OF WORK

- .1 Remove all surplus materials, equipment and rubbish from the site.
- .2 Leave site in condition to meet approval of the Consultant.
- .3 On completion of Demolition work, thoroughly clean all existing surfaces to remain, including ceiling space. No debris or dirt shall remain to be enclosed by new construction.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

- .1 Excavation and Backfill Section 31 20 00
- .2 Refer to Structural Drawings

1.2 CO-ORDINATION

- .1 Be responsible for the supply of all material and labour required to the completion of the Contract. Breakdown of work into units by trade is for guidance only and is not necessarily complete.
- .2 Products Furnished But Not Installed Under This Section:
 - .1 Concrete and reinforcing to Masonry Trade.

1.3 ALLOWANCES

- .1 Cash allowance to cover the cost of specified independent inspection and testing is specified in Section 01 10 00, General Instructions.

1.4 REFERENCE STANDARDS

- .1 Conform with the Ontario Building Code and any applicable acts of any authority having jurisdiction and the following:
 - .1 CSA-A23.1/A23.2 Concrete Materials and Methods of Concrete Construction Methods of Test and Standard Practices for Concrete
 - .2 CSA-A23.3 Design of Concrete Structures.
 - .3 CSA W186 Welding of Reinforcing Bars in Reinforced Concrete Construction
 - .4 CSA W47.1 Certification of Companies for Fusion Welding of Steel
 - .5 CSA W178.1 Certification of Welding Inspection Organizations
 - .6 CSA S269.1 Falsework for Construction Purposes
 - .7 CSA-S269.3 Concrete Formwork
 - .8 CAN/CSA-G30.18 Billet-Steel Bars for Concrete Reinforcement
 - .9 CAN/CSA-G164 Hot Dip Galvanizing of Irregularly Shaped Articles
 - .10 ACI 303.1 Guide to Cast-In-Place Architectural Concrete Practice
 - .11 Ontario Provincial Standard Specification
 - .1 OPSS 1442 Material Specifications for Epoxy Coated Steel Reinforcement for Concrete.
 - .2 OPSS 1443 Material Specifications for Organic Coatings for Steel Reinforcement.
 - .12 CSA-S304.1 Masonry Design for Buildings
 - .13 Related Masonry Codes as per Division 04
- .2 Do concrete formwork in accordance with CSA-A23.1 and CSA-S269.3-M, except where specified otherwise.
- .3 Do falsework in accordance with CSA S269.1, except where specified otherwise.
- .4 Do reinforcing work in accordance with CSA A23.1/A23.2.

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- .5 Fabricate reinforcing to "Reinforcing Steel Manual of Standard Practice" by Reinforcing Steel Institute of Canada.
- .6 Weld reinforcing steel in accordance with CSA W186-M, except where specified otherwise.
- .7 Do cast-in-place concrete work in accordance with CSA A23.1/A23.2, except where specified otherwise.
- .8 Do cast-in-place architectural concrete work in accordance with ACI 303.1.
- .9 Use only current editions of all reference standards, as amended at date of issue of Contract Documents.
- .10 Keep a copy of all reference standards in the project field office.

1.5 DESIGN OF FORMWORK AND FALSEWORK

- .1 Retain a Professional Engineer to design formwork, and falsework, and to supervise their construction. Design all formwork and falsework to support construction loads and fluid pressures without overstressing the materials and without causing excessive deflection. Design formwork and falsework for architectural concrete such that deflection is limited to not more than 1/400th of the span of any element. Provide positive means of adjustment to permit realignment or readjustment.

1.6 SHOP DRAWINGS - GENERAL

- .1 Submit shop drawings in accordance with Section 01 30 00.
- .2 Conform to the requirements of each authority that has reviewed the drawings.
- .3 Reinforcing Steel:
 - .1 Submit placing diagrams and bar lists to the Consultant for review.
 - .2 Include plans, elevations, sections and bar lists necessary to show all reinforcing and to facilitate checking. Show location of construction joints and detail reinforcement at joints. Show bar sizes and spacing directly on the diagrams. Draw diagrams to a suitable scale with a minimum of 1:50 for plans and a larger scale for the remainder.
 - .3 Reinforcing steel shall be supplied and detailed by a member of the Reinforcing Steel Institute Canada. The Contractor's staff or other detailing firm may prepare the drawings, provided the work is under the supervision of a Professional Engineer whose seal shall appear on the drawings.
 - .4 Conform to CSA Standards and RSIC Manual of Standard Practice unless the Contract Documents contain a more stringent requirement, in which case the latter shall govern. Provide accessories as required by the Manual.

- .5 Do not release shop drawings for reinforcing bars whose length may be affected by field conditions, such as the final elevation of footings, until such time as the governing field dimensions have been ascertained, and affected reinforcing bar lengths are revised.
 - .4 Formwork:
 - .1 Show on formwork drawings complete construction details for the following:
 - .1 Shoring, scaffolding and bracing.
 - .2 Reshoring sequences.
 - .3 Rate of concreting for which formwork is designed.
 - .4 Material specifications and loadings.
 - .5 Cambers and method of form alignment.
 - .6 Typical sections of each type of architectural concrete construction showing form tie locations, arrases, chamfer, reveals, etc.
 - .7 Control, construction and expansion joints, showing all joint locations.
 - .8 Panel jointing, caulking and taping.
 - .9 Reglets and inserts.
 - .2 Comply with CSA S269.1 for falsework shop drawings.
 - .5 Shop drawings shall bear the seal and signature of a Professional Engineer licensed to practice in the Province of Ontario.
 - .6 If shop drawings are required to be revised and resubmitted, make corrections required by previous review before resubmitting. Highlight or "bubble" any changes made to originally submitted documents.
- 1.7 QUALITY CONTROL SUBMITTALS**
- .1 Retain and pay for the services of an independent concrete testing agency, acceptable to the Consultant, to review proposed concrete mixes and to report the results to the Consultant. Do not place concrete before the related mix design has been reviewed by the Consultant. Mix design submittals shall include proportions.
 - .2 Supply the Consultant with mill test reports properly correlated to the reinforcement.
- 1.8 RECORDS**
- .1 Maintain a set of record drawings on site on which the progress of the work can be recorded.
 - .2 Record the time and casting date for each section of concrete and the date of removal of each section of formwork.
 - .3 When heat curing is required, record maximum and minimum daily temperatures outside the enclosure and the average temperature within each enclosure, for a period of 3 days after placing the concrete.
 - .4 Record all modifications to the drawings on a set of prints in a neat and legible manner. Use the information to make record drawings at the completion of the work. Dimension all changes. Record location and dimensions of buried mechanical and electrical services.

03 30 00 - CONCRETE

1.9 QUALIFICATIONS

- .1 Concrete shall be supplied by a member of the Ready-Mixed Concrete Association of Ontario that has been issued a seal of Special Quality Concrete attesting that its coefficient of variation is less than 12 percent, unless approved by the Consultant prior to the close of tenders.
- .2 Welding shall be undertaken by a firm certified by the Canadian Welding Bureau under the requirements of the applicable CSA Standard.
 - .1 Reinforcing Bars: W186
 - .2 Structural Steel: W47.1
- .3 Welding inspection will be performed by a firm certified by the Canadian Welding Bureau under the requirements of CSA Standard W178.1.
- .4 Floor finishing shall be undertaken by a Contractor with at least 5 years of specialized experience in this type of work. Submit substantiating references if asked.

1.10 STORAGE

- .1 Store materials as follows:
 - .1 Concrete materials: to CSA A23.1/A23.2.
 - .2 Concrete admixtures: in accordance with manufacturer's directions.
 - .3 Formwork: not in contact with the ground and protected from water, oil, dirt or other contamination. Support so as to prevent warping or distortion.
 - .4 Reinforcement: on racks or skids so that it is protected from dirt and maintained in its fabricated form.

1.11 SITE CONDITIONS

- .1 Visit site to determine available access, storage and working areas. Determine any interference from existing services.

1.12 FOUNDATION CONDITIONS

- .1 Notify the Consultant if during the execution of the work subsurface conditions are found to differ materially from those expected and indicated in the Contract Documents.
- .2 The Consultant will appoint a Geotechnical Consultant to examine and report on the sub-soil conditions below new concrete slab section. Notify the Consultant as to when such examination will be required. Do not proceed with construction of new slab section until the Geotechnical Consultant has reported.

PART 2 PRODUCTS

2.1 REINFORCING

- .1 Reinforcing Steel: New deformed bars to CAN/CSA-G30.18 from Canadian mills. Grade 400 MPa or as indicated on Drawings.
- .2 Epoxy Coating for Reinforcement: An electrostatic application of epoxy protective coating conforming to requirements of OPSS 1442 and 1443.
- .3 Welded Steel Wire Fabric: conforming to G30.5.

2.2 CEMENT

- .1 Portland cement: Normal (Type 10) to CSA-A5 and CSA-A23.1.
- .2 Supplementary cement: Cementitious Hydraulic Slag, Normal ground blast - furnace slag (Type N) to CSA-A23.5 and CSA-A23.1.
- .3 Maximum 20% of total cement content shall be made up supplementary cement.
- .4 For Architectural concrete, use only cement from one supplier.
- .5 Do not use High Early Strength cement (Type 30) unless approved in writing by Consultant.

2.3 WATER

- .1 Mixing Water: clear and free from deleterious substances to CSA A23.1. If not taken from the municipal supply, arrange for testing by an independent agency and report results to the Consultant.
- .2 Curing Water: Clear and free from deleterious substances to CSA A23.1.

2.4 AGGREGATES

- .1 Fine Aggregate: natural sand to CSA A23.1.
- .2 Coarse Aggregate: crushed stone or gravel to CSA A23.1 and suitable for NBC type N concrete. Nominal size 20 mm.
- .3 Obtain coarse and fine aggregates for exposed concrete from the same sources.

2.5 ADMIXTURES

- .1 Obtain air-entraining admixtures and other admixtures from the same manufacturer when using 2 or more admixtures in the same concrete mix. Dispense admixtures separately into the mix.
- .2 Comply with the manufacturer's instructions for use of admixtures.
- .3 Ensure that admixtures are free of chloride ions.

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- .4 Air Entraining Admixtures: to CSA-A23.1.
- .5 Water Reducing Agent, Non-retarding: to CSA-A23.1, Type WN. Use one of the listed products:
 - Eucon WR - Euclid
 - WRDA 20 - Grace Canada
- .6 Water Reducing Agent, Mild Retarding: to CAN3-A266.2-M78, Type WR.; Plastiment -Sika Canada Inc.
- .7 Surface Set Retarder: Use "Rugasol S" by Sika Canada Inc. or Top-Stop by W.R. Meadows.
- .8 Integral Waterproofers: Use "Anti-Hydro"-R by Anti-Hydro Canada Inc. or approved alternative.
- .9 Superplasticizing Admixtures: to CSA A23.1.
 - DARACEM 19 - Grace Canada Inc.
 - ADVA 100 - Grace Canada Inc.

2.6 GROUT

- .1 Dry packed concrete: 1:3 cement-sand and minimum water to dampen mixture. Minimum strength 30 MPa at 28 days.
- .2 Premixed grout: Minimum strength 45 MPa at 28 days. Use one of the listed products. Install in accordance with manufacturer's recommendations.
 - Masterflow 713 - BASF Building Systems
 - In-Pakt - C.C. Chemicals Canada
 - Sealtight V-3 Grout - W.R. Meadows of Canada Ltd.
 - Sika 212 HP - Sika Canada Inc.
- .3 Grout for bonding post-tensioning tendons: to CSA A23.1.

2.7 ACCESSORIES

- .1 Install in accordance with manufacturers' directions.
- .2 P.V.C. Waterstops:
 - Construction Joints: 4316 Waterstop by M.R. Meadows Ltd.
- .3 Copper Waterstops: To ASTM B370-88, weight 16 oz. per sq. ft. (4.88 kg/m²).
- .4 Adjustable Wedge Action Insert, Malleable Iron: "Peerless Wedge Insert" by Acrow-Richmond or "Wedge Insert" by Dayton Superior Canada Ltd.
- .5 Dovetail Anchor Slots: Minimum 20 ga. (0.91 mm thick) galvanized steel with insulation-filled slots.

- .6 Closed-Cell Preformed Joint fillers (not asphalt based): Use one of the listed products:
 - Ceramar - W.R. Meadows Ltd.
 - Konobord - Goodco Ltd.
- .7 Expansion Joint Sealant:
 - Sikaflex 1-a - Sika Canada Inc.
 - Deck-O-Seal GG - W.R. Meadows
- .8 Construction Joint Sealant: Grey, polyurethane, "Sikaflex 1-a" by Sika Canada Inc., or approved alternative.
- .9 Saw Cut Joint Filler: Grey, polyurethane, "Loadflex" by Sika Canada Inc. or Rezi-Weld Flex by W.R. Meadows Ltd.
- .10 Latex Bonding Agent: "Intralok" by W.R. Meadows Ltd.
- .11 Epoxy Adhesive: "Sikadur 32, Hi-Mod" by Sika Canada Inc, or "Rexi-Weld 1000" by W.R. Meadows Ltd.
- .12 Closed Cell Insulation (non-load-bearing): "Styrofoam SM" by Dow Chemical Canada Inc.
- .13 Curing Paper: "Creped Duplex 30/30/30" by Gummed Papers Ltd., or approved alternative.
- .14 Boiled Linseed Oil: to CGSB I-GP-2M.
- .15 Non-Slip Inserts: Fine carborundum strips 1/4 in. (6 mm) wide x 3/8 in. (10 mm) deep.
- .16 Sliding Bearings: "Elastometal ACME GNN Flat Bearing" by Watson Bowman Acme Inc. or "Series TRR Thin Slides" by Goodco Ltd.
- .17 Vapour Barrier below slab: Refer to Section 07 26 16.

2.8 CURING - SEALING COMPOUNDS

- .1 Curing - Sealing Compound: Clear liquid to ASTM C309-Latest Edition, Type 1. Apply as directed by the manufacturer. It shall not darken or discolour concrete surface and shall be compatible with, and not impair bond of, any material laid over it.
- .2 Use one of the listed products:
 - Kure-N-Seal - BASF Building Systems
 - Sealtight CS 309 - W.R. Meadows of Canada Ltd.
- .3 Apply two coats where exposed concrete floors are called for in the Room Finish Schedule: first coat as soon as concrete sets, second coat just prior to occupation by Owner.

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2.9 FORMWORK MATERIALS

- .1 Formwork Lumber: Plywood and wood formwork materials to CSA Standard S269.1 and CSA A23.1/A23.2. Use new materials throughout except for concrete in unexposed locations such as foundations where used material is acceptable.
- .2 Plywood Panels: to CSA Standard 0121-M and carry COFI exterior grade stamp. No inserted patches allowed on contact face for exposed locations. Use one of the listed products:
Crown 44: - Fletcher Challenge Canada Ltd.
Pour Form - 107: - Ainsworth Products Company Ltd.
- .3 Form Ties:
 - .1 Internal form ties shall be adjustable metal galvanized after fabrication and designed to act as spreaders at a minimum working strength of 1360 kg. When removed no remaining metal shall be closer than 25 mm to concrete surface.
 - .2 Snap ties shall snap cleanly at least 25 mm from concrete surface without damage to concrete.
 - .3 Ties for exposed concrete shall be threaded, internal disconnecting type such as "Tyscrus" by Acrow-Richmond, fitted with plastic cones 12 mm diameter x 35 mm deep.
Precast plugs - Mills Steel Products, Hamilton.
 - .4 Plugs for holes left by disconnecting type ties: precast concrete with 6 mm set back.
- .4 Joint Tape for Sealing Panel Joints: "Procan" joint tape supplied by Acrow-Richmond or approved alternative.
- .5 Caulking for Joints between Panels: "Sikaflex 1-a" by Sika Canada Inc., or approved alternative.
- .6 Prefabricated Tongue and Groove Slab Joint Filler:

Serviced Joint - Goodco Ltd.
- .7 Form Coating and Release Agent: Use one of the listed products:

Duogard - W.R. Meadows
Rich-Cote - Acrow-Richmond
Nox-Crete - Nox-Crete, Inc.

2.10 PROPORTIONING AND CONCRETE MIXES

- .1 Design mixes to produce concrete of the strengths designated; workability consistent with placing conditions and methods; durability consistent with service conditions; and, in the case of floor surfaces, finishability; to CSA A23.1.

- .2 Unless otherwise indicated on drawings, concrete shall conform to the following table:

Location	Strength	Class of Exposure	max. Size of Aggregate	Slump	Water/Cement	Air Content
Footing, grade beams, foundation walls	25MPa	F-2	20mm	50-110	0.55 max.	4-7%
Interior structural concrete	25MPa	N	20mm	50-110	0.45-0.55	0-3%
Exterior slabs, walls etc. struct. concrete exposed to chlorides	35MPa	C-1	20mm	50-110	0.4	5-8%
Concrete on deck, steps, landings	25MPa	N	10-20 mm	20-60	0.45-0.55	0-3%
Exterior unreinforced pavements	32MPa	C-2	20mm	40-80	0.45max.	5-8%

- .3 Provide concrete with compressive strength to CSA A23.1, Clause 17.6, except that no individual strength test shall be more than 2.0 MPa below the specified strength.
- .4 Use water reducing agent, non-retarding, in all concrete mixes.
- .5 Provide air entering agents to give total air content according to CSA-A23.1, Table 10 for each class of exposure for concrete subject to cycles of freezing and thawing.
- .6 Obtain Consultant' approval before using any admixtures other than those specified.
- .7 Provide superplasticizer in all slab-on-grade and topping concrete to increase slump to 130 mm maximum after addition into the mix.
- .8 Adjust the concrete mix proportions as necessary to maintain the quality of the concrete to the satisfaction of the Consultant, without additional costs to the Owner.
- .9 Use of calcium chloride not permitted.

2.11 PRODUCTION

- .1 Use ready-mixed concrete, produced in accordance with CSA-A23.1.
- .2 Heat concrete and deliver at a temperature conforming to CSA-A23.1 whenever outdoor temperature is less than +5°C.
- .3 Delivery will be accepted directly from the ready-mixed supply trucks.

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2.12 REINFORCING STEEL FABRICATION

- .1 Fabrication tolerance for reinforcing steel to Reinforcing Steel Institute of Canada, "Reinforcing Steel Manual of Standard Practice".
- .2 Do not release for fabrication reinforcing bars whose length may be affected by field conditions, such as the final elevation of footings, until such time as the governing field dimensions have been ascertained.
- .3 Obtain Consultant's approval for location of reinforcement splices other than shown on the drawings.
- .4 Ship bundles of bar reinforcement clearly identified in accordance with the reviewed bar lists.
- .5 Fabricate, handle and ship epoxy-coated reinforcing steel to ASTM-A775M-88a or O.P.S.S. Form 905.
- .6 Bend reinforcement once only and at room temperature. Do not straighten or rebend reinforcement. Do not use bars with kinks or bends not shown on the drawings.
- .7 Replace bars which develop cracks or splits. Fabricate reinforcement to CSA-A23.1.
- .8 Welding of reinforcement to CSA Standard W186-M.
- .9 Coordinate with Division 04 for method of masonry wall grouting and length of bars required.

PART 3 - EXECUTION

3.1 EXAMINATION OF EXISTING WORK

- .1 Do not begin operations before making a thorough examination of existing conditions and the work of related trades. Report inconsistencies to the Consultant immediately.
- .2 Determine that granular fill beneath slabs on grade is compacted and approved before casting concrete on it.

3.2 CO-OPERATION

- .1 Give the Consultant at least 24 hours advance notice of the time when completed reinforcement will be ready for review. Allow 5 working hours for review and effecting corrections.
- .2 Provide casual labour to the independent inspection and testing agency's field personnel for the purpose of obtaining and handling sample materials. Provide free access to all portions of work and co-operate with the Testing Agency.
- .3 Cooperate with all engaged on the work. Exchange with related trades shop drawings and other data required to coordinate and schedule the work. Notify other trades as to when items which are to be installed by them are to be set and protect items after installation.

- .4 Set sleeves, ties, anchor bolts, pipe hangers and other inserts, openings and sleeves in concrete floors and walls, as required by other Trades. Sleeves, openings, etc., greater than 100 mm x 100 mm not indicated on Structural Drawings must be approved by the Consultant.
- .5 No trade shall cut holes through existing concrete unless approved by the Consultant.
- .6 Do not embed in slabs and walls any conduit or pipe whose outside diameter is greater than one quarter the concrete thickness. Do not space less than 6 diameters on centre. Locate so as not to impair the required strength of the member. Do not install conduit in columns which displaces more than 3 percent of the cross-section. Place embedded conduits between top and bottom reinforcement. At all locations, including crossovers, maintain a minimum concrete cover to conduits not less than one third the slab thickness. Adjacent to columns maintain a minimum distance of twice the slab thickness from any column face to the nearest conduit.
- .7 Cooperate with other trades to ensure that concrete surfaces are compatible with finishes and to obtain a surface which will ensure adequate bond.

3.3 FORMWORK AND FALSEWORK CONSTRUCTION

- .1 Construct formwork so as to achieve the class of concrete surface specified. Construct falsework to CSA Standard S269.1.
- .2 Form sides of all footings unless otherwise noted on the Drawings.
- .3 Dimensions of completed elements shall not exceed specified tolerances.
- .4 Make forms tight and flush faced to prevent the leakage of mortar and the creation of unspecified fins or panel outlines.
- .5 Place 16 mm chamfer strips at the exposed corners of members unless indicated otherwise on the Drawings.
- .6 Construct all formwork so that it can be removed without damage or shock to the concrete or spalling of edges. Provide temporary openings at the base of column and wall forms and at other places where necessary to facilitate cleaning or inspection. Construct formwork for beams to allow removal of side forms without removing the shores.
- .7 Provide mud sills of suitable size, bedded in sand or stone beneath shores when they would otherwise bear on soil. Adequately prepare the sub-grade so that settlement will not occur during or after concreting. Do not set mud sills on frozen ground.
- .8 Construct formwork and falsework such that loads are not transmitted to any adjacent existing structure.
- .9 Apply a form coating and release agent, in a uniform coating, to the contact surface of formwork panels before reuse and before reinforcement, anchors, accessories, and other built-in items are installed.
- .10 Seal all lumber in forms for architectural concrete prior to use.

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- .11 Obtain approval from Consultant before reusing formwork for architectural concrete.
- .12 Inspect all forms before each use to ensure that they are not warped or damaged. Do not reuse forms if there is any evidence of surface damage or wear which would impair the quality of the concrete surface.
- .13 Before reusing formwork remove all adhering matter and nails. Do not clean forms for exposed concrete with scrapers or wire brushes. Fill nail holes in exposed concrete forms with approved filler. Construct formwork using the original tie holes.
- .14 Use internal form ties: For architectural concrete use threaded internal disconnecting type form ties, fitted with plastic cone. Locate ties in a uniform pattern acceptable to the Consultant.
- .15 Install tell-tale devices which indicate movement of the formwork during concreting.

3.4 JOINTS

- .1 Construction Joints:
 - .1 Provide construction joints as specified unless indicated otherwise on the Drawings. Locate joints so as not to impair the strength of the structure. Joints are subject to the approval of the Consultant.
 - .2 Maximum distances between construction joints are as follows:
 - Walls - 9 m, or 18 m alternating with control joints at same spacing.
 - Slabs on grade - 9 m, or 18 m with sawcut joints at 6 m centres.
 - Structural slabs more than 88 mm thick and superstructure beams and girders - 23 m.

 - Structural slabs up to 88 mm thick - 27 m with sawcut joints at 10 m centres.
 - Retaining walls 6 m.
 - .3 Locate construction joints near mid-span of spans of slabs, beams and girders unless a beam intersects a girder at this point, in which case the girder joint shall be offset twice that beam width and additional shear reinforcement provided to the approval of the Consultant. Joints in slabs supported by walls or steel beams are preferably located over the supports unless the beam acts compositely with the slab.
 - .4 Do not locate construction joints in slabs which act compositely with the supporting beam within the middle half of the beam span.
 - .5 Provide a continuous bulkhead at all construction joints. Provide a continuous keyway at least 38 mm deep to bulkhead except for slabs equal to or less than 88 mm thick.
 - .6 Extend reinforcing through construction joints. Add dowels, if necessary to make total steel passing through bulkhead at least the equivalent of 15M @ 400 mm centres each face. Embed dowels at least 600 mm each side of joint.
 - .7 Remove all dirt, loose aggregate and laitance from face of existing concrete before placing new concrete. Saturate contact surface with clean water and leave damp. Remove free water from surface.

- .8 Allow a minimum of 24 hours between placing adjacent slab sections separated by construction joints. Allow a minimum of 8 hours after placing concrete in columns and walls, before placing concrete in slabs.
- .9 Premoulded tongue and groove construction joints, painted with a curing compound, may be used between adjacent panels of slab on grade to allow a maximum of three adjacent panels to be cast at one time.
- .10 Provide construction joint sealant for joints in exterior walls below grade.
- .2 Construction Gaps:
 - .1 Do not place concrete in construction gaps, shown on the Drawings, through the structure until at least 28 days after the full section of concrete on each side of the gap has been placed.
- .3 Isolation Joints:
 - .1 Provide premoulded joint filler of the same depth as the thickness of the concrete, where slabs on grade abut foundation walls and piers, unless slab is chased or dowelled into wall.
 - .2 Provide premoulded joint fillers of the same depth as the thickness of the concrete at columns through or abutting slabs on grade.
- .4 Saw-Cut Joints:
 - .1 The spacing of construction joints in slabs on grade may be increased to a maximum of 18 m each direction providing each resulting panel is saw cut into approximately square sections not exceeding 6 m in length or width, unless a closer spacing is shown on the Drawings.
 - .2 Make saw-cut joints in 88 mm and thinner slabs on steel forms or as toppings to create approximately square panels not exceeding 9 m in length or width. Locate joints directly over beams.
 - .3 Make saw-cut joints, to the size indicated on the Drawings, as soon as the concrete can be cleanly cut and before shrinkage cracks can form. Fill all saw-cuts, not less than 21 days after casting, with saw-cut joint filler. Ensure that joints are clean and dry before filling. Prime joints prior to filling in accordance with joint filler manufacturers recommendations.
- .5 Expansion Joints:
 - .1 Supply and install waterstops, fillers and caulking in expansion joints for full length of vertical joints in foundation walls below grade and floor slab joints.
 - .2 Install closed cell preformed joint filler and joint sealant in expansion joints at exposed locations. Install joint filler in expansion joints at unexposed locations.

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.3 Bond sliding joint assemblies in bearing with epoxy adhesive to the base material.

.6 Waterstops:

.1 Supply and install waterstops in all construction joints in exterior walls, basement walls, slabs supporting earth, sump pits, elevator pits and other locations as indicated on the Drawings. Weld joints in waterstops to make continuous.

.2 Splice all sections of waterstops for continuity over the full length of joint. Use prefabricated splice sections where two joints intersect.

.3 Securely wire waterstops to reinforcing bars at 900 mm maximum centres to prevent them from being pushed out of alignment when concrete is placed.

3.5 PLACEMENT OF REINFORCEMENT

.1 Use only approved shop drawings and the Structural Drawings for placing of reinforcement. Report discrepancies to the Consultant before proceeding.

.2 Do not field bend reinforcing steel except where indicated or as approved by the Engineer.

.3 Before placing, remove all loose scale, dirt, oil or other coatings which would destroy or reduce bond. Place reinforcement within the specified tolerances and secure in position by the use of chairs, spacers and hangers. Tie reinforcement securely together using 16 ga. annealed wire to prevent displacement during concrete placing and vibrating. Turn the ends of all ties towards the interior of the concrete. Use galvanized tie wire at all exposed and at all exterior locations.

.4 Position reinforcing for exposed concrete using snap-on plastic positioners and plastic chairs of the same colour as the concrete. Use concrete chairs for slabs on grade.

.5 No splicing of reinforcement is permitted. Do not cut reinforcement to permit placing of embedded items.

.6 Lap end cross wires of welded wire fabric but make lap at least 200 mm.

.7 Provide additional reinforcement around all openings in concrete members.

.8 Where no reinforcement is shown, provide 152 x 152 MW18.7/MW18.7 welded wire fabric at mid-depth in slabs on grade or walks or toppings 60 mm in thickness or greater, unless noted otherwise on drawings. Lap ends and sides of fabric not less than 300 mm.

3.6 PLACEMENT OF CONCRETE

.1 Place concrete to CSA A23.1/A23.2.

.2 Remove water from excavations before placing concrete.

.3 Clean all forms of debris and deleterious materials before placing concrete. Vacuum clean formwork for architectural concrete and composite steel deck. Remove all contaminants which lessen bond of concrete to reinforcement prior to placing concrete.

- .4 Convey concrete from mixer to place of final deposit by methods which will prevent the separation or loss of materials. Time for this operation shall not exceed 30 minutes. Deposit concrete as close as possible to its final position. Placing once started shall proceed as a continuous operation until the full section planned for concreting has been completed. Place concrete in layers of such thickness that no concrete will deposit on concrete which has hardened sufficiently to cause planes of weakness or cold joints.
- .5 Do not allow the free fall of concrete to exceed 1500 mm. Use properly designed chutes or elephant trunks for vertical elements.
- .6 Select equipment for transporting concrete so that a continuous flow of material will be maintained at the delivery end without separation of materials. Aluminum pipe shall not be used. Keep equipment clean and free from hardened concrete.
- .7 Place concrete slabs on steel deck by pumping. Do not allow concrete to build up at one location to more than twice the slab thickness.
- .8 Consolidate concrete by suitable means during placing operations. Work thoroughly around reinforcement and embedded items and into corners of forms eliminating all air and stone pockets. Ensure that sufficient workmen are on hand for this operation.
- .9 Adjust reinforcement immediately before concrete is placed to ensure that all bars are secured in their correct positions. Arrange to have a crew of reinforcing setters on hand as concrete is placed in order to make any last minute adjustments that are required.
- .10 Provide sufficient numbers of internal electrical vibrators, with a speed range and diameter to CSA A23.1 and shaft of sufficient length to suit the field conditions, to compact the concrete at the rate it is being placed. Keep the internal vibrators in continuous operation by each crew during the placing of concrete. Engage experienced workmen to operate the vibrators. Do not use vibrators to move concrete from one place in the form to another. Commence vibration of each lift as soon as its depth reaches 300 mm.
- .11 Use form vibrators for columns and other thin sections where rodding, spading or the use of internal vibrators is impractical. Attach vibrators firmly to the forms and so spaced that the complete lift of concrete is visibly affected.
- .12 Platform and screed type vibrators may be used to ensure a dense top surface where this cannot be obtained by the use of internal equipment. Obtain approval from the Consultant before using platform or screed type vibrators.
- .13 Do not place concrete in the rain. Protect exposed surfaces from rain or other adverse weather conditions until final set occurs.
- .14 The maximum average time from charging the mixer to final deposit is 60 minutes, the maximum individual time from charging the mixer to final deposit is 90 minutes. Do not add water to the mix without the expressed approval of the Consultant.

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3.7 ARCHITECTURAL CONCRETE

- .1 Architectural concrete is concrete which will be permanently exposed to view in interior finished areas and on the exterior of the structure. The exposed surface shall be a smooth rubbed finish unless otherwise noted.
- .2 Final appearance is as important a factor as the engineering properties of the concrete. As-cast concrete, which fails to meet the required standard of appearance will be rejected.
- .3 Utilize only new unused materials for all Architectural concrete. Formwork patterns shall be regular and subject to approval by the Consultant.

3.8 CURING AND PROTECTION

- .1 Provide curing and protection for concrete to CSA A23.1.
- .2 Minimize moisture loss from surfaces placed against wooden forms, or, plastic and metal forms exposed to heating by the sun, by keeping the forms wet until they can be safely removed. If forms are removed in less than 7 days, curing shall continue by one of the methods specified for surfaces not in contact with forms.
- .3 Curing methods based upon keeping surfaces wet shall continue for at least 7 days. Cure concrete surfaces not in contact with forms except slabs on grade by one of the following methods:
 - .1 Ponding or continuous sprinkling.
 - .2 Application of absorptive covering kept continuously wet.
 - .3 Application of fog spray followed by a covering of curing paper lapped 150 mm and held down at all edges.
 - .4 Application of a curing-sealing compound immediately after disappearance of a surface water sheen except coloured concrete surfaces to receive bonded toppings, or mortar beds or membrane waterproofing. Use wet curing methods only whenever the temperature exceeds + 27°C.
- .4 Cure slab-on-grade for at least 7 days by one of the following methods:
 - .1 Ponding or continuous sprinkling.
 - .2 Application of absorptive covering kept continuously wet.
 - .3 Application of fog spray followed by a covering of impermeable curing paper lapped 150 mm and held down at all edges.
- .5 Do not pile, store or transport materials over slabs until concrete has been in place for at least 7 days.

3.9 REMOVAL OF FORMWORK

- .1 Be responsible for the safety of the structure before and after forms are removed. In no case shall forms and supporting shores be removed until members can support their own weight and superimposed construction loads without excessive deflection or distortion. Formwork, exclusive of shoring, shall not be removed prior to the concrete reaching 75 percent of its specified 28 day strength. However, as a minimum requirement, wall forms shall remain in place for at least 3 days, and forms for suspended structures and columns 5 days. Curing and shoring shall be co-ordinated with stripping procedures.
- .2 Maintain shoring or reshoring in position for 28 days minimum.
- .3 Reshoring is subject to review by the Consultant to whom complete details of the proposed operation shall be submitted in advance. At no time shall large areas of new construction be required to support their own weight and while reshoring is underway no construction loads are permitted on the new construction. The location of reshores shall not significantly alter the pattern of stress assumed in the structural design. Reshores shall be capable of being adjusted so that a snug fit is achieved without preloading lower floors. Reshores shall be positioned immediately after formwork is removed.
- .4 Place reshores for flat slabs or plates along the intersection line of the column strip and the middle strip in both directions. For slabs of over 7.5 m span either the middle strip or the column strip forms shall remain in place until adjacent reshores are placed. Complete reshoring of each panel before removing forms from adjacent panels.
- .5 In the case of multi-tiered framing, the number of levels requiring shores or reshores will be dependent upon the loads carried and the rate of construction. Members at upper levels shall be placed directly above those below.
- .6 Remove formwork from architectural concrete after other formwork has been removed to ensure that the architectural finish is not damaged.

3.10 SURFACE FINISHING

- .1 Honeycomb:
Repair honeycomb as directed by the Consultant. Cut out affected areas and patch with cement mortar of the same materials as the concrete. Incorporate a liquid latex bonding agent in the mix. Apply in layers not exceeding 25 mm in thickness.
- .2 Patching:
Do not patch concrete without prior approval of the Consultant. Patch concrete such that the repaired area is not discernable from the surrounding finish when the concrete is dry. Determine patching mixes by trial batches. Incorporate a liquid latex bonding agent in the mix. Apply a liquid latex bonding agent to the existing concrete immediately before applying the patch material. Cure patches by keeping continuously moist for seven days.
- .3 Form Ties:
 - .1 Break snap ties 38 mm from surface. Fill voids with a sand-cement grout which, in the case of exposed concrete, shall match surface in texture and colour. Incorporate a latex bonding agent in the grout.

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- .2 Disconnect threaded ties. Plug holes with plastic plugs set 6 mm from concrete face with a latex bonding agent.

- .4 Rough form finish, unexposed concrete:
 - .1 Patch defects and remove fins exceeding 6 mm in height.

- .5 Smooth Rubbed Finish:
 - .1 Produce finish on concrete no later than 6 hours after forms are removed.
 - .2 Wet surface and rub with carborundum brick until uniform colour and texture are produced.
 - .3 Do not use a cement paste.

- .6 Slabs:
 - .1 Do concrete floor finishing to CSA A23.1, Clause 22 Class A.

 - .2 Place slabs with a top surface that is level or sloping as indicated on the Drawings. Set top of slab below finished floor level as required by the type of applied finish.

 - .3 Consolidation and finishing shall be done by workmen experienced in each stage of such work. Ambient temperature shall not be less than 16°C. Do not start any finishing operation while there is excess moisture or bleed water on the surface.

 - .4 Provide final finish in accordance with proposed use.
 - .1 Skim coats, pits: Screeded and bull floated
 - .2 Base slab for tile or bonded topping: Screeded, bull floated and scored with wire brush
 - .3 Slabs which receive a membrane [incl. roofing]:
 - .1 Powered float finish to satisfaction of Membrane Applicator
 - .4 Floors which receive resilient flooring, carpet or paint, wood flooring, fluid and trowel applied flooring, sheet flooring, future floors:
 - .1 Powered steel trowel finish
 - .5 Interior exposed slabs: Powered steel trowel finish
 - .6 Exterior exposed slabs: Wood float finish with brooming
 - .7 Parking area slabs: Wood float finish

- .7 Preparation for applied finishes:
 - .1 When concrete surface is to receive a waterproofing or other surface applied treatment, clean and prepare as necessary to receive the treatment.
 - .2 Acid etch the surface if necessary to provide the required degree of roughness for proper bond, to the satisfaction of the applicator.

3.11 SLABS ON GRADE

- .1 Determine that the compacted granular fill supporting slabs-on-grade has been approved before starting work.

- .2 See Drawings for thickness of concrete and slab reinforcing.

- .3 Provide slab depressions and slopes as indicated on the Architectural Drawings. Slope floors to drain.

- .4 Over stone base, place 15 mil polyolefin sheet vapour barrier. Refer to Section 07 26 00.
- .5 Avoid penetrations in vapour barrier as much as possible; do not use screed pins. Insure that any tears or holes (including pin holes) are repaired immediately before concrete is placed. Vapour barrier is to be turned up walls minimum 200mm at edges of slab.
- .6 For underlying materials for slab on grade see Section 31 20 00.

3.12 SIDEWALKS, CURBS

- .1 Construct street sidewalks and curbs to Ontario Provincial Standard Specification OPSS 351, and the requirements of the municipality if more stringent than the requirements of this Specification. Coordinate and pay for curb cuts through the municipality.
- .2 Refer also to Section 32 13 13, Concrete Paving and Curbs.
- .3 Compact subgrade to 98 percent Standard Proctor Maximum Dry Density. Obtain Consultant's approval of the subgrade before proceeding with the work.
- .4 For underlying materials for exterior sidewalks see Section 31 20 00.
- .5 Provide concrete with a minimum 28 day compressive strength of 32 Mpa, Class C-2 according to the material requirements of this specification.
- .6 Thickness of sidewalk to be 150mm, and 200mm across driveways and access locations to playgrounds and garbage enclosures.
- .7 Reinforce sidewalks with 152 x 152-MW18.7/MW18.7 welded wire fabric. Lap ends 150 mm minimum.
- .8 Reinforce curbs with 1-15M bar top and bottom unless indicated otherwise on the Drawings. Provide all steps with 10M nosing bars.
- .9 See Architectural Drawings for details of jointing, edging, and surface pattern.
- .10 Provide expansion joints at 4.5 m centres, intermediate false joints at 1.5 m centres, one way broom finished surfaces, and, round edges and joints to 12 mm radius, unless indicated otherwise on the Drawings.
- .11 Install 12 mm preformed joint filler in expansion joints and between sidewalks and curbs and adjacent structures.
- .12 Cure with curing-sealing compound.
- .13 After curing, give surfaces two coats of a mixture of equal parts boiled linseed oil and kerosene. Apply when surfaces are dry and the air temperature above + 7°C. Coverage for each coat shall be 9 m² per litre.
- .14 Construct a sample panel of sidewalk for the Consultant's approval.

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3.13 COLD WEATHER CONCRETING

- .1 Refer CSA A23.1 and comply with its requirements.
- .2 Ensure that any surface against which concrete is to be placed, including soil but excluding surfaces which receive finished slabs, is at a temperature of at least +5°C. Ensure that the surface on which finished slabs and toppings are placed is at a temperature of between 16°C and 32°C.
- .3 Ensure that the temperature of concrete when deposited is between 16°C and 32°C whenever the air temperature is below +5°C.
- .4 Ensure that before concreting commences in any part of the work, it is protected in such a manner that all sections of the concrete and the surrounding air will remain continuously at a temperature of not less than 10°C for 5 days, or 21°C for 3 days, after placing. Gradually reduce the temperature at the end of the period of protection, at a rate not greater than 10°C per day until the outside air temperature is reached. Humidify the air within enclosures so that proper conditions for curing are maintained. Exhaust gas-fired or oil heaters directly to the outside of the enclosure. Keep coverings clear of the tops of slabs to allow for the free circulation of warm air.

3.14 HOT WEATHER CONCRETING

- .1 Refer to CSA A23.1, Clause 21 and comply with its requirements.
- .2 Sprinkle all formwork, steel deck, reinforcing, subgrade and the general area around the work with cool water just before placing concrete to reduce temperatures and increase humidity. Place concrete as quickly as possible. Do not place concrete whose temperature exceeds +32°C.
- .3 Shelter exposed surfaces from direct sun and wind by erecting appropriate sun shades and/or wind breaks. Apply fog sprays as soon as possible after placing in order to guard against plastic shrinkage cracks.

3.15 TOLERANCES

- .1 Concrete
 - .1 Variation from plumb:
Generally: 6 mm per 3000 mm, 25 mm max.
Grooves and conspicuous lines: 3 mm per 3000 mm, 12 mm max.
Elevator shafts and exposed exterior columns: 3 mm per 3000 mm, with 25 mm max.
 - .2 Variation from level or grades:
Generally: 6 mm per 3000 mm, 12 mm per bay, 19 mm max.
Steel trowelled floor surfaces, exposed spandrels and lintels, grooves and conspicuous lines: 3 mm per 3000 mm, 12 mm max.
 - .3 Variation from established position on plan: 12 mm per 6000 mm or bay, 25 mm max.

- .4 Variation in cross-sectional dimensions of columns and beams, and in thickness of slabs and walls: Minus 6 mm, plus 12 mm.
- .5 Footing variations:
 - Plan dimensions: Minus 12 mm, plus 50 mm.
 - Misplacement or eccentricity: 2 percent in direction of misplacement, 50 mm max.
 - Thickness: Minus 5 percent
- .6 Projection over legal boundary: Zero
- .2 Reinforcement
 - .1 Variation in fabrication
 - Sheared length, location of bends: 25 mm
 - Overall dimensions of stirrups, ties (and spirals): 12 mm
 - .2 Variation in placing from specified positions.
 - .1 Clear distance to formed surface: 6 mm
 - .2 Top bars in beams and slabs:
 - .1 200 mm deep or less: 6 mm
 - .2 200-600 mm deep: 9 mm
 - .3 over 600 mm deep: 12 mm
 - .3 Crosswise of members: Spaced evenly within 50 mm.
 - .4 Lengthwise: 50 mm except 12 mm at discontinuous ends.
- .3 Tolerances in location of reinforcement are not cumulative with concrete tolerances.
- .4 Interfacing materials

If more stringent tolerances are specified elsewhere to suite interfacing materials, these will take precedence over those specified herein.

3.16 **GENERAL REVIEW OF CONSTRUCTION**

- .1 General review during construction by the Consultant and the services of the independent inspection and testing agencies appointed by the Consultant are undertaken so that the Owner may be informed in writing as to the quality of the Contractor's performance and for the protection of the Owner. They will be carried out by examination of representative samples of the work.
- .2 The Contractor will receive copies of the construction review reports and the results of material tests. He will thereby be informed of deficiencies found together with recommendations for their correction. The provision of this information does not relieve the Contractor of his responsibility for the performance of the Contract and he shall implement his own supervisory and quality control procedures.
- .3 The Contractor shall bring to the attention of the Consultant any deficiencies in the Work which may occur during construction. The Consultant will issue recommendations in writing.

03 30 00 - CONCRETE

3.17 WORKMANSHIP

- .1 Proper workmanship is the most important element in the achievement of quality concrete. Minimum requirements are conformity with CSA-A23.1 but the Contractor shall take every precaution necessary to achieve the specific requirements of the Contract.

3.18 INDEPENDENT INSPECTION AND TESTING

- .1 The Consultant will appoint an independent inspection and testing agency to undertake testing of concrete and concrete materials.
- .2 The cost of testing will be paid from the Cash Allowance.
- .3 Payment for additional testing required by changes of materials or mix design requested by the Contractor, and failure of completed work to meet specified requirements and testing, shall be made at the Contractors expense.
- .4 Notify the agency as to the concreting schedule. Provide samples and standard test cylinders.
- .5 Laboratory curing and testing of samples will be carried out in accordance with CSA A23.1/A23.2. Results will be reported to the Consultant with copies to the Consulting Engineer, the Contractor and the Authority having jurisdiction. Reports will be made on form conforming to CSA A23.2, Appendix B, stating the location of concrete to which tests relate and with comments on abnormal results and conditions.
- .6 Provide a group of three test cylinders for each standard strength test. One cylinder will be tested at 7 days and two at 28 days.
- .7 Provide one additional test cylinder, cured at the site under conditions similar to the concrete it represents, for testing at 7 days when concrete is placed under cold weather conditions.
- .8 Take samples at the discharge end of the pipe when concrete is pumped.
- .9 The percentage of entrained air will be determined and reported for concrete requiring an air entraining agent.
- .10 In cold weather conditions, where concrete is exposed to temperatures below +5° C, carry out non-destructive testing to CSA A23.2, Appendix A and related ASTM Standards to determine concrete strength prior to stripping formwork. Report results to the Consultant.
- .11 Autogenous Accelerated Curing Tests will be undertaken in accordance with CSA A23.2, Test Method A23.2-10C. The agency will provide curing containers. A group of 2 cylinders is required for each strength test. The agency will establish the relationship between the accelerated tests and the standard 28 day tests for each range of water- cement ratios.
- .12 Obtain representative samples of fresh concrete from each 100m³ or fraction thereof of each mix design of concrete placed in any one day. Samples are to be taken at the pour, not at the truck.
- .13 Inspect installation of vapour barrier below slab-on-grade, immediately prior to pouring of slab.

3.19 QUALITY CONTROL ON-SITE

- .1 Make all required field measurements.
- .2 Employ a competent surveyor to establish and maintain all required lines and levels. Report any field dimension which does not agree with the Drawings to the Consultant immediately.
- .3 Formwork:
 - .1 Do not close deep forms until reinforcement has been reviewed.
 - .2 Check elevations, camber and plumbness of formwork continuously during concreting and after until initial set occurs using pre-installed tell-tale devices. Appropriate adjustments shall be promptly made where necessary. Report all adjustments made after initial set to the Consultant.
- .4 Reinforcement:
 - .1 Ensure that reinforcement is kept free from dirt, grease, loose mill scale and rust.
 - .2 Ensure that reinforcement is complete, adequately supported, tied and properly positioned for cover in advance of the time scheduled for casting concrete.
- .5 Concrete tests:
 - .1 One standard strength test is required for each 40 m³ of concrete placed, but not less than one test for each mix design of concrete placed each day. Store cylinders in metal lined curing boxes maintained at a temperature of not less than 10 ° C until shipped to the testing laboratory. Store additional cylinder required for cold weather conditions adjacent to work for 7 days.
 - .2 One standard air entrainment test is required for each 40 m³ of air-entrained concrete or portion thereof placed each day.
 - .3 Make slump tests in accordance with CSA-A23.2, Test Method A23.2-5C, with each standard strength test and when so directed by the Consultant.
 - .4 Store samples for autogenous curing in the special containers which is part of the test equipment.
 - .5 Ship test cylinders with completed shipping tag attached. Provide identification and sufficient information to correlate the cylinder to the information taken by the testing agency, to complete the report form as per Appendix B, CSA-A23.2.
- .6 The Contractor shall install thermometers for recording temperatures when concrete is placed under cold weather or hot weather conditions.
- .7 Ensure that supervisory personnel are on hand when concrete is being cast so that the placing and curing procedures of the specification will be properly observed.

3.20 REJECTED WORK

- .1 Do not deliver to the site materials which are known not to meet the requirements of the specification. If rejected after delivery they shall be removed immediately.

03 30 00 - CONCRETE

- .2 Where the Consultant's review reveals materials or workmanship which appear to have failed to meet the specified quality, he shall have the authority to order additional curing; to have tests made of in-situ concrete, concrete cores, reinforcement or other materials; to order a structural analysis of the existing elements and load test the structure. All such work will be carried out in order to assist in determining whether the structure may, in the Consultant's opinion, be accepted, with or without strengthening or modification. All expense incurred shall be chargeable to the Contractor regardless of the results. All testing shall meet the requirements of the Ontario Building Code.

3.21 CLEAN-UP

- .1 Remove rubbish and surplus materials leaving the work ready for the Trades that follow.

END OF SECTION

PART 1 - GENERAL

1.1 WORK INCLUDED

- .1 Replacement of broken and spalled masonry units
- .2 Patching of masonry
- .3 Masonry work as indicated on drawings

1.2 RELATED WORK SPECIFIED ELSEWHERE

- .1 Concrete Unit Masonry Section 04 22 00
- .2 Fibre-Reinforced Cementitious Panels Section 07 44 50
- .3 Joint Sealants, expansion joint covers Section 07 92 00

1.3 REFERENCES

- .1 CAN/CSA-A82 Fired Masonry Brick Made From Clay or Shale
- .2 CAN/CSA A179 Mortar and Grout for Unit Masonry.
- .3 CAN/CSA A370 Connectors for Masonry.
- .4 CAN/CSA A371 Masonry Construction for Buildings.
- .5 CAN/CSA-A3000 Cementitious Materials Compendium
- .6 ASTM C270 Standard Specification for Mortar for Unit Masonry
- .7 ASTM C207 Standard Specification for Hydrated Lime for Masonry Purposes
- .8 Brick Industry Association
 - .1 BIA Technical Note 8B Mortars for Brickwork - Selection and Quality Assurance
 - .2 BIA Technical Note 18A Accommodating Expansion of Brickwork
 - .3 BIA Technical Note 20 Cleaning Brickwork
 - .4 BIA Technical Note 46 Maintenance of Brick Masonry
- .9 Hanson Brick: Weatherproofing Masonry for the Northern Climates
- .10 National Research Council (NRC)
 - .1 Construction Technology Update No. 67 Repointing Mortars for Older Masonry Buildings - Design Considerations
 - .2 Construction Technology Update No. 68 Repointing Mortars for Older Masonry Buildings - Site Considerations

1.4 QUALITY ASSURANCE

- .1 Subcontractor shall be a company specializing in commercial masonry work and masonry restoration, with minimum five (5) years documented experience in masonry restoration projects.
- .2 Masonry restoration work shall be executed under the continuous supervision and direction of a competent foreman familiar and experienced with the materials and methods specified and with the design requirements for masonry restoration.
- .3 Perform masonry work to CSA-A371.

1.5 TESTING

- .1 Testing of materials will be carried out by Testing Laboratory designated by Consultant.

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- .2 Pay for tests from Cash Allowance, Section 01 10 00.
- .3 Submit samples of sand and water for testing to ensure that mortar will not produce efflorescence.
- .4 Test all mortar to be mixed with sand on site according to CSA-A179, aggregate to cementitious ratio test. Testing Company to supervise mason in preparation of a sample mix which will act as the control ratio, as determined by testing company. "Sample ratio" tests will be conducted throughout construction and compared to control ratio. These ratios must not differ by more than 15%.
- .5 Test for compliance with the performance requirements for integral mortar water-repellence. Mortar shall be capable of achieving a Class E Rating when evaluated using ASTM E 514 with the test extended to 72 hours, using the rating criteria specified in ASTM E 514-74.
- .6 Compressive strength tests
 - .1 Perform compressive strength tests on three representative samples of each type of new and existing masonry units.
 - .2 Perform compressive strength tests on all mortar and grout.
 - .3 Compressive strengths must conform to the requirements of property specifications for CSA-A179 and to the requirements on the drawings, whichever is greater.
 - .4 Compressive strength of mortar must not exceed the compressive strength of the masonry units.

1.6 SUBMITTALS

- .1 Submit, for approval, clearly labelled samples of all materials to be used.
- .2 Obtain Consultant's final approval of brick samples prior to ordering materials.
- .3 Submit shop drawings of all special shapes.
- .4 Submit test reports for new and existing unit masonry.
- .5 Submit colour samples of colour matched materials, for review by Consultant on site.
- .6 Submit three (3) copies of technical data sheet for mortar mixtures. Indicate related standards and mortar properties in terms of compressive strength, water retention and air content. Provide all test certificates required for mortar mixture lots delivered to site.

1.7 SAMPLE AREA

- .1 After acceptance of submittals by the Consultant and Owner, and before commencing masonry restoration work, prepare a sample area of minimum 1200mm x 1200mm size, on each building where directed by the Consultant. Do not proceed with the work until the sample area has been accepted by the Consultant.

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- .2 Sample area shall include replacement of masonry units, repointing of existing masonry, patching, and other repairs typical of the requirements specified and indicated on the drawings.
- .3 Sample area shall be cleaned in conformance with Section 04 01 20.
- .4 After acceptance of sample area, it shall be sealed with water repellent specified in Section 07 19 00, becoming the sample installation for that product also.
- .5 Mark off accepted sample area and retain in undisturbed condition, as a standard for remaining work.

1.8 STORAGE AND HANDLING

- .1 Ensure that sufficient brick has been ordered to complete project from a single production run.
- .2 Any special shapes must be ordered in time to be manufactured with the main order of brick, to ensure colour consistency.
- .3 Deliver masonry units to site, taking care to prevent damage. Lift skids with appropriate slings or forks, with protection to prevent damage. Protect corners and edges.
- .4 Store masonry units on timbers or platforms, at least 75mm above grade, in such a manner as to prevent damage and staining of units. Cover to protect from weather.
- .5 Deliver materials to site in manufacturer's original unopened containers and packaging, bearing labels as to type and names of products and manufacturers.
- .6 Protect grout, mortar and other materials from deterioration by moisture and temperature. Store in a dry location or in waterproof containers. Comply with manufacturer's recommendations for minimum and maximum temperature requirements for storage.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Brick:
 - .1 Burned clay brick to CAN/CSA A82.1, Type FBX, Grade SW, as manufactured by Hanson Brick or Brampton Brick.
 - .2 To match existing size and coursing.
 - .3 Brick colour is of no concern where it will be covered with new cladding.
- .2 Obtain materials for patching, coating, crack repair, and repointing from a single manufacturer to ensure compatibility and matching in quality, colour, and texture.
- .3 Mortar Materials:
 - .1 Sand: fine grain aggregate, graded in accordance with CSA-A179
 - .2 Water: potable, free of ice and any contaminants, to CSA A179.
 - .3 Portland cement: to CAN/CSA-A5 normal Type 10.
 - .4 Hydrated lime: type 'S', in accordance with ASTM C207

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- .4 Metal Anchors: Conforming to Ontario Building Code.
- .5 Through Wall Flashing: Refer to Section 07 26 00
- .6 Prefinished Metal Flashing: Refer to Section 07 62 00
- .7 Weep Hole Vents: Blok-Lok "Cell-Vent" ventilator.
- .8 Wall Ties: For masonry to existing masonry
 - .1 Torq-Lok Mechanical Anchoring System by Blok-Lok; Torq-Lok 510 Series Anchors.
- .9 Special Shapes: as required to replace broken and damaged existing units, colour and texture on all exposed faces to provide exact match to the face brick.
- .10 Control joints for brick: Sealant and backing rod, with Blok-Lok "Exp-Joint", closed cell neoprene expansion joint material.

2.2 MORTAR MIX

- .1 Mortar: Bulk preblended silo mix as supplied by Max-Mix, or pre-blended, pre-packaged Type 'N' mortar; "King 1-1-6" by King Masonry Products or "Betomix Plus Type N" by Daubois.
- .2 Mortars for clay brick and concrete unit masonry to be Portland cement/ hydrated lime/ sand mortars to the property standards of CSA A179.
- .3 Mortar for exterior masonry veneer, and non-load bearing walls and partitions to be Type 'N' as per property specifications of CSA A179.
- .4 Mortar for concrete unit masonry foundations, load bearing walls and partitions to be Type 'S' as per property specifications of CSA A179.
- .5 Compressive strengths of mortars shall conform to the values indicated on Tables 8 and 9, for solid brick and concrete block respectively, of CSA Standard A179. Compressive strength of mortars must not exceed the compressive strength of the masonry units with which they are being used. Compressive strengths of mortars shall conform to CSA Standard A179.

2.3 GROUT

- .1 Grout:
 - .1 Fine grout to CSA Standard A179, with sufficient water to produce pouring consistency without segregation of ingredients, but to retain cohesiveness.
 - .2 Fine grout shall conform to the values indicated on Tables 7 of CSA A179. Compressive strength shall not exceed the compressive strength of the masonry units.

2.4 PARGING

- .1 Cement mortar parging: 1 part cement, 1 part lime to 6 parts sand by volume with sufficient water for a trowelable mix.
- .2 Metal Lath: 9.5mm diamond mesh lath, galvanized.

PART 3 - EXECUTION

3.1 GENERAL

- .1 Review drawings and inspect walls to determine the scope of repair work required. The intention is that all masonry in the areas shown on the drawings are to be repaired and sealed, or covered, as indicated.

3.2 PREPARATION

- .1 Remove heavily spalled, loose and broken brick, for replacement with new brick. To remove brick, first cut out surrounding mortar, to prevent damage to adjacent brick. Brick to be removed can be broken to facilitate removal.
- .2 Where bricks are removed, carefully remove surrounding mortar back to remaining masonry. Remove all debris and dust by brushing or vacuuming.
- .3 Cut out sections shall be squared off at the edges. Do not overcut corners of the patch; stop short of corner and chip out remainder by hand without damaging surrounding masonry. Do not allow any feathered edges in the patch areas.
- .4 Once the deteriorated material in an area has been removed, remove rust on any exposed anchors by wire brush. Remove material around steel anchors to provide a minimum of 6mm clearance. Apply approved rust -inhibitive bonding agent to cleaned reinforcement.
- .5 At areas to be patched, remove all loose, spalled, and deteriorating materials. Where substrate appears to be in the process of deteriorating, cut away an additional depth of 6mm to 13mm to ensure the surface to be patched is solid and stable. "Sound" substrate with a hammer to verify its integrity.
- .6 Remove torn, deteriorated, and inelastic sealants.
- .7 Remove any soil, mortar, dust, salts and other foreign matter from areas to receive patching compound.
- .8 Take care not to damage flashing, adjacent masonry, or other surfaces. Repair damage, or replace items, to make good.

3.3 JOINT PREPARATION

- .1 Prepare joints for repointing by raking out joints to a continuous, uniform depth. Depth shall be equal to twice the joint thickness. Ensure mortar remaining is sound.

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- .2 Rake out joints by hand chisel or small pneumatic tools.
- .3 If the Contractor proposes to use power tools to rake out joints, the method must be demonstrated on site for the Consultant. The procedure must be shown to be effective and without damage to masonry. Do not proceed until the procedure is accepted by the Consultant.
- .4 After raking, clean joints by brushing or vacuuming, and wash down with water spray to remove dust and debris.

3.4 MIXING OF MORTAR, GROUT AND PATCHING MATERIALS

- .1 Mix mortar ingredients thoroughly in quantities needed for immediate use. Colour of mortar shall match colour of existing mortar.
- .2 Mix mortar in mechanical mixer operated until materials are homogeneously blended, but not less than 3 minutes after all materials are in mixer.
- .3 Hand mixing permitted provided quantities of materials and water are accurately controlled, and that method of mixing is approved by Consultant.
- .4 Mason to review mixing procedures with mortar manufacturer.
- .5 Obtain manufacturer's approval for any additives.
- .6 Comply with the manufacturer's written specifications and recommendations for mixing, application, and curing of grouts and patching materials.
- .7 Pre-hydrate repointing mortar to reduce shrinkage. Pre-hydrate mortar 1 to 1 ½ hours before it will be used. Mix ingredients with only enough clean water to create a damp mixture, capable of forming a ball.

3.5 REPOINTING

- .1 Ensure raked out joints are clean, as specified above, prior to commencing repointing work.
- .2 Dampen joints to ensure adequate bonding, and allow masonry to absorb all surface water before proceeding with the work.
- .3 Add just enough water to pre-hydrated mortar to bring to a workable consistency.
- .4 Pack mortar into joints in multiple layers, in depths of no more than 6mm at one time.
- .5 Completely fill joints with mortar. This is a mandatory requirement. If inspection reveals that this requirement has not been met the mortar must be raked out and the joints repointed again, in accordance with this Specification, at no additional cost to the Owner.
- .6 Repointed joints shall be tooled to concave shape.
- .7 Tooling of joints shall consist of compressing mortar as the work proceeds with a non-staining (plastic or stainless steel) tool to produce a dense, perfectly flush or concave joint.

3.6 REPLACEMENT OF DAMAGED BRICK

- .1 Ensure voids and areas to receive new brickwork are clean and free of any debris or contaminants that could interfere with bonding.
- .2 To ensure adequate bonding, dampen adjacent masonry surfaces and allow masonry to absorb all surface water before proceeding with the installation of replacement bricks.
- .3 To install single bricks, coat brick, and surfaces in which it will be installed, with mortar. Centre brick in opening and push into place. Remove excess mortar and point around the brick, tooling as described above for repointing.
- .4 Bond:
 - .1 Maintain existing bond patterns, including rowlock bands.
- .5 Where sections of brick are removed, rather than individual bricks, brick shall be tied to structure with specified brick ties.
- .6 Brick ties:
 - .1 Locate masonry anchors at maximum 820mm on centre horizontally and at maximum 600mm intervals vertically. Tie location, spacing, and pattern shall conform to CSA-S304.1.
 - .2 Install brick ties in accordance with manufacturer's instructions.
- .7 Through Wall Flashing:
 - .1 Supply and install through wall flashing in locations indicated.
 - .2 Flashing must extend up wall a minimum of 400mm.

3.7 PATCHING AND PARING

- .1 Where existing masonry is to be covered with cementitious panel siding, the wall, prepared as specified above, is to be parged to create a sound, uniform surface for the application of the vapour barrier membrane.
- .2 For very dry or porous surfaces, pre-wet the substrate ahead of time to prevent the substrate from drawing moisture out of the patching and paring compounds too quickly. Re-wet the surface just before applying the patching material.
- .3 For areas of paring larger than 0.4m², fasten galvanized metal lath to the substrate before applying the paring.

3.8 PROTECTION

- .1 Protect all adjacent materials (i.e. precast concrete, aluminum windows, metal cladding hollow metal frames etc.) from mortar droppings.

04 01 00 - REPAIR AND RESTORATION OF UNIT MASONRY

3.9 CLEANING

- .1 Clean up as work progresses.
- .2 Do all cleaning at completion of work in conformance with Section 01 74 00.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED WORK

- .1 Painting Section 09 90 00
- .2 Ductwork Division 26

1.2 REFERENCE STANDARDS

- .1 Conform to CSA-W59 Welded Steel Construction (Metal Arc Welding)
- .2 Use fabricator fully approved by Canadian Welding Bureau, in conformance with the requirements of CSA-W47.1
- .3 Conform to CAN/CSA-S16 Limit States Design of Steel Structures (Consolidation)

1.3 SHOP DRAWINGS

- .1 Submit Shop Drawings in accordance with Section 01 33 23. Show and describe detail work of this Section including large scale details of members and materials, of connections, joining details, anchorage devices, dimensions, gauges, thicknesses, description of materials, metal finishing specifications, as well as all other pertinent data and information.
- .2 Indicate field dimensions on shop drawings.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Mild Steel Shapes: CAN/CSA A3-G40.20/G40.21, grade 350W.
- .2 Structural Steel: to CAN/CSA - S161.1; CAN/CSA-G40.20/G40.21.
- .3 Steel deck: formed from sheet steel conforming to the requirements of ASTM A653/A653M and CSA-S136 with a base steel nominal thickness not less than noted on the drawings, 0.76 mm minimum, and a minimum zinc coating conforming to designation ZF075.
- .4 Galvanize Finish: ASTM specifications 123,153, 386 or CSA- G164, G90.
- .5 Zinc Rich Coating: ZRC Cold Galvanizing Compound by ZRC Worldwide.
- .6 Primer: CGSB 1-GP-40. Provide filling primer compatible with zinc-rich coating and paint finish. Confirm compatibility with painting subcontractor and product manufacturers.

05 52 00 - METAL FABRICATIONS

- .7 Bolts and anchors bolts: to ASTM A307-82A.
 - .1 Supply angles, bolts, anchors, sleeves and any other attachments to structure necessary for the installation of work under this Section.

- .8 Welding Materials: to CSA W59, CSA W55.3 for stainless steel, ASTM A371; for aluminum, ASTM B 285 and CSA-S244.

- .9 Sheet Steel: wiped coated, ASTM A 446; structural quality Grade A or B, maximum permissible working stress, Grade A 137,895 kPa, Grade B 154, 442 kPa.

- .10 Prime Paint: CGSB 1-GP-40 M.

- .11 Steel pipes: to CAN/CSA-G40.20 type 300W.

- .12 EPDM Gasket: Continuous gasket fabricated of 19mm thick, by minimum 19mm wide, 40 durometer EPDM flat cord, as manufactured by Budlar Flexible Products Inc., or approved equivalent.

- .13 Handrails: Alku Plastic "Alkurail" thermoplastic covering, 50mm wide by 25mm. Colour to be selected by Consultant to match existing.

- .14 Bolts and anchors bolts: to ASTM A307-82A.
 - .1 Supply angles, bolts, anchors, sleeves and any other attachments to structure necessary for the installation of work under this Section.

PART 3 - EXECUTION

3.1 WORKMANSHIP

- .1 Use only workmen skilled in the Work of this Section. Do work to best standard practice and in accordance with applicable laws, by-laws and regulations. Conform to the requirements of Authorities Having Jurisdiction.

- .2 Fit and assemble work in shop where possible. Execute work according to details and reviewed shop drawings. Where shop fabrication is not possible, make trial assembly in shop.

- .3 Welding: to CSA W59. File or grind exposed welds smooth and flush, so as to be invisible after painting.

- .4 Make workmanship of best grade of modern shop and field practice known to recognized manufacturers specializing in this work. Fit joints and intersecting members accurately. Make work in true plumb, true, square, straight, level and accurate to sizes and shapes detailed, free from distortion or defects detrimental to appearance or performance.

- .5 Insulate metals where necessary to prevent corrosion due to contact between dissimilar metals and between metals and masonry, concrete or plaster. Use bituminous paint, butyl tape, building paper or other approved means.

- .6 Supply all fastenings, anchors and accessories required for fabrication and erection of the work. Make exposed metal fastenings and accessories of same material, texture, colour and finish as base metal on which they occur unless otherwise shown or specified. Keep exposed fastenings to an absolute minimum and inconspicuous, spacing them evenly and setting them out neatly. Make fastenings of permanent type.
- .7 Draw mechanical joints to hairline tightness and seal countersunk screws and access holes for locking screws with metal filler where these occur on exposed surface.
- .8 Thoroughly clean all ferrous metals, by methods suitable to remove burrs, weld spatter, rust, loose mill scale, oil, grease, dirt and other foreign matter. Apply one coat of prime paint to all surfaces except those requiring field welding. Brush on thoroughly and work well into all crevices.
- .9 After erection and installation, thoroughly clean the work and apply field touch up of same formula as shop coat to all damaged or unpainted surfaces. Work all paint well into all joints, crevices and open spaces.
- .10 Galvanize all exterior work. Do all galvanizing after welding.
- .11 Galvanize items in exterior walls or in concrete slabs or walls.
- .12 After installation, remove any rust and touch up all galvanized work with two coats zinc rich coating.
- .13 Execute work according to details and reviewed shop drawings.
- .14 Take all measurements at the building before proceeding with fabrications.
- .15 Report discrepancies in dimensions to the Consultant who shall determine the adjustments to be made.
- .16 Fabricate, finish and assemble items in the shop as much as possible; keep assembly on the job to a minimum.
- .17 Make joints in built-up sections with hairline joints in the least conspicuous locations and manner.
- .18 Counter sink screws, unless otherwise noted.
- .19 Weld all connections, unless otherwise noted.
- .20 Grind and file smooth, welding and fabrication burrs.
- .21 After fabrication, clean, scrape, and remove rust, grease or extraneous matter

05 52 00 - METAL FABRICATIONS

3.2 SUPPORT STEEL

- .1 Provide and install miscellaneous structural steel supports and any other steel fabrications required, as indicated on drawings.
- .2 Exterior support steel shall be hot dipped galvanized.

3.3 BOLLARDS

- .1 Supply and install galvanized steel bollards as shown on Drawings. Bollards shall be 150mm x 9.5mm thick wall x 3100mm, seamless steel pipe. Install 1600mm into a concrete foundation and extend 1500mm above grade. Fill bollard with 25 MPa concrete and round top. Round top of footing also. Apply prime coat, ready for finished painting.
- .2 Touch up galvanized coating with cold galvanizing coating specified above.
- .3 Preparation of galvanized steel and painting shall be in accordance with Section 09 90 00, Painting.

3.4 MISCELLANEOUS ITEMS

- .1 Examine the drawings and provide all metal brackets and supports detailed or indicated, with the exception of items included in custom cabinetry.
- .2 Anchor Bolts, Lag Screws, etc.:
 - .1 Supply anchor bolts, washers and nuts, lag screws, expansion shields, toggles, straps, sleeves, brackets, etc. where required or called for on Drawings for work of this Section. Such items occurring on or in exterior wall or slab shall be hot dipped galvanized. Thread dimensions shall be such that nuts and bolts fit without re-threading or chasing threads.
- .3 Miscellaneous Sections:
 - .1 Provide all miscellaneous steel angles, channels, tubes, plates, etc. of shapes and sized noted or required which are not included on Structural Drawings or called for in other Sections of the Specifications.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED WORK

- .1 Concrete Formwork Section 03 30 00
- .2 Steel Metal Flashing and Trim Section 07 26 00
- .3 Painting Section 09 92 00

1.2 REFERENCES

- .1 CAN/CSA O80-Series Standards for Wood Preservation
- .2 CSA O121 Douglas Fir Plywood
- .3 CSA O141 Softwood Lumber
- .4 CSA O151 Canadian Softwood Plywood
- .5 CSA B111 Wire Nails, Spikes and Staples.
- .6 National Lumber Grading Authority (NLGA), Standard Grading Rules for Canadian Lumber

1.3 DELIVERY AND STORAGE

- .1 Do not deliver materials until they are required for incorporation into the work.
- .2 Protect materials, under weatherproof cover, both in transit and on site.
- .3 All exterior and interior finish materials shall, upon delivery, be neatly stored in a dry place and shall be protected from damage due to weather, water, or any other cause.

1.4 PROTECTION

- .1 Protect fire-retardant materials against high humidity and moisture.
- .2 Protect millwork, countertops and cabinets with 6 mm plywood or other suitable sheet material.
- .3 Protect installed hardware from damage and blemishes.

PART 2 - MATERIALS

2.1 MATERIALS

- .1 Wood materials: straight, sawn square, true, dressed four sides, properly sized and shaped to correct dimensions from nominal sizes indicated or specified.
- .2 Lumber grade and moisture content:
 - .1 comply with the official grading rules of NLGA for the particular lumber and grade, and structurally complying with the latest requirements of the Ontario Building Code.
 - .2 Comply with CSA Standard O141 Softwood Lumber. Use only grade marked lumber.

SECTION 06 10 00 - ROUGH CARPENTRY

- .3 All wood materials:
 - .1 well seasoned NLGA, free from defects which impair strength and durability.
 - .2 Moisture content limit:
 - .1 S-GRN: Unseasoned
 - .2 S-DRY: Maximum 19% moisture content
 - .3 KD: Maximum 15% moisture content
- .4 Pressure Treated Lumber to CSA O80.
- .5 Blocking, cant strips, grounds, nailing strips:
 - .1 NLGA No. 2 Ontario White Pine, No. 2 Red Pine, all complying with the grading rules of the NLGA for Construction,
 - .2 Douglas Fir dense complying with COFI standard grading and dressing rules.
- .6 Douglas Fir plywood:
 - .1 all veneer play; comply with CSA Standard O121, COFI Exterior.
 - .2 Western softwood plywood - comply with CSA Standard O151, COFI Waterproof glue WSP. Exposed two sides shall be grade G2S, and exposed one side shall be grade G1S.
 - .3 Plywood over steel deck at canopies shall be 19mm thickness, waterproof, tongue and grooved ply.
- .7 Wood preservative
 - .1 Pentox Green preservative and Osmose Cut End preservative, as manufactured by Osmose Pentox Inc.; Pentox Conservator Clear for painted wood.
 - .2 For painted surfaces use clear type and for concealed surfaces use green tinted type.
- .8 Fire Retardant Treatment: To ULC S102; flame spread rating 25 or less.
- .9 Rough hardware:
 - .1 nails, screws, bolts, lag screws anchors, special fastening devices and supports as required for the erection of all carpentry items.
 - .2 For preservative treated wood, use only stainless steel hardware, with the following exception:
 - .1 where galvanized steel items, such as gates, flashings, etc., are being attached to wood, galvanized steel fasteners shall be used.
 - .3 Do not mix stainless steel with galvanized steel; contact of these dissimilar metals can cause galvanic corrosion.

- .4 Stainless steel hardware to be type 317.
- .5 Galvanized hardware must be hot-dipped galvanized as follows:
 - .1 fasteners meeting CAN/CSA-G164 minimum zinc coating of 600 g/m² (ASTMA153 Class A or B1 G185)
 - .2 connectors meeting CAN/CSA-G164 minimum zinc coating of 600 g/m² (ASTM A653 Class G-185 sheet) or better.
 - .3 Electroplated galvanized hardware is not permitted.

PART 3 - EXECUTION

3.1 PREPARATION

- .1 Examine surfaces to receive the work of this Section and proceed only when conditions are satisfactory for a proper installation.
- .2 Lay out work carefully and to accommodate work of other trades. Accurately cut and fit; erect in proper position true to dimensions; align, level, square, plumb, adequately brace, and secure permanently in place. Join work only over solid backing.

3.2 INSTALLATION - GENERAL

- .1 Provide running members of the longest lengths obtainable.
- .2 Slowly feed machine-dressed members using sharp cutters. Provide finished members free from drag, feathers, slivers or roughness of any kind. Remove machine marks by sanding.
- .3 Machine sand surfaces exposed in the finished work and hand sand to an even smooth surface free of scratches.
- .4 Properly frame material with tight joints and rigidly secure in place. Use glue-blocks where necessary.
- .5 Design construction methods for expansion and contraction of the materials.
- .6 Conceal joints and connections wherever possible. Locate prominent joints only where directed.
- .7 Match joints made on the site with joints made in the shop.
- .8 Unless otherwise specified glue and blind screw or nail all work. Set and fill and plug surface screws using matching wood plugs.
- .9 Accurately scribe, cope and mitre members where required to produce hairline joints.
- .10 Erect work plumb, level, square and to the required lines.
- .11 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.

SECTION 06 10 00 - ROUGH CARPENTRY

- .12 The use of pressure treated wood is required for the following:
 - .1 Wood in direct contact with the ground or framed into concrete below ground level.
 - .2 Structural wood elements within 150mm of ground.
 - .3 In termite areas, for all structural wood elements within 450mm of ground.
 - .4 Wood framing members without a dampproof membrane separating the wood framing member from concrete in contact with the ground.
 - .5 Building components where moisture may accumulate.
 - .6 Retaining walls.

- .13 Aluminum must not be in direct contact with pressure treated wood. Provide minimum 6mm spacing between aluminum products and treated wood, with 10mil polyethylene barrier and polyethylene or nylon spacers.

3.3 INSTALLATION - ROUGH CARPENTRY

- .1 Blocking and Grounds: Fasten wood nailers, blocking, bucks, grounds curbs, copings and strapping solidly to supporting materials in true planes so that they will remain straight and not be loosened by work of other Trades.

- .2 Framing: Do all wood framing in accordance with the Ontario Building Code - latest version, and to CAN 3 086 as applicable.

- .3 Wood Cants, Copings, Curbs:
 - .1 Fasten wood cant blocking to structure with 19 mm. dia. bolts 760mm o.c.
 - .2 Provide wood curbs at new roof penetrations as indicated.
 - .3 Wood cants, curbs and copings to be preservative treated. Plywood to be exterior grade.

- .4 Preservative:
 - .1 Apply preservative to concealed wood members in contact with exterior walls and roof before fixing in place.
 - .2 Apply preservative to all cut ends of pressure treated wood.
 - .3 Preserve all other wood indicated to be preserved. Use clear preservative for items to be painted.
 - .4 Preserve wood by immersing in preservative for at least one hour.

END OF SECTION

PART 1 - GENERAL

1.1 WORK INCLUDED

- .1 Create a full air/vapour barrier to face of existing masonry where new cementitious panel siding is being installed.
- .2 Sealing of new ducts, conduits and other penetrations, as indicated on drawings, by membrane vapour barrier.
- .3 Cleaning and priming of substrate, and installation of vapour barrier.

1.2 RELATED WORK

- .1 Concrete slab on grade Section 03 30 00
- .2 Repair and Restoration of Unit Masonry Section 04 01 00
- .3 Fibre-Reinforced Cementitious Panels Section 07 44 00
- .4 Sheet Metal Flashing Section 07 62 00
- .5 Joint Sealants Section 07 92 00

1.3 INSPECTION

- .1 Manufacturer of the membrane material shall inspect surfaces to which material is to be applied, to ensure that the surfaces are suitable, provide periodic inspection during the application of the membranes, and inspect completed work immediately prior to covering with other materials to ensure that membranes are in an undamaged condition and installed to provide an air/vapour barrier system.

1.4 DELIVERY AND STORAGE

- .1 Deliver and store materials, undamaged in original wrappings, in a suitable environment.

1.5 SPECIAL PROTECTION

- .1 Provide adequate protection of materials and work of this Section from damage by weather and other causes.
- .2 Protect the work of other Subcontractors from damage resulting from work of this Section. Make good such damage to the satisfaction of the Consultant.

1.6 SITE CONDITIONS

- .1 Maintain surfaces and ambient air temperature 5°C minimum, for a minimum period of 72 hours prior to, during, and after waterproofing application.

07 26 00 - VAPOUR BARRIER

1.7 QUALITY CONTROL

- .1 The membrane manufacturer's factory-trained agent shall be on site at the beginning of the installation to provide training and supervision of the Contractor's personnel in the installation of the membrane. He shall also provide frequent inspection visits thereafter to assure the quality and competence of the membrane installation.

PART 2 - PRODUCTS

2.1 MATERIALS - BUILDING ENVELOPE VAPOUR BARRIER

- .1 Materials shall be as manufactured by Grace Construction Products, Bakor Inc., Tremco, W.R. Meadows, IKO, or Soprema. All materials used are to be by same manufacturer.
- .2 Vapour barrier membrane:
 - .1 Perm-A-Barrier by Grace, Blueskin SA by Bakor Inc., ExoAir 110 by Tremco, Air Shield by W.R. Meadows, AquaBarrier AVB by IKO, or Sopraseal Stick 1100T by Soprema Canada
 - .2 When ambient or surface temperatures are below 5°C, use low temperature versions of these products.
- .3 Primer:
 - .1 Perm-A-Barrier WB Primer by Grace, Blueskin Primer by Bakor, ExoAir 10 Primer by Tremco, Mel-Prime by W. R. Meadows, S.A.M. Adhesive by IKO, or Elastocol Stick by Soprema.
 - .2 For low temperature applications use low temperature primers as recommended by the membrane manufacturer; Mel-Prime Solvent Base Primer by W.R. Meadows, or equivalent.
- .4 Mastic: for sealing joints and edges of membrane use Bituthene Mastic Trowel Grade Grace, Air-Bloc 21 by Bakor Inc., ExoAir Termination Mastic by Tremco, Pointing Mastic by W.R. Meadows, AquaBarrier Mastic by IKO, or Sopramastic by Soprema.
- .5 Liquid membrane:
 - .1 Bituthene Liquid Membrane by Grace Construction Products, Air-Bloc 21 by Bakor, ExoAir 120 by Tremco, Air Shield LM by W.R. Meadows, AquaBarrier Mastic by IKO, or Sopraseal LM 200 by Soprema.
 - .2 Use for all protrusions or any difficult detail areas which do not allow for easy installation of the membrane.
 - .3 Can be placed over or under membrane with at least 64 mm overlap.
- .6 Through-wall flashing: Perm-A-Barrier Wall Flashing by Grace, Blueskin TWF by Bakor Inc., ExoAir TWF by Tremco, Air Shield TWF by W.R. Meadows, AquaBarrier TWF by IKO, or Sopraseal WFM by Soprema.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

- .1 Examine conditions of substrates and other conditions under which this work is to be performed and notify the Contractor, in writing, of circumstances detrimental to the proper completion of the work. Do not proceed with work until unsatisfactory conditions are corrected.
- .2 Ensure all voids, holes and cracks, especially in mortar joints, have been filled with lean mortar mix, non-shrinking grout, or parge coat, to ensure continuity of flat surface. Refer to Section 04 01 00 for masonry repair work.
- .3 Ensure masonry surfaces are clean, dry, smooth and free of fines, voids, honeycomb, spalled areas, sharp protrusions, etc.
- .4 Surfaces shall be free from loose particles, grease, oil, wax and other foreign matter.
- .5 Exposed metal surfaces shall be made clean of paint, oil, rust, or other contaminants, wiped clean with coal-tar solvent, and primed with primer.
- .6 All surfaces shall be surface dry and have negative alkalinity when surface tested.
- .7 Protect adjacent surfaces not designated to received vapour barrier.

3.2 APPLICATION / WORKMANSHIP

- .1 Ambient, surface and material temperature shall be minimum 5°C for standard products, or minimum -4°C for low temperature products. Confirm temperature requirements with the manufacturer.
- .2 Apply primer as recommended by manufacturer depending on porosity of surface. Note that due to the condition of the existing masonry, which is porous and damaged, priming will be extremely important, and amount of primer required will be higher than for new masonry work.
- .3 Prime only the area to be covered in a working day.
- .4 Allow primer to dry to a tacky surface, approximately 30 minutes, depending on environmental conditions.
- .5 Reapply primer if time lapsed between first application and installation of membrane exceeds 24 hours.
- .6 Apply sheet membrane so that laps shed water, i.e. start from low point.
- .7 Apply membrane in continuous strips, to as long length as possible to minimize joints. Apply membrane at edge of existing air barrier and openings in minimum 200mm strips, overhanging opening 100mm to allow junction with door or window frame and with air barrier.
- .8 Roll lap seam with an extension handled countertop roller. Roll across the seam first, then with the seam to eliminate any "fishmouths".

07 26 00 - VAPOUR BARRIER

- .9 Lap all ends 75mm minimum. Seal all seams with mastic, applied in accordance with manufacturer's written instructions.
- .10 Construction and control joints: double ply covered with initial strip of 150mm width and second strip of 457mm width, after application of dampproofing.
- .11 Cutoff at end of day operations shall be sealed with mastic.
- .12 Seal holes around pipes, vents and other services passing through membrane by using mastic applied in accordance with manufacturer's directions. Liberally coat areas with mastic for radius of 150mm around drain hub, piping, vents, etc. before and after application of membrane.
- .13 Refer to manufacturer's written instructions and details for required procedures of installation.
- .14 Extend membrane to allow for lapping into frames at windows, doors and the like to ensure continuity of the air/vapour barrier seal.
- .15 At all locations where membrane will be covered with insulation, temporarily protect membrane from puncture or install membrane immediately prior to application of insulation.
- .16 At all detailed areas, take extra care to ensure continuity of the air/vapour barrier.
- .17 All inside and outside corners shall be double covered with initial strip of membrane 305mm wide, centred.
- .18 Inspect membrane before covering and repair as necessary. Cover tears and inadequate overlaps with membrane. Seal edges of patches with pointing mastic.

3.3 PROTECTION AND CLEANING

- .1 Remove any masking materials after installation. Clean any stains on materials that would be exposed in the completed work using procedures recommended by manufacturer.
- .2 Install siding as soon as possible after installation of air/vapour barrier.
- .3 If the vapour barrier membrane system cannot be covered within 30 days after installation, apply temporary UV protection such as dark plastic sheet or tarpaulins.

END OF SECTION

07 44 50 - FIBRE-REINFORCED CEMENTITIOUS PANELS

.3 Shop Drawings:

- .1 Submit shop drawings and erection drawings of fibre-reinforced cementitious panels incorporating design conditions. Conform to shop drawing submission requirements in Section 01 30 00.
- .2 Shop drawings shall clearly show and describe in detail, materials, dimensions, gauges, finishes, connection and jointing details, cut-outs, fastening devices, fastener spacing, flashings, trim, caulking, finishes, erection details, and relationship to adjoining Work.
- .3 Indicate field dimensions on shop drawings.
- .4 Provide complete installation instructions.
- .5 Shop drawings shall bear the stamp of a professional engineer, registered in the Province of Ontario, who shall certify that the panels and installation system is designed to accommodate structural loads and wind loading for the installation location.
- .6 Do no fabrication until in receipt of reviewed Shop Drawings.

1.6 **PRODUCT HANDLING**

- .1 Unload and handle panels using methods recommended by manufacturer.
- .2 Store clear of ground on wooden stringers of full sheet width, spaced 750mm maximum.
- .3 Keep stock piled panels dry with plastic tied-down covers.

1.7 **WARRANTY**

- .1 Submit a warranty as specified under General Conditions of the Contract stating that the fibre-reinforced cementitious wall panel will remain free from all failures for an extended period of **three (3) years**.
- .2 Under the warranty, the following will be considered failures: leakage, failure to stay in place, cracking, chipping, panel deformation, buckling, spalling, excessive fading or discoloration, and deterioration of surface. Failure of more than 10% of surface area of the panels shall be deemed a total failure of the installation, and will require complete replacement of all panels.

PART 2 - PRODUCTS

2.1 **MATERIALS**

- .1 Panels shall consist of cement with inorganic fibre reinforcement; stone aggregate faced panel system as manufactured by Maple Precast Ltd., 94 Fenmar Drive, North York, ON. Phone: (416) 747-7170.

- .2 Alternate panel systems will also be accepted, subject to their conformance with the intent of these specifications and the details indicated on the drawings and compatibility with panels on existing buildings.
- .3 Colours to match adjacent panels.
- .4 Panels are to be face fastened with stainless steel fasteners, prepainted to match colour of panels.
- .5 Steel Framing
 - .1 Structural shapes, hangars, steel girts, and other framing members shall be 16 or 18 gauge steel shapes; hot dipped galvanized.
 - .2 Framing to receive panels shall have minimum width of 50mm; or wider where required for the panel system provided.
 - .3 Where steel members are exposed to view, they shall be prefinished, as for prefinished flashing and trim specified below.
 - .4 Framing assembly shall allow maximum refraction of L/360, unless otherwise dictated by the panel manufacture.
 - .5 Framing fasteners:
 - .1 Concrete and brick masonry walls, use 4.8mm (³/₁₆") Tapcon self-tapping concrete anchors, with minimum 40mm (1 ½ ") minimum effective embedment into sound masonry, or equivalent products. Tapcon anchors will generally need to be 150mm long or greater, as required to penetrate through deteriorating face brick into sound masonry.
 - .2 All fasteners shall be coated with Climaseal corrosion resistant coating.
- .6 Interface Ribbon:
 - .1 37mm wide by 8mm thick self adhesive ribbon with acrylic aggressive adhesive, closed cell, as recommended by the panel system manufacturer.
- .7 Bottom joint / back strip:
 - .1 22 gauge metal plate, folded and specific to the panel system, prepainted, 100mm wide.
- .8 Flashing:
 - .1 In accordance with Section 07 62 00.
 - .2 Material to be prefinished, to match panel colour, in exposed locations. Galvanized material may be used in concealed locations.
 - .3 Custom fabricate flashing to suit architectural details. Use preformed corner pieces only. Double back exposed edges.

07 44 50 - FIBRE-REINFORCED CEMENTITIOUS PANELS

- .4 Flashing at top of walls is to match colour of existing cap flashing; refer to Section 07 62 00.
- .9 Closures and trim:
 - .1 To manufacturer's recommendations; all exposed metal to be prefinished with Baycoat Perspectra series or Valspar WeatherX series coatings.
 - .2 Colour to match metal flashing and panel colour.
- .10 Sealants:
 - .1 One component silicone sealant in accordance with CAN/CGSB 19.13, non-staining.
 - .2 Sealants must be compatible with panels and adjacent materials. Confirm compatibility with panel manufacturer and sealant manufacturer.
 - .3 Colour to match adjacent panels at exposed bead locations, to satisfaction of the Consultant.
- .11 Douglas Fir plywood:
 - .1 Comply with CSA Standard O121, COFI Exterior.
 - .2 Plywood below metal roof shall be waterproof, tongue and grooved ply.

PART 3 - EXECUTION

3.1 PREPARATION

- .1 Prior to commencement of the work of this section, review the existing conditions and confirm that the substrate other conditions are acceptable. Notify the Consultant of any issues which may interfere with the proper installation and finishing of the work. Commencement of the work of this section shall imply acceptance of existing conditions.

3.2 INSTALLATION

- .1 Install metal framing and erect cementitious panel siding and accessories in strict accordance with reviewed shop and erection drawings and manufacturer's instructions.
- .2 Install steel framing at maximum 457mm spacing, and more frequently where recommended by the panel manufacturer for the support of the panels on the applicable substrate.
- .3 Co-operate with other trades to ensure proper installation and anchorage of this Work.
- .4 Install panels level, true and plumb and in line, as indicated on the drawings. Tolerances shall be within 2 mm in 3 metres vertically and horizontally, and 3 mm in 3 metres in diagonal surface alignment.
- .5 Damaged, bent or dished panels will be rejected.
- .6 Pre-drill all exterior panels for face fasteners, using perforation guide and tools provided by the manufacturer, in accordance with manufacturer's instructions. Screws are to be located so that panels can be individually removed with out removing adjacent materials such as flashing.

- .7 Apply interface ribbon to rear of each panel, aligned with perforations.
- .8 Position the panels to the furring, in accordance with reviewed shop drawings. Insert a sleeve in the whole of the panel and fix to the furring. Make sure that board is in full contact with back frame, without excessive pressure.
- .9 Leave a space of 3 mm between the panels. To maintain uniform gaps between panels use spacers prior to face fastening. Remove spacers prior to caulking.
- .10 For internal and external corners, provide a galvanized angle of 62mm x 20mm, caliber 20 at the back of the panel to provide support and maintain a straight angle. This corner must be mechanically fixed through the panel, without being fixed directly to the building structure. For external corners, apply enamel (provided by the manufacturer) on the part which will remain exposed.
- .11 Leave a space of 6mm or more at the bottom of the wall or over window flashing; assuring no obstruction to the cladding ventilation and water exhaust drain.
- .12 Install closures and trim at openings and penetrations.
- .13 Rigidly connect all pre-coloured flashing pieces with specified colour matching fasteners at 300mm o.c. along length. Use preformed corner pieces and erect with ample allowance for thermal movement. Refer to Section 07 62 00.

3.3 CLEANING

- .1 Clean all panels periodically during the work with approved methods and products, in accordance with manufacturer's recommendations.
- .2 Remove dust from cutting and drilling holes in panels immediately. Do not use wire brushes, metallic tools or abrasives.
- .3 Upon completion of panel installation, remove any excess sealant with solvent approved or recommended by the panel manufacturer. Wash the complete installation to remove construction dirt, protecting adjacent brick and other surfaces which could be damaged by the power washing.
- .4 Remove debris and surplus materials from Site upon completion of Work.

END OF SECTION

PART 1 - GENERAL

1.1 PREQUALIFIED ROOFING CONTRACTOR

- .1 All modifications to existing roofing must be completed by Dafoe Roofing to meet requirements of existing warranties.

1.2 SCOPE OF WORK

- .1 Remove existing roofing assemblies, down to level of roof deck and where indicated on drawings.
- .2 Provide new roof assemblies, to match existing, complete with the following:
 - .1 Vapour retarder
 - .2 Gypsum board
 - .3 Polyisocyanurate insulation
 - .4 Tapered insulation
 - .5 Cover board
 - .6 1 ply organic felt
 - .7 4 ply glass felts
 - .8 Double pour asphalt with ballast
 - .9 All associated sealants
 - .10 Sheet metal flashing, as specified in Section 07 62 00
 - .11 Roof scuppers
 - .12 Flashing sleeves
- .3 Asphaltting work must be undertaken when the school is vacant. If work is done during the school academic year, asphaltting must be done after hours or on weekends. Contract shall include all overtime work required.

1.3 RELATED WORK SPECIFIED ELSEWHERE

- .1 Demolition and Alterations Section 02 40 00
- .2 Rough Carpentry Section 06 10 00
- .3 Sheet Metal Flashing and Trim Section 07 62 00

1.4 QUALITY ASSURANCE

- .1 Work of this Section shall be performed by a member, in good standing, of the OIRCA.
- .2 Carry out Work in accordance with recommendations of the Ontario Industrial Roofing Contractors Association (OIRCA) and the Canadian Roofing Contractors Association (CRCA). Use only competent mechanics.
- .3 Install all products in conformance with manufacturer's printed instructions.
- .4 Provide proof of compliance and letter certifying that roofing system complies with Class A roofing system an CAN/ULC S-170.
- .5 Roofing installer must be approved by the manufacturer of the roofing system for the installation and warranty of their products.

1.5 REFERENCE STANDARDS

- .1 Underwriters Laboratories' of Canada (ULC)
 - .1 CAN/ULC S126 Test for fire spread under roof deck assemblies.
 - .2 CAN/ULC-S704 Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced

- .2 Canadian General Standards Board (CGSB).
 - .1 CAN/CGSB-51.26 Thermal Insulation, Isocyanurate Board, faced
 - .2 CAN/CGSB-37.5 Cutback Asphalt Plastic Cement
 - .3 CGSB 37-GP-9MA Primer, Asphalt, Unfilled, for Asphalt roofing, Dampproofing and Waterproofing.
 - .4 CGSB 37-GP-15M Application of Asphalt Primer for Asphalt Roofing, Dampproofing and Waterproofing.
 - .5 CGSB 37-GP-56M Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing.

- .3 Canadian Standards Association (CSA)
 - .1 CAN/CSA A123.2 Asphalt Coated Roofing Sheets
 - .2 CAN/CSA-A123.21 Standard Test Method for the Dynamic Wind Uplift Resistance of Membrane-roofing Systems
 - .3 CSA A123.3 Asphalt Saturated Organic Roofing Felt
 - .4 CAN/CSA A123.4 Asphalt for Constructing Built-Up Roof Coverings and Waterproofing Systems
 - .5 CSA A231.1 Precast Concrete Paving Slabs
 - .6 CAN/CSA-A247 Insulating Fibreboard.
 - .7 CSA B35.3 Tapping and Drive Screws.

- .4 Canadian Roofing Contractor's Association (CRCA)
 - .1 CRCA Roofing Specifications Manual.

- .5 FM Approval Standard 4470 Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for use in Class 1 and Noncombustible Roof Deck Construction

- .6 FM Global Data Sheet 1-29 Roof Deck Securement and Above-Deck Roof Components

- .7 American Society for Testing and Materials (ASTM)
 - .1 ASTM E 108 Standard Test Methods for Fire Tests of Roof Coverings

1.6 ROOFING SYSTEM

- .1 Generally the roofing systems consist of a built-up roof of 4-ply Type IV glass felts and 1-ply organic felts, with modified bitumen flashings, over polyisocyanurate foam insulation all in conformance to CAN/ULC S126. Insulation must conform to S126 without the requirement for a gypsum board membrane.

- .2 Roofing shall be FM approved system, Class A.

- .3 Conform to ULC R210.

1.7 SUBMITTALS

- .1 Submit manufacturer's data sheets for roofing system to be installed, including a list of all products to be incorporated. Submit data sheets for all system components. Provide samples when requested by Consultant.
- .2 Submit shop drawings for tapered insulation indicating layout, board thickness, percentage of slopes and direction of flow. List materials used. Do not order materials until drawings have been reviewed and accepted by the Consultant. Submittals to be in accordance with Section 01 33 23 of these specifications.
- .3 Submit Minutes of Meeting for pre-roofing meeting.

1.8 PRODUCT HANDLING

- .1 Store materials on raised wooden platforms in approved manner at Site preceding application, and protect from inclement weather at all times. Roofing felts which become wet will be rejected.
- .2 Store roofing felts and insulation in heated atmosphere at 21°C for 24hours before application in cold weather. Polywrap roofing felts.
- .3 Guard against condensation inside plastic wrapped insulation by slitting or removing wrap. Cover with tarps and secure with ropes.
- .4 Do not store gravel on roof ahead of demand. Bring gravel to roof only as it is required for spreading as Work proceeds.

1.9 PROTECTION

- .1 Protect Work of other trades from roofing procedural damage. Cover vertical surfaces with tarpaulins at hoisting locations.
- .2 When using open flame in connection with this Work, maintain at all times 9 kg dry chemical fire extinguisher fully charged and in operable condition at location where open flames are in use.
- .3 Locate kettles at grade level and minimum 750mm from face of building.
- .4 Protect completed portions of roofing from damage due to traffic and materials handling until completion of Work.

1.10 ENVIRONMENTAL CONDITIONS

- .1 Do not apply built-up roofing materials during rain, fog, snow, or other damp or otherwise unsuitable surfaces.

1.11 WARRANTY

- .1 Furnish a **five (5) year** "Workmanship, Labour and Material" warranty on the complete roofing system, including all materials and labour against leakage, subsurface moisture, degradation of materials and insulation thermal value, failure to stay in place, undue expansion, deformation, delamination, buckles, blisters, ridges and splitting seams.
- .2 Contractor's warranty shall include the OIRCA standard warranty for the first two years, plus an additional three years.
- .3 The warranty period shall commence at the date of issue of the Certificate of Substantial Performance.
- .4 Defective work shall include, but not limited to: leaking, wind uplift, delamination of roofing materials, reduction of thermal value due to moisture in insulation, crazing and ridging. Dislodged surfacing and degradation of colour that detracts from its performance or visual appearance will also be judged as defective work and will require correction under the Contract.
- .5 All defective workmanship and material evident during the period of the Warranty must be repaired to restore the work to good condition and to the original intent of the Drawings and Specifications.
- .6 Warranty must cover repairs to other work damaged resulting from defects in the roofing system and from any work to repair said defects.
- .7 Within 24 hours of the Owners notification, repair any leaks into the building or roof assembly.
- .8 The warranty shall include annual inspections by the roofing trade and manufacturer's agent. Such inspections shall be scheduled with the Owner's maintenance department.

1.12 INSPECTION AND TESTING

- .1 An independent inspection and testing agency nominated by the Consultant will be appointed to inspect and test roofing and sheet metal work.
- .2 Arrange site meeting with Roofing Inspector and Consultant, maximum two weeks prior to commencement of Work on Site. Obtain Inspector's instructions re procedures to be followed.
- .3 Co-operate with the Inspector and afford all facilities necessary to permit full inspection of the Work and testing of materials prior to their use. Act immediately on instructions given by the inspector. Where the inspector deems a change is required which will involve a change in cost, obtain Consultants written approval BEFORE proceeding.
- .4 Make cut-outs for testing purposes when required and make good roofing at no extra cost to the Owner.
- .5 Pay Inspection and Testing Agency from cash allowance in Section 01 10 00.

PART 2 - MATERIALS

2.1 MANUFACTURERS

- .1 All materials specified are as manufactured by Johns Manville and IKO Industries Ltd. Equivalent products by Firestone Building Products Canada, Tremco, Soprema, or GAF are acceptable, subject to conformance with these specifications. The characteristics of the listed materials, including physical properties and performance statistics, shall be interpreted as forming part of these specifications.
- .2 All materials shall be the products of a single manufacturer, who shall provide the manufacturer's warranty specified above.

2.2 MATERIALS

- .1 Roofing Asphalts:
 - .1 Type 2 and Type 3 oxidized asphalts, conforming to CAN/CSA A.123.4.
 - .2 Provide a label on each container, or certification with each load, indicating flash point (FP), softening point (SP), and equiviscous temperature (EVT).
 - .3 Source of asphalts shall be approved by roofing materials manufacturer.
- .2 Roofing Felts:
 - .1 Glass felts conforming to ASTM D2178
 - .1 Premier type Glasply Type IV by Johns Manville, Type IV Glass by IKO,
 - .2 15lb organic saturated felts to CSA 123.6.
- .3 Asphalt Primer: Conforming to CGSB 37-GP-9A.
- .4 Roof Insulation:
 - .1 Polyisocyanurate insulation with coated glass facers, 1220 x 1220mm boards
 - .1 CAN/ULC S704, Type 2, Class 3; ASTM C 1289, Type II, Class 2, Grade 2 (20 psi)
 - .2 E'NRG'Y 3 CGF by Johns Manville, IKOTherm III rigid polyisocyanurate insulation by IKO,
 - .2 Lay insulation in 2 layers, in thickness to match existing roof.
- .5 Protection Board: 12mm "RetroPlus" board by Johns Manville, high density perlite based board, conforming to ASTM C728, or 12.5mm asphalt impregnated fibreboard conforming to CAN/CSA A247.
- .6 Tapered insulation:
 - .1 Standard fibreboard tapered insulation over flat fillers of polyisocyanurate insulation.
 - .2 Materials shall be as manufactured by the roofing materials manufacturer, and/or specifically approved by the roofing manufacturer for inclusion in the warranted roof assembly.
 - .3 As supplied by Accu-Plane Enterprise Inc., or Posi-Slope Enterprises;
 - .4 slopes as indicated on drawings (min. 2%).
- .7 Roof Ballast:
 - .1 clean, well graded stone within limits of 9.5mm to 15.9mm, no fines permitted.

- .8 Cant Strips:
 - .1 Wood fibre cants or perlite board cants. Use non-combustible perlite cants where flashings are torch applied.
 - .2 "Fescant Plus" perlite board by Johns Manville.
- .9 Sealant: One part polysulphide base, conforming to CAN/CGSB - 19.13.
- .10 Gypsum Board:
 - .1 DensDeck Fireguard Roof Board by Georgia Pacific, or equal by CGC; 16mm thick.
- .11 Vapour Barrier:
 - .1 DynaGrip Base P/SA, self-adhering membrane, by Johns Manville or IKO MVP self-adhering vapour retardant membrane.
- .12 Primer for Vapour Barrier: As recommended by vapour barrier manufacturer.
- .13 Mechanical Fasteners: FM approved fasteners and stress plates of type recommended by insulation manufacturer for FM approved system.
- .14 Modified Bituminous Roofing and Flashing System:
 - .1 Base sheet:
 - .1 181 g/m², SBS modified bitumen base sheet
 - .2 1 ply of "DynaBase PR" mop grade SBS modified bitumen membrane with polyester reinforcement, by Johns Manville; or 1 ply of "Modiflex MP-180-SS-Base", flexible reinforced polyester mat, sanded top surface, SBS modified bitumen base sheet, by IKO.
 - .2 Cap Sheet:
 - .1 250 g/m², SBS modified bitumen cap sheet
 - .2 1 ply of "DynaLastic Cap 250" modified bitumen membrane, polyester reinforced, white granular surfaced, SBS modified bitumen cap sheet by Johns Manville or 1 ply of "Modiflex Prevent MP-250-Cap" flexible reinforced polyester mat, Frostone Grey ceramic granular surfaced, SBS modified bitumen cap sheet by IKO.

PART 3 - EXECUTION

3.1 PREPARATION

- .1 Remove existing roofing in areas to be re-roofed; remove roofing only in areas that can be made watertight again in the same day; building must remain watertight at all times.
- .2 Examine conditions of existing deck, parapets, walls, drains, projections and openings, etc., and confirm suitability to receive new work. Advise Consultant immediately if existing deck or other substrates are in need of repair before re-roofing work can commence. Commencement of the work of this section will be taken as acceptance of existing conditions.
- .3 Examine materials over which Work of this Section are applied and ensure that roof deck is free of snow, ice, loose or adhering materials which would impair this Work. Substrate shall be clean, dry and suitable for roofing application.

- .4 Metal deck must be free of rust. Any surface rust must be removed and area coated with zinc-rich paint in conformance with CGSB 1-GP-181M; coat thickness one mil minimum. Do not install roofing over corroded deck; this must be removed and replaced by the Contractor.
- .5 The use of salts, or other ice melting chemicals, on the roof deck is not permitted.
- .6 Ensure that all redundant openings in roof deck have been covered. Refer to Section 02 40 00 for covering of redundant openings in existing roof deck.

3.2 WORKMANSHIP

- .1 Employ experienced and qualified workmen and competent supervision to ensure satisfactory installation in accordance with specified requirements.
- .2 Install roofing materials in accordance with manufacturers printed instructions and these specifications.
- .3 Maintain roofing equipment in good working order.
- .4 Provide a separate kettle for each type of roofing asphalt on site; no mixing of asphalt types will be permitted.
- .5 Apply asphalt generally within 13°C of its equiviscous temperature (EVT). Confirm EVT range of each type of asphalt with supplier.
 - .1 Where roof insulation is applied in asphalt mopping, apply asphalt at 15-20°C lower than the EVT for a heavier mopping, for an minimum application rate of 1.5kg/m².
 - .2 For flood coats for ballast adhesion, apply asphalt at 22-33°C lower than the EVT, for an application rate of 3.7kg/m².
- .6 Do not heat bitumens in excess of their final blowing temperature. Confirm final blowing temperature with supplier. Once asphalt exceeds these temperatures, the material will be considered unsatisfactory and must be removed from the site.
- .7 Construct roof in conformity to Class 1A roof assembly as approved by U.L.C. S126/S127.
- .8 Keep an accurate thermometer suspended in the heating kettle while the work is in progress and provide a similar thermometer to test bitumen temperature at point of application.
- .9 Locate bitumen kettles and tankers to avoid smoke discolouration of existing and adjacent buildings.
- .10 Handle and store materials carefully to prevent damage. Keep manufacturer's labels and seals intact. Store bitumen containers in an upright position and store roofing rolls on end to prevent flattening. Protect materials from moisture at all times. When temperature is below 5°C., store roofing felts in a warm atmosphere for 48 hours before using.
- .11 Do not apply roofing materials during inclement weather.

- .12 All plies of roofing felt, except when otherwise specified, shall be "mopped solid" and squeezed into bitumen. Apply felts in straight lines, free from air pockets, wrinkles, fishmouths, open laps or tears.
- .13 Do not leave installed insulation or roofing felts unprotected. Provide minimum 2-ply organic felts, fully coated with bitumen, and ensure that edges are sealed against penetration of moisture.
- .14 Where roofing elements are torch applied, confirm that no combustible items have been ignited. Carefully inspect roof areas with an infrared scanner for at least one hour after completion of days work and before trade leaves site, to ensure that there is no combustion.

3.3 CANT INSTALLATION

- .1 Provide fibre cants at junction of roof and all vertical surfaces and other locations where wood cants are not provided. Cants are to be installed after vapour barrier, as noted below.
- .2 Apply a continuous and uniform mopping of Type 3 asphalt to sufficiently cover the area being taken up by the cant, and while the asphalt is hot embed the cant strips into the asphalt.
- .3 Cut and fit around corners, angles, etc., mitre joints and seal with asphalt.

3.4 ROOFING - APPLICATION

- .1 Tie all new roofing into existing systems. Cut back existing roofing components as required to achieve successful tie in. Final flood coating and ballast shall be feathered out over adjacent, existing, roof areas.
- .2 Vapour Barrier
 - .1 Provide continuous vapour barrier over areas to receive new roofing, including over parapets, and tie into existing roof vapour barrier and into vapour barriers at walls, and other surfaces.
 - .2 Apply vapour barrier over surface of roof deck, prior to installation of wood nailers, blocking and cants. Extend up vertical face behind blockings and cants to top of cant. Provide vapour barrier under all cants and blocking and extend up and over parapets to join to wall vapour barrier, lapping all joints minimum 200mm.
 - .3 Vapour barrier shall be self-adhering membrane as specified above. Prime all surfaces to receive self-adhering vapour barrier in accordance with manufacturer's printed instructions.
 - .4 Provide additional vapour barrier under all cants and blocking and extend up vertical face behind blockings and cants to top of cant. Lap minimum 200mm onto first layer of vapour barrier.
 - .5 Apply self-adhering vapour barrier to primed surfaces in accordance with manufacturer's printed instructions, lapping all joints a minimum of 150mm.

- .3 Thermal Insulation
 - .1 Keep insulation dry at all times. Insulation showing evidence of having been dampened since its manufacture or separation of laminations shall not be used.
 - .2 Lay only as much insulation in one day as can be covered by felts the same day.
 - .3 Installed roof insulation which has become wet shall be removed and replaced with dry insulation.
 - .4 Lay insulation boards in parallel courses. Stagger end joints in alternative courses. Lay boards to moderate contact without forcing joints. Cut boards to fit neatly around projections through roof.
 - .5 Lay insulation in two layers, as follows:
 - .1 Over roof deck, fasten insulation base course with mechanical fasteners, with min. 5 plates per 1220 x 1220mm section. Secure insulation board within 1200mm of the roof perimeter over metal deck with 50% additional mechanical fasteners. Provide 75% additional fasteners within 1200mm of corners.
 - .2 Stagger joints in second layer half board width or length and embed second layer in full mopping of Type 3 asphalt.
 - .6 Reduce thickness of insulation at roof drains by 25mm to prevent puddling.
 - .7 Provide tapered insulation at locations noted on drawings.
 - .8 Install protection board over insulation in a full mopping of type 3 asphalt. Butt joints tightly together.
- .4 Roofing Felts
 - .1 Prior to commencing installation of roofing felts, ensure that the substrate is dry. Any moisture present in the top layer of the protection board will result in blistering and a potential delamination of the membrane from the substrate .
 - .2 Built up roofing membrane shall consist of one layer of 15lb organic felt and 4 plies of type IV glass ply felts.
 - .3 Installation shall start at lowest point of roof. Install membrane one ply at a time, parallel to flutes in metal deck.
 - .4 Over protection board, provide a single ply of #15 organic felt in a full mopping of asphalt, overlapping edges minimum 150mm.
 - .5 Over organic felt layer, install 4 plies of type IV glass ply felts, each ply lapped $\frac{3}{4}$ width of sheet plus 15 mm over the preceding sheet. Lap end joints minimum 150mm. Terminate all plies at the top of the cant strips, unless otherwise specified or detailed. Provide additional plies where detailed.
 - .6 Apply Type 2 hot asphalt uniformly and continuously at the rate of 1.2 kg/m² of roof area over the protection board and each layer of membrane.

.5 Graveling

- .1 Aggregate must be clean and dry before embedding into asphalt. In cold weather, heat aggregate as recommended by roofing manufacturer and roof inspector.
- .2 Apply flood coating of Type 2 asphalt at rate of 3.7 kg/m² and embed aggregate at rate of 20 kg/m².
- .3 A double pour of asphalt and gravel is required. After first pour, broom off all loose stone and apply additional 3 kg/m² asphalt and embed specified aggregate at rate of 20 kg/m².
- .4 Terminate aggregate at base of cant strips.

3.5 TWO PLY MODIFIED BITUMINOUS FLASHINGS

- .1 Apply modified bituminous flashings in accordance with membrane manufacturer's requirements and CRCA requirements for a 2 ply modified bituminous flashing system.
- .2 Apply modified bituminous base sheet with hot type 3 asphalt, with side laps of 75mm and end laps 150mm. Terminate base sheet at highest possible points and at parapets extend and mop-in over top ply roof felt.
- .3 Cap sheet flashing shall be mopped on.
- .4 To prevent possible voids at end/side laps at base or cap sheets, cut the corner piece off the selvage edge that will be covered by the next roll. The cut piece shall be the width of the lap (75mm) and extended along the selvage edge 150mm.
- .5 Stagger locations of all end laps on roof area minimum 75mm.
- .6 Cap sheet flashing shall be applied to extend down outside face of parapet, across top of parapet, down interior vertical surface and on to flat roof a distance of 150mm.
- .7 Cap sheet shall be mopped on in accordance with recommendations of the membrane Manufacturer.
- .8 Care must be taken to avoid asphalt seepage greater than 6mm. At seams, ensure that membrane is properly bonded, without air pockets, wrinkles, fishmouths or tears.
- .9 Cap sheet shall have side laps of 75mm and end laps 150mm. Surface granules on end laps shall be embedded prior to installation of following sheet.
- .10 After installation of the cap sheet, check all lap seams. Adhere and reseal all seams found to be poorly mopped and bonded.
- .11 Face nail total flashing system to outside face of parapet wood blocking with galvanized roofing nails.
- .12 At low roof/vertical wall interface where wall flashings extend down over mod bit flashings, lightly trowel a continuous 75mm width of cap sheet and lap and bond wall flashing onto mod bit flashing.

3.6 CLEANING

- .1 Prior to occupancy of building, clean roof of all debris.
- .2 Stone must be clean and white to maximize solar reflectance properties. Clean or replace any ballast stone that has been discoloured.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- .1 Vapour Barrier Section 07 26 00
- .2 Fibre-Reinforced Cementitious Panels Section 07 44 50

1.2 REFERENCES

- .1 ASTM A653M Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
- .2 ASTM A924M Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process
- .3 ASTM D2092 Standard Guide for Preparation of Zinc-Coated (Galvanized) Steel Surfaces for Painting
- .4 Canadian Sheet Steel Building Institute
 - .1 CSSBI S8: Quality and Performance Specification for Prefinished Sheet Steel Used for Building Products ()
 - .2 CSSBI 20M Standard for Sheet Steel Cladding for Architectural, Industrial and Commercial Building Applications
 - .3 CSSBI SSF 06 Metallic Coated Sheet Steel Products for Structural Building Products

1.3 QUALITY ASSURANCE

- .1 Work of this Section shall be executed by same trade specialists installing membrane roofing, in accordance with practices and details of Sheet Metal and Air Conditioning Contractors National Association (SMACNA) Architectural Sheet Metal Manual, current edition.

1.4 SUBMITTALS

- .1 Submit typical 300 mm long sample of flashing indicating design method of locking and method of anchoring and corner section fabricated from materials specified.

1.5 WARRANTY

- .1 Contractor hereby Warrants that Work performed under this Section shall remain free against leakage, joint spalling and similar defects in accordance with General Conditions, but for a period of **five (5) years**.

07 62 00 - SHEET METAL FLASHING AND TRIM

PART 2 - PRODUCTS**2.1 MATERIALS**

- .1 Metal Flashing:
 - .1 Minimum 26 ga. prefinished sheet steel supplied in flat sheet stock
 - .2 Baycoat Perspectra series, or Valspar WeatherX series, 2-coat finish system, colour to match existing metal flashing.
 - .3 locations: under existing flashing above new cementitious panel siding, at metal roof, and at other areas indicated on the drawings.
 - .4 See section 07 44 50 for metal flashing within areas of fibre-cement panels.
- .2 Nails: Chromium/Nickel, No.12 x 25mm flat headed, annular threaded stainless steel.
- .3 Cleats, Starter Strips and Back-up Plates:
 - .1 Same metal and thickness as metal flashing;
 - .2 cleats minimum 38mm wide and interlocked with metal flashing; starter strips, continuous.
 - .3 Back-up plates minimum 300mm wide where adjacent lengths of cap flashing meet, fabricated of same material thickness and finish as cap flashing.
- .4 Screws, Bolts and Expansion Shields:
 - .1 Non-ferrous metal compatible with adjacent surfaces.
 - .2 Exposed fastenings shall be same materials as metal surfaces through which they penetrate.
 - .3 Use cadmium plated screws with round heads suitable for soldering for galvanized Work.
- .5 Solder: ASTM B32-70, 50% block tin and 50% pig lead.
- .6 Flux: Commercial hydrochloric acid cut with zinc, or 10%-20% solution of orthophosphoric acid in water, for use with galvanized Work.
- .7 Sealant: One component polysulphide sealant, CAN2-19-13.
- .8 Flashing Paint: CGSB 1-GP-108c; Bakor Inc "Primer 910-02" or "Ace-of-Spades" quick drying asphaltic base paint.

PART 3 - EXECUTION**3.1 FABRICATION**

- .1 Examine site conditions where new metal flashing is to be installed, and take site measurements as necessary to accommodate existing conditions. Refer also to details on drawings.
- .2 Coordinate with forces modifying cementitious panel siding and providing openings in existing structure..
- .3 Where possible, shop fabricate flashing components in accordance with applicable requirements of SMACNA Architectural Sheet Metal Manual.

- .4 Carry out fabrication in clean shops, located away from areas where carbon steel is torch cut, ground, or cut with abrasive wheels to ensure that carbon steel dust will not be embedded in prefinished surfaces. Clean tools and dies which have been used on carbon steel prior to fabrication to prevent contamination of surface with carbon steel dust.
- .5 Form sheet metal on bending brake. Perform shaping, trimming and hand seaming on bench, where practicable, using proper sheet metal working tools.
- .6 Form sections square, true and accurate to size. Flashings shall be free from distortion, waves, twists, buckles or other defects detrimental to appearance and performance.
- .7 Make allowances for thermal movement when forming, installing, interlocking and soldering sheet metal Work to avoid buckling, fullness of metal straining of joints or seams. Maximum length of flashing pieces; 2400mm. Double back exposed edges at least 12mm for appearance and stiffness.
- .8 Fabricate flashings, copings, closures, plastic boxes, pipe sleeves and flashings for roof mounted equipment to details shown, unless otherwise indicated.
- .9 Wipe and wash clean, soldered joints immediately after joint is soldered to remove acid.
- .10 Where soldered joints are absolutely necessary and where approved for use in prepainted metal, clean paint off both surfaces before soldering for minimum area necessary.

3.2 INSTALLATION

- .1 Carry out Work in accordance with industry standard sheet metal practice with joints lapped, locked, cleated with "S" cleats and caulked or soldered as required. Hem exposed edges 12mm. Type of joints used shall be adequate for various conditions, subject to approval.
- .2 Fabricate exposed fastening, where used, in such a manner as to prevent water penetration at point of fastening.
- .3 Where indicated on drawings, lift existing metal flashing and insert new metal flashing below.
- .4 Provide starter strips where indicated or required to present true, non-waving, leading edge. Anchor to back-up to provide rigid, secure installation.
- .5 Make end joints where adjacent lengths of metal flashing meet using 300mm. long back-up flashing secured in place before installing flashing. Apply beads of caulking compound on face of back-up plate to seal ends of metal flashing. Leave 12mm wide space between end of adjacent lengths of metal flashings. Fabricate back-up of same material and finish as metal flashing with which it is being used. Make back-up plate exact profile of flashing allowing for thickness of flashing joints.
- .6 Form metal fascia with inner edge extended over fascia top and down cant to meet roofing aggregate. Nail with roofing nails and neoprene washers at 300mm C. Avoid placing nails in face of fascia, through membrane or flashing.

07 62 00 - SHEET METAL FLASHING AND TRIM

- .7 Interlock counter flashing pieces with prepainted metal base flashing and fold locking seam into position ensuring complete sealing. Continue counter flashing down to hemmed and sprung position at base of cant and junction of aggregate.
- .8 Provide underlay of resin sized paper under sheet metal installed over masonry, concrete or wood. Lay underlay dry as sheet metal Work is installed. Secure in place and lap joints 100mm.
- .9 Imperfections in sheet metal Work such as holes, dents, creases, or oil-canning is cause for rejection.
- .10 Repair existing sheet metal work damaged during installation of new metal flashing. Repair any damage to new flashing.
- .11 Wash entire installation down, and leave in neat condition.
- .12 Provide all flashings required for proper execution and completion of the Work in acceptable manner including metal flashing around equipment mounted on masonry walls being repaired.

END OF SECTION

PART 1 - GENERAL

1.1 WORK INCLUDED

- .1 Provide sealants at all new work, at cementitious panel siding, and as indicated on drawings.

1.2 RELATED WORK

- .1 Repair and Restoration of Unit Masonry Section 04 01 00
- .2 Fibre-Reinforced Cementitious Panels Section 07 44 50
- .3 Sheet Metal Flashing and Trim Section 07 62 00

1.3 APPROVED MANUFACTURERS

- .1 Sealant products of the following manufacturers are approved for use subject to meeting the specifications for the particular type of sealants listed below. However, this is not an approval to substitute another type of sealant for those specified unless the material manufacturer requests change in his product in writing to the Consultant.

- .1 Canadian General Electric Company Ltd.
- .2 Dow Corning Canada Inc.
- .3 Tremco

- .2 Sealant manufacturers must be willing to review Shop Drawings and drawing details, visit the site to review sealant installation and provide written reports to the Consultant.

1.4 INSTALLER QUALIFICATIONS

- .1 Sealants and caulking shall be installed by a specialized Subcontractor, having skilled mechanics thoroughly trained and competent in all aspects of caulking work, with minimum 5 years experience.

1.5 SUBMITTALS

- .1 Sealants:
 - .1 Submit samples of each sealant, in conformance with Section 01 33 23.
 - .2 Provide colour cards for Consultants selection.
 - .3 Submit written adhesion and compatibility approval from the sealant manufacturer for all materials to be sealed.

1.6 WARRANTY

- .1 Extend Contractor's warranty to **five (5) years**, in writing. Warranty shall commence on the date of Substantial Performance.
- .2 Defective work shall include, but not be restricted to, joint leakage, cracking, crumbling, melting, running, loss of adhesion, loss of cohesion, or staining of adjacent surfaces
- .3 Provide manufacturer's project-specific 20 year non-staining warranty and 10 year weatherseal warranty for sealant listed below.

07 92 00 - JOINT SEALANTS

PART 2 - PRODUCTS**2.1 SEALANTS**

- .1 Sealant: Non-Staining, primer less, silicone weather-proofing sealant:
 - .1 Contractors Weatherproofing Sealant (CWS) Contractors Concrete Sealant by Dow Corning
 - .2 conforming to the product properties published.
- .2 Refer to Section 07 44 50 for sealant at fibre-reinforced cementitious panels.
- .3 Colours of sealants and caulking when exposed in the finished work to later selection by the Consultant. Allow different colours for different situations and materials. Allow for custom colours for exterior sealants.
- .4 Primers for sealing: As manufactured or recommended by the manufacturer of the sealing materials for the specific applications.
- .5 Joint backing material:
 - .1 circular foam strips, of approved manufacture, compatible with sealant and 50% greater width than joint width;
 - .2 Vertical Surfaces: extruded polyolefin foam, Sof Rod by Tremco Ltd.
 - .3 Horizontal Surfaces: closed cell polyethylene foam, Standard Backer Rod by Tremco.
- .6 Bond Breaker: pressure sensitive plastic tape backing material, which will not bond to sealant; 3M #226 or #481, or Valley Industries #40.
- .7 Cleaning material for surfaces to receive sealant to be as recommended by the manufacturer of the sealant.

PART 3 - EXECUTION**3.1 SEALANT LOCATIONS**

- .1 Seal all exterior junctions and joints wherever required to close gap and wherever sealant is essential to maintain the continuity of air barrier, water barrier, or non-rated smoke separation of wall. Provide primers where recommended by sealant manufacturer. Areas to be caulked include:
 - .1 Concrete to metal, masonry, concrete and precast concrete.
 - .2 Masonry to metal, concrete, precast concrete, and masonry.
 - .3 Metal to metal, masonry, concrete, and precast concrete.
 - .4 Around pipes and conduit through foundation walls.
 - .5 Between hollow metal frames and screens and adjacent materials.

- .6 Between metal siding and metal panels and adjacent materials.
- .7 Between window, louvre, and skylight frames and sills and adjacent materials.
- .8 At all control and expansion joints.

3.2 SUPERVISION

- .1 Unless specified otherwise herein comply with the recommendations and directions of the manufacturer whose materials are being used on the work.
- .2 Arrange for the sealant manufacturer's technical representatives to visit the site prior to the commencement of the sealing to meet with the Contractor and the Consultant.
- .3 Sealant manufacturer to visit site periodically and to provide written reports to Consultant ensuring sealant is in accordance with good trade practice, the manufacturer's recommendations and the intent of this Specification.

3.3 PREPARATION

- .1 Install sealants only when surfaces and ambient temperatures are suitable for the material used, as per manufacturer's recommendations.
- .2 Clean all joints and spaces to be sealed.
- .3 Ensure that surfaces are structurally sound, free from grease, chalk, dust, debris, or other contaminants which may adversely affect the adhesion of the sealing materials. Use dry oil free clean compressed air stream if necessary to clean out the joint.
- .4 Clean surfaces with a solvent or cleaner recommended by the manufacturer of the sealant materials.
- .5 Test materials for indications of staining or poor adhesion before any sealing is commenced.
- .6 Submit colour chart to Consultant and obtain his written instructions for colours and locations of colours.
- .7 Provide templates for location of all support and anchorage for expansion joint covers.

3.4 PRIMING

- .1 Prime joints to prevent staining, to assist the bond, and to stabilize porous surfaces.
- .2 Apply primer with a brush which will permit the priming of all joint surfaces.

3.5 MASKING

- .1 Where necessary to prevent contamination of adjacent surfaces, mask the areas adjacent to the joints with masking tape.

07 92 00 - JOINT SEALANTS

3.6 INSTALLATION

- .1 Install joint backing materials at all locations as detailed or where required by sealant manufacturer's printed directions.
- .2 Install a bondbreaker tape or packing over asphalt impregnated fibre board as recommended by sealant manufacturer.
- .3 Ensure that the correct sealant depth is maintained.
- .4 Finished joints shall be free of wrinkles, sags, air pockets, ridges and embedded impurities.
- .5 Tool all sealant surfaces to produce a smooth surface.
- .6 Remove droppings and excess sealant as work progresses and before material sets.
- .7 Sealing materials shall be gun grade or tool grade consistency to suit the joint conditions.
- .8 Commence sealing only after all adjacent surfaces have been painted under Painting Section.

3.7 CLEANING

- .1 Clean adjacent surfaces immediately and leave work neat and clean. Remove excess sealant and droppings using recommended cleaners as work progresses. Remove masking after joint tooling.
- .2 Leave peel-off protective covering on expansion joint covers in place until all Work in area is complete. Prior to occupation of the building by the Owner, remove protective coverings and clean exposed metal in accordance with manufacturer's printed instructions.

END OF SECTION

PART 1 - GENERAL

1.1 WORK INCLUDED

- .1 Site clearing, rough grading, excavation, backfill and compaction, and finish grading.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- .1 Demolition and Alterations Section 02 40 00
- .2 Concrete Section 03 30 00
- .3 Fencing & Gates Section 32 31 00
- .4 Refer to Structural Drawings

1.3 SITE CONDITIONS

- .1 Establish the location of all utilities and buried objects prior to commencement of any work. Known underground and surface utility lines and buried objects are indicated on the drawings.
- .2 Contractor will be responsible for providing adequate site access and storage areas.

1.4 PROTECTION

- .1 Protect existing buildings, fencing, service poles, wires, underground services and paving located on this and adjoining properties from damage. Make good damage resulting thereto to the approval of the Consultant and at no cost to the Owner. Make good any damage due to inadequate bracing, or improper compaction of backfill at no cost to the Owner. Maintain carefully all bench marks, and other reference points. If disturbed or missing, replace as directed by a Registered Ontario Land Surveyor at no cost to the Owner.
- .2 Provide protection and heating as necessary where the bearing surface is in danger of freezing before concrete is poured.
- .3 Do not load vehicles employed in the cartage of materials beyond rated limits, nor in such a manner as to cause spillage. Promptly remove spillage and tire tracking on public property. Alert drivers to the right of way of pedestrians and other vehicular traffic at exit from the site.

1.5 FIELD QUALITY CONTROL

- .1 Employ the inspection and testing company appointed by the Consultant to test proposed fill material and to inspect, test and approve compaction of fill.
- .2 Costs of tests will be paid from the Cash Allowance included in the Contract. Refer to Section 01 10 00.
- .3 The Inspection & Testing company shall carry out the following:
 - .1 Inspect the subgrade prior to proof rolling to ensure that it is sufficiently dry and stable to carry out the proof rolling operation
 - .2 Inspect the source of the proposed granular material to determine the potential for the pit for quality consistency of the product.

31 20 00 - EARTH MOVING

- .3 Carry out grain-size analysis on sample of each type of granular fill to ensure that proper material is being placed.
- .4 Conduct constant compaction testing, using a nuclear moisture-density gauge, throughout the placement of all backfill material.
- .4 Co-operate with the inspection company and give adequate notification of any changes in sources of supply, additional work shifts and any other proposed changes.
- .5 The cost of such inspection and testing shall be paid for under Section 01 10 00. The cost of retesting unacceptable compaction shall be borne by the Contractor.
- .6 Any recommendation made on site by the Inspection & Testing Company which will result in extra cost must be approved by the Consultant BEFORE the work proceeds or claims for additional payment will not be accepted.
- .7 The Contractor shall be responsible for determining the quantity of fill that is likely to be usable on site, for landscape purposes only. Contractor must assume responsibility for drying of fill as required to achieve compaction results specified. All on-site materials must be approved for use by the Inspection Company, and are subject to the same testing requirements and standards as imported materials. Remove all materials which are deemed unsuitable for re-use. Note that all fill materials below building and paving areas must be imported materials.

1.6 SURPLUS MATERIAL

- .1 Remove surplus material from site. On site material, approved by Consultant, can be used as fill only at landscaped areas.
- .2 Remove material unsuitable for fill, grading or landscaping from site.

1.7 TRUCKING COSTS

- .1 The Contractor is responsible for all costs related to trucking required for the Contract. No extra costs will be considered for weight load or limits due to seasonal conditions or restrictions on load capacities imposed by any authorities or any similar limitations or factors.

PART 2 PRODUCTS

2.1 MATERIALS

- .1 Obtain Consultants approval of all material used as fill for grading work. Protect approved material from contamination.
- .2 All fill materials to be imported, from approved sources.

- .3 Fill material: approved materials free from organic matter, rubbish and other deleterious materials and complying with the following requirements:
 - .1 Fill Type F1: imported, clean, 19mm crusher run limestone, free from silt, clay, loam, friable or soluble materials and organic matter graded within the limits of OPSS granular Class 'B' Type 1 material
- .4 All granular materials must be approved by the Inspection and Testing Company.

PART 3 - EXECUTION

3.1 PREPARATION

- .1 Carefully examine Site including access to the Site.
- .2 Establish the extent and nature of the materials, which may be necessary to remove and the amount of fill to provide the required grades.
- .3 Check dimensions at the Site before commencing excavation work and report discrepancies to the Consultant.
- .4 Consult utilities to ascertain location of services. Promptly notify the Consultant if uncharted services or drainage lines are uncovered during excavation. Cap services to the approval of the utilities affected.
- .5 Provide suitably located concrete bench marks for elevation control and selected grid line references. Provide detailed line and grade staking for elements of the earth work.

3.2 SITE CLEARING

- .1 Clear area to be filled with crusher run limestone of remaining vegetation, sod, topsoil, paving, debris and granular bases as required by the extent of new work indicated on the drawings.
- .2 Dig out and remove all roots, boulders, loose rocks or other obstructions encountered. If any large rocks are excavated they may be left on site provided they are located as directed by the Consultant.
- .3 Remove materials unsuitable for fill, grading or landscaping from site.

3.3 GRADING AND EXCAVATION

- .1 Rough grade to depths required for surface finishes indicated.
- .2 Do all excavation required for the Work.
- .3 Prior to placing fill over existing ground at landscaped areas, excavate from existing surface to depth of 200mm. Maintain new fill and existing surface at approximately same moisture content to facilitate bonding.

31 20 00 - EARTH MOVING

- .4 Prior to placing fill over existing ground remove any wet and/or soft spots and re-compact the surface to 98% Standard Proctor Maximum Dry Density.
- .5 Ensure that subgrade is sloped to drain water away from the building; slope rough grade away from the building at minimum slope of 2% min.

3.4 DEWATERING

- .1 Keep excavations free from water until concrete is poured. Pump out and remove any free water and do not allow water to accumulate in the excavations.
- .2 Pumping of water containing silt in suspension into waterways, sewer or drainage systems is prohibited.
- .3 Dispose of water containing silt in suspension in accordance with local authority requirements. Silt fencing is required to contain silt on site.
- .4 Take full responsibility for maintenance of existing drainage, above ground and underground, adjacent to the Work or affected by the Work.
- .5 Before commencing any Work likely to affect the drainage of water from the Site, provide necessary alternative drainage systems to ensure that water will be conducted to alternative outlets. Do not block or impede any drain until such safety precautions have been made.

3.5 BACKFILLING

- .1 Do not backfill over frozen ground. Do not place backfill until the sub-grade has been inspected and approved. Do not backfill at ambient temperatures below 0°C. without approval. Do not use frozen materials as backfill. Be responsible for damage to buried services, due to backfilling.
- .2 Exercise care when backfilling against existing building foundations.
- .3 Fill locations:
 - .1 Use Type F1 fill to a minimum compacted depth of 200mm.
- .4 Properly roll, tamp or otherwise consolidate in place each layer of backfill. Maintain fill within 2% of its optimum moisture content. If fill is too dry, dampen it with water to obtain the water content required. If the fill is too wet, aerate it.
- .5 Spread fill in layers not exceeding 150mm uncompacted depth. Carry out fill operations systematically. Prevent segregation of particle sizes. Compact as detailed below.
- .6 After backfilling and compaction is completed, scarify surface to a uniform depth sufficient to eliminate depressions and irregularities.

3.6 COMPACTION

- .1 Compact until the required density is achieved. Do not compact any material containing frost.
- .2 Fill hollows and depressions which develop under compaction with matching backfill material. If the base becomes rutted or displaced due to any cause, regrade the surface.
- .3 Compact backfill by means of vibrator type equipment capable of achieving the desired degree of compaction. Use manually operated vibratory tampers in the proximity of foundations and in areas not readily accessible to roller equipment. Make good damage to the structure due to compaction and settlement of fill. Report damage to foundation promptly to the Consultant. Obtain approval of remedial procedures.
- .4 Compact Type F1 fill to refusal using 8 ton (7.26 tonnes) rollers or equivalent vibrators to 98% Standard Proctor Maximum Dry Density.
- .5 Make good any damage caused by uncompacted backfill at no cost to the Owner.

3.7 FINISH GRADING

- .1 Import and place topsoil to depths indicated at sodded, seeded and landscaped areas. Fine grade and loosen topsoil. Eliminate rough spots and low areas to ensure positive drainage.

END OF SECTION

PART 1 - GENERAL

1.1 WORK INCLUDED

- .1 Work includes all chain link fencing, posts, miscellaneous hardware, outriggers, accessories and concrete footings as detailed or required for a complete installation of chain link fencing.
- .2 Fences and gates shall be 2400mm high, above finished grade. Refer to Drawings.
- .3 Provide gates in fences as shown on Drawings. Gates shall be 1200mm wide, unless otherwise indicated on drawings, and shall be supplied with galvanized malleable iron hinges, latch and latch catch and hasp for padlock.

1.2 RELATED WORK

- .1 Construction fencing Section 01 50 00
- .2 Concrete Section 03 30 00
- .3 Metal Fabrications Section 05 52 00
- .4 Grading Section 31 20 00

1.3 REFERENCES

- .1 ASTM International:
 - .1 ASTM A392 Specification for Zinc-Coated Steel Chain-Link Fence Fabric
 - .2 ASTM A53M Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
 - .3 ASTM A90M Test Method for Weight of Coating on Zinc-Coated (Galvanized) Iron or Steel Articles.
 - .4 ASTM A123/A123M Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
 - .5 A153/A153M Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
 - .6 ASTM F552 Standard Terminology Relating to Chain Link Fencing
 - .7 ASTM F567 Standard Practice for Installation of Chain Link Fence
 - .8 ASTM F626 Specification for Fence Fittings
 - .9 ASTM F668 Standard Specification for Polyvinyl Chloride (PVC), Polyolefin and Other Polymer-Coated Steel Chain Link Fence Fabric
 - .10 ASTM A780 Standard Practice for Repair of Damaged and Uncoated Areas of Hot- Dip Galvanized Coatings
 - .11 ASTM F934 Standard Specification for Standard Colors for Polymer-Coated Chain Link Fence Materials
 - .12 ASTM F1043 Specification for Strength and Protective Coatings of Steel Industrial Chain Link Fence Framework
 - .13 ASTM F1083 Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures
 - .14 ASTM F1184 Standard Specification for Industrial and Commercial Horizontal Slide Gates
 - .15 ASTM F1664 Standard Specification for Poly(Vinyl Chloride) (PVC) and Other Conforming Organic Polymer-Coated Steel Tension Wire Used with Chain-Link Fence

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.16 ASTM F2329/F2329M Standard Specification for Zinc Coating, Hot-Dip, Requirements for Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, and Special Threaded Fasteners

.2 CSA Group:

.1 CSA-A23.1/ A23.2 Concrete Materials and Methods of Concrete Construction/ Test methods and standard practices for concrete

.3 Canadian General Standards Board:

- .1 CAN/CGSB-138.1 Fabric for Chain Link Fence
- .2 CAN/CGSB-138.2 Steel Framework for Chain Link Fence
- .3 CAN/CGSB-138.3 Installation of Chain Link Fence
- .4 CAN/CGSB-138.4 Gates for Chain Link Fence

.4 Ontario Provincial Standards:

- .1 OPSS.PROV 1541 Material Specification for Chain-link Fence Components
- .2 OPSD 972.130 Fence, Chain-link Installation - Roadway
- .3 OPSD 972.132 Fence, Chain-link Details and Table

1.4 **SHOP DRAWINGS**

- .1 Submit shop drawings in accordance with Section 01 33 23.
- .2 Shop drawings shall indicate locations of posts and gates, and identify all fencing materials, including hardware.

PART 2 - MATERIALS

2.1 **MATERIALS - CHAINLINK FENCE**

- .1 Fencing components: as indicated on drawings
- .2 Concrete mixes and materials: to Section 03 30 00, Cast-in-Place Concrete, and CAN/CSA-A23.1.
- .3 Chain-link fence fabric: to CAN/CGSB-138.1 with 38mm x 9 gauge steel wire mesh, zinc coated before weaving. Mesh selvages shall be knuckle/knuckle type; no twisted selvages are permitted.
- .4 Posts, braces and rails:
 - .1 to CAN/CGSB-138.2, hot dipped galvanized tubular schedule 40 steel pipe. Proper cleaning and preparation of the materials prior to finishing is required.
 - .1 End and straining posts: 89mm O.D.
 - .2 Line posts: 60mm O.D.
 - .3 Rails and braces: 42mm O.D.

- .4 Gate posts: 89mm O.D.
- .5 Gate frames: 48mm O.D.
- .6 Gate braces: 33mm O.D.

- .5 Tie wire fasteners: single strand, galvanized, 6 gauge steel wire, conforming to requirements of fence fabric.

- .6 Tension bar: minimum 5 x 20mm, galvanized steel.

- .7 Tension bands: minimum 3 x 20mm, galvanized steel.

- .8 Fittings and hardware:
 - .1 To CAN/CGSB-138.2, cast aluminum alloy, galvanized steel or malleable or ductile cast iron.
 - .2 Post caps to provide waterproof fit, to fasten securely over posts and to carry top rail, in profile as indicated on drawings.
 - .3 Hot dipped galvanized.

- .9 Grounding Rod: 16mm diameter x 3000mm long, copper well rod

- .10 Cold Galvanizing Compound: ZRC Galviliter Galvanizing Repair Compound by ZRC Worldwide.

2.2 FINISHES

- .1 Galvanizing:
 - .1 For chain link fabric: to CAN/CGSB-138.1 Grade 2.
 - .2 For pipe: 550 g/m² minimum to ASTM A90.
 - .3 For other fittings: to CAN/CSA-G164.

2.3 GATES - SWINGING

- .1 Fabricate gates with electronically welded joints; hot dip galvanize after fabrication.
- .2 Fasten chain link fabric to gates with twisted selvage at top.
- .3 Provide galvanized malleable iron hinges, latch and latch catch and hasp for padlock.

2.4 CONCRETE

- .1 Concrete mixes and materials to conform to Section 03 30 00, Cast-in-Place Concrete, and CAN/CSA-A23.1.

PART 3 - EXECUTION

3.1 ERECTION OF CHAIN LINK FENCING

- .1 Refer to drawings to confirm locations of fencing. Erect fence along lines as indicated and in accordance with CAN/CGSB-138.3.
- .2 Excavate post holes to dimensions indicated.

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- .3 Space line posts maximum 3000mm apart, measured parallel to ground surface.
- .4 Install end posts at ends and corners of fence, and at gates.
- .5 If distance between end or corner posts exceeds 150 metres, provide straining posts equally spaced at maximum 150m o.c. Install additional straining posts at sharp changes in grade.
- .6 Place concrete in post holes and embed posts into concrete to depths indicated. Ensure that concrete is not above ground level. Brace to hold posts in plumb position and true to alignment and elevation until concrete has set. Concrete for bases shall be 20 MPa concrete at 28 days in accordance with Division 03 of these specifications. Bases shall be 300mm diameter x min. 1200mm deep, with top sloped away from post. Concrete bases for fence at Childcare Play Area may be minimum 250mm diameter.
- .7 Do not install fence fabric until concrete has cured a minimum of 5 days.
- .8 Install brace between end posts and nearest line posts; gate posts and nearest line posts; and on both sides of corner and straining posts. Braces to be placed in centre of panel, parallel to grade.
- .9 Install top and bottom rails between posts and fasten securely to posts and secure waterproof caps.
- .10 Lay out fence fabric. Stretch tightly to tension recommended by manufacturer and fasten to end, corner, gate and straining posts with tension bar secured to post with tension bar bands spaced at 300mm intervals. Knuckled selvage to be located at bottom; and top.
- .11 Secure fabric to top rails, line posts and bottom rail with tie wires at maximum 450mm intervals. Give tie wires minimum two twists.
- .12 Nuts and Bolts for fittings shall be installed with the head on the exposed side of the fence. Bolts shall be peened over to prevent removal of the nut.
- .13 Clean fence and touch up finishes at completion of installation.

3.2 GATE INSTALLATION

- .1 Swing gateposts shall be installed in accordance with ASTM F 567. Direction of swing shall be as indicated on drawings.
- .2 Gates shall be plumb in the closed position having a bottom clearance of maximum 75 mm. Hinge and latch offset opening space shall be no greater than 75 mm in the closed position.

3.3 ELECTRICAL GROUNDING

- .1 Provide grounding, installed by a licensed electrician.

3.4 CLEAN UP

- .1 The area shall be left clean, neat and free of any debris resulting from the fence installation. Dispose of surplus material off site.
- .2 Remove any spurs or sharp points that could conceivably injure students or other users.
- .3 Touch up galvanized coating with cold galvanizing compound as required and to the satisfaction of the Consultant.

END OF SECTION