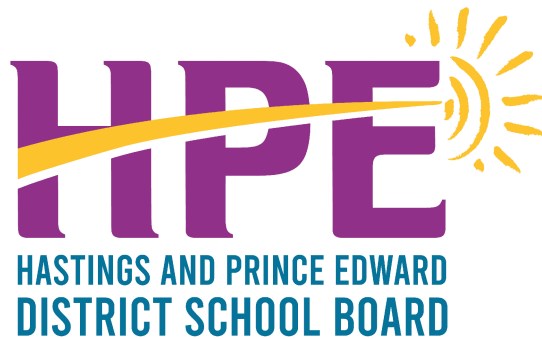


NORTH HASTINGS HIGH SCHOOL LIFT REPLACEMENT

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

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 31 00 Project Management and Coordination
- Section 01 32 00 Construction Progress Documentation
- Section 01 33 00 Submittal Procedures
- Section 01 33 23 Shop Drawings, Product Data and Samples
- Section 01 35 20 Safety Requirements
- Section 01 35 43 Hazardous Materials
- Section 01 41 00 Regulatory Requirements
- Section 01 42 13 Abbreviations and Acronyms
- Section 01 43 00 Quality Assurance
- Section 01 51 00 Temporary Utilities
- Section 01 56 00 Temporary Barriers and Controls
- Section 01 71 23 Field Engineering
- Section 01 73 00 Execution
- Section 01 74 00 Cleaning and Waste Management
- Section 01 77 00 Closeout Procedures
- Section 01 78 00 Closeout Submittals
- Section 01 82 19 Fire Rating and Assemblies

DIVISION 02 - EXISTING CONDITIONS

- Section 02 40 00 Demolition and Alterations

DIVISION 03 - CONCRETE

- Section 03 30 00 Cast-In-Place Concrete

DIVISION 04 - MASONRY

Section 04 05 13	Masonry Mortar and Grout
Section 04 05 19	Masonry Anchorage and Reinforcement
Section 04 05 23	Masonry Accessories
Section 04 22 00	Concrete Unit Masonry

DIVISION 05 - METALS

Section 05 52 00	Metal Fabrications
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DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES

Section 06 10 00	Rough Carpentry
Section 06 20 00	Finish Carpentry

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

Section 07 92 00	Joint Sealants
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DIVISION 09 - FINISHES

Section 09 01 61	Flooring Restoration
Section 09 01 69	Flooring Preparation
Section 09 22 16	Non-Structural Metal Framing
Section 09 29 00	Gypsum Board
Section 09 51 00	Acoustic Ceilings
Section 09 66 13	Terrazzo Flooring
Section 09 92 00	Painting and Repainting

DIVISION 14 - CONVEYING DEVICES

Section 14 42 16	Wheelchair Lift
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SUPPLEMENTARY INFORMATION

1. Assessment dated March 1, 2018, Pinchin File: 200584.030.
2. Asbestos Reassessment by Pinchin dated September 28, 2023, Pinchin File: 200584.080.

LIST OF DRAWINGS

ARCHITECTURAL DRAWINGS

A1 - O.B.C. Matrix / Partial Proposed & Demolition Plan / RCP / Elevations & Section.

Architectural
Moffet & Duncan Architects 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

- .1 A1 - O.B.C. Matrix / Partial Proposed & Demolition Plan / RCP / Elevations & Section.

END OF SECTION

1.1 **SUMMARY**

- .1 The purpose of this Contract is to replace existing platform style wheelchair lift including all associated work in an existing two storey school located at 14 Monck St., Bancroft, Ontario K0L 1C0.
 - .1 The Contract will include selective demolition and alterations, masonry, concrete work, flooring removal and repair, terrazzo flooring, drywall and acoustic work, painting, and electrical work, and other related work.
- .2 Access to the building will be provided on **June 23, 2026**.
- .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 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.
- .4 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.
- .5 These instructions for tendering must be FOLLOWED IMPLICITLY. An informal tender, not complying, may be thrown out and not considered.
- .6 Tenders shall be valid for **sixty (60) days** from the date of closing above.
- .7 Incomplete tenders may be considered informal.

1.3 **PHASING AND COMPLETION DATES**

- .1 Contractor will meet Substantial Performance date of **August 31, 2026**.
- .2 Materials and equipment with long delivery times must be ordered as soon as possible on award of Contract. Removal and replacement of existing heating and ventilating units can only occur when new equipment arrives on site and is ready for installation. Heating and ventilation of existing spaces is to be maintained throughout construction period.

SECTION 00 20 00 - SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

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 PREQUALIFIED SUBCONTRACTORS

- .1 Door Hardware and Key Suppliers

The successful respondent must retain HPEDSB approved Lock & Key supplier under Cash Allowance:

Gordon Locksmith Ltd.
117 Mineral Road, Unit #7,
Belleville, Ontario
K8N 4Z5

1.13 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.

1.14 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.

1.15 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 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 and 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	<u>Delete</u> the Definition of <i>Payment Legislation</i> and replace it with “Construction Act” as follows: “ Construction Act <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.”
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	<u>Add</u> the following definition: “ Adjudication <i>Adjudication</i> means construction dispute interim adjudication as defined under the <i>Construction Act</i> .”
SC7.5	Close-Out Documentation	<u>Add</u> the following new definition: “ Close-Out Documentation <i>Close-Out Documentation</i> has the meaning given to it under GC 5.4.2.”
SC7.6	Confidential Information	<u>Add</u> the following definition: “ Confidential Information <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: .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	<u>Add</u> the following definition: “ Construction Schedule <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,

		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"): </p> <ul style="list-style-type: none">.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>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:</p> <ul style="list-style-type: none">.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,<ul style="list-style-type: none">(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>
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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	<p><u>Add</u> new GC 5.8 – DEFICIENCY HOLDBACK as follows:</p>
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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 by Pinchin dated September 28, 2023, Pinchin File: 200584.080.

1.4 LIST OF DRAWINGS

.1 ARCHITECTURAL DRAWINGS

A1 - O.B.C. Matrix / Partial Proposed & Demolition Plan / RCP / Elevations & Section.

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.

SECTION 01 10 00 - GENERAL INSTRUCTIONS

- .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.

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.

SECTION 01 10 00 - GENERAL INSTRUCTIONS

- .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 basketball backstops) or elements (ie folding partitions) are supported by 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.
- .7 Build temporary stairs with handrail for access to upper floors until permanent stairs are in place.

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.

SECTION 01 10 00 - GENERAL INSTRUCTIONS

- .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.

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, opening of operable partitions or curtains, raising of basketball backstops, 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.

SECTION 01 10 00 - GENERAL INSTRUCTIONS

- .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.
 - .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
Finish Carpentry	2
Caulking and Sealants	2
Finish Hardware	3
Acoustic Ceilings	2
Painting	2
Wheelchair Lift	3

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 **\$30,000.00**, to be expended as outlined below, which shall apply to the following aspects of the Work:
 - Hazardous Materials Abatement
 - Authorities Having Jurisdiction (fees, not deposits)
 - Concrete Inspection
 - Mortar and Grout Inspection
 - Steel Inspection
 - Deflection and Lateral Supports Angle Inspection

SECTION 01 10 00 - GENERAL INSTRUCTIONS

Finishing Hardware Supply Only
Hardware Inspection (Third party)
Interior Signage Supply and Installation
Communications System Modifications
Record Drawings- Architectural, Electrical

- .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.

SECTION 01 10 00 - GENERAL INSTRUCTIONS

- .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.
- .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.

SECTION 01 10 00 - GENERAL INSTRUCTIONS

- .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.
 - .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.

SECTION 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 inform the Consultant of their choice for Site Supervisors and shall provide resumes outlining qualifications and related work experiences.
- .3 Site Supervisor shall have as a minimum:
 - .1 Recent, previous experience with renovation or addition projects involving occupied buildings including (but not limited to) school construction, sites with students, tenants, employees, retail customers, pedestrian and vehicular traffic.
 - .2 Successful completion of a multi-session Supervisor's training course conducted by a recognised Construction Association in Ontario.
- .4 The Supervisors must be assigned to projects for the duration of the construction period, until the buildings are fully occupied by the Owner.
- .5 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.
- .6 There shall be a minimum of one full time Site Supervisor dedicated to the site.
- .7 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.
- .8 Once the Supervisors are confirmed, there will be no change permitted without the written consent of the Consultant.

1.2 CONSULTANT/CONTRACTOR MEETING

- .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 second week.

1.3 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.

SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

- .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.

1.4 PROJECT MEETINGS

- .1 Consultant shall Chair project meetings on Site, on a regular basis and will issue minutes to Owner's Representative, Consultants, and Contractor.
- .2 Consultant shall take minutes of meeting showing:
 - .1 List of persons attending.
 - .2 Decisions taken.
 - .3 Instructions required or issued - Allocating responsibilities to action items.
 - .4 All matters discussed.
 - .5 Schedule Update - Progress, Delays.
- .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.

1.5 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 - Printed in full colour or redline
 - .3 All instructions and changes, i.e. Work Authorization, Jobsite Instructions, Notices of Contemplated Change, Change Orders, etc.

SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

- .4 All inspection and test reports
 - .5 Permit drawings and specifications
 - .6 Authorizations, approval documents, permits, special rulings, etc., issued for the project by Authorities Having Jurisdiction.
 - .7 Details of tested assemblies being used on the project; ULC, cUL, etc.
 - .8 As-Built drawings.
-
- .2 Confirm with building inspector, at the commencement of construction, what documents are required for submission both during construction and for occupancy. Keep copies of such documents on site. Refer also to Section 01 41 00, Regulatory Requirements.
 - .3 Documents listed above shall be printed, full size documents, not only digit format.
 - .4 Maintain copies of Regulating Documents referred to in the specifications, up to date, in the site office.
 - .5 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.

END OF SECTION

PART 1 - GENERAL

1.1 SCHEDULE

- .1 Within fifteen (15) 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, where possible.
 - .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 schedule shall be reviewed and updated at every Site meeting.
- .4 Include with each update a written report of activity progress reflected in the revised Schedule, and the corrective actions which have been made or are to be taken to maintain progress on the schedule in the future, anticipated delays, resources availability, schedule changes, and work to be completed in the next 2 month period.

1.2 UPDATING AND MONITORING

- .1 Set up format of Construction Schedule to allow plotting of actual progress against scheduled progress.
 - .1 Allow sufficient space for modifications and revisions to the Schedule as Work progresses.
 - .2 Format shall be approved by the Consultant.
- .2 Display copy of Schedule in Site office during complete construction period and plot actual progress weekly.
- .3 Updating:
 - .1 Arrange participation, on Site and off Site, with Subcontractors and Suppliers, as and when necessary for the purpose of updating schedule and monitoring progress.
 - .2 Conduct reviews of progress and update schedule, distributing copies to Consultant, Owner and Sub-Trades at least once a month or as directed by Consultant.

SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

1.3 PROGRESS REPORTS

- .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 Record to show dates of commencement and completion of trades and parts of the work coming under the Contract, including reports on daily weather conditions, excavation work, erection and removal or forms, and other similar pertinent information.
- .4 Report delays (and potential delays) giving reason for delay and action being taken to resolve the problem.

1.4 PROGRESS PHOTOGRAPHS

- .1 Concurrently with monthly application for payment, submit electronic format colour images clearly showing overall progress of Work. Include, in particular, any work completed since the most recent site meeting and Consultant field review.

1.5 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. The report shall be typewritten on the Contractors letterhead. A copy of the report format shall be submitted at least 2 weeks prior to the first progress draw, for review. 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.

END OF SECTION

PART 1 - GENERAL

1.1 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 Shop Drawing Schedule.
 - .5 Permits required for work of Mechanical Trades (Divisions 21, 22 23, and 25) and Electrical Trades (Divisions 26, 27 and 28).
 - .6 Permits for temporary structures, hoists, etc.
 - .7 Schedule of Values: Refer to General Conditions of Contract.
 - .8 Estimate of monthly progress claims (cash flow schedule).
 - .9 Construction Schedule.
 - .10 Equipment Delivery Schedule.
- .2 Concurrently, with schedule of values, submit cash flow schedule broken down on a monthly basis, indicating anticipated monthly progress billings for duration of the Contract.
- .3 Submit schedule in a format acceptable to the Consultant. Indicate anticipated submission dates and review periods. Highlight critical items.
- .4 Submit, in a format acceptable to the Consultant, a list of manufactured equipment complete with order dates, anticipated delivery dates, and dates required on site to meet progress schedule. Update schedule at least once a month or more often if directed by the Consultant. Clearly indicate late deliveries and anticipated impact on construction schedule. Include in schedule required delivery dates for products supplied by Owner.
- .5 Schedule of Values:
 - .1 Before submitting first request for payment, 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.

SECTION 01 33 00 - SUBMITTAL PROCEDURES

1.2 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 Documents specified under Section 01 10 00, General Instructions and Section 01 33 23, Shop Drawings, Product Data and Samples.
- .4 Progress photographs, submitted concurrently with monthly application for payment. Refer to Section 01 32 00.
- .5 Any permits required from Authorities Having Jurisdiction enabling Owner to occupy the work (or part thereof) prior to Substantial Performance of the Contract.
- .6 As-Built Documents:
 - .1 The Owner requires as-built documents for all architectural and electrical changes on completion of the construction.
 - .2 The Contractor, and mechanical and electrical Subcontractors 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 78 00, Close-out Submittals.
 - .8 Mark "as-built" changes in red coloured ink.

- .9 Record following information:
 - .1 Depth of various elements of foundation in relation to first floor level if different from contract documents.
 - .2 Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvement.
 - .3 Location of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure.
 - .4 Field changes of dimension and detail.
 - .5 Changes made by Change Order or Supplementary Instructions.
- .10 Clearly mark each of the drawings, "Project As-Built Record Copy".
- .11 Final completion of these Drawings shall be a condition precedent to the issuance of Consultant's final payment certificate.
- .12 Refer to Mechanical and Electrical Specification Divisions for more specific requirements regarding preparation and submission of final Record Drawings.

END OF SECTION

SECTION 01 33 23 - SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 - GENERAL

1.1 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 Allow reasonable promptness for Consultant to review submissions, exclusive of time required for inter-office transmissions.
- .3 All shop drawings must be reviewed and stamped by the Contractor prior to submission to the Consultant.

1.2 GENERAL

- .1 Submit to Consultant, for review, Shop Drawings, Product Data, Samples, and other required submittals specified.
- .2 All shop drawings and related submittals must be reviewed and stamped by the Contractor prior to submission to the Consultant.
- .3 Until submittal is reviewed, Work involving relevant product may not proceed.
- .4 Do not use for construction, Shop or setting Drawings or diagrams which do not bear Consultant's stamp and name of reviewer.
- .5 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.
- .6 Shop drawings shall be for products as specified or otherwise approved by the Consultant. The shop drawing process is not a means of requesting substitutions. Refer to Section 01 10 00, for the process for requesting approval of substitutions.
- .7 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.
- .8 The Contractor must include for delivery and pick up of shop drawings to/from the Consultant by hand or courier.
- .9 The Contractor must include for reproduction of shop drawings *after* review by the consultants.

1.3 SHOP DRAWINGS

- .1 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. Shop drawing submissions shall show pertinent information for incorporation of the products and equipment, including the following, as applicable:
 - .1 fabrication details
 - .2 dimensioned layout drawings, including clearances, with site dimensions

SECTION 01 33 23 - SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

- .3 relationship to adjacent work
 - .4 setting or erection details
 - .5 performance requirements
 - .6 operating weights of equipment
 - .7 installation instructions
 - .8 service connection requirements, including wiring diagrams
 - .9 single line and schematic diagrams
 - .10 additional information as may be specified in applicable Specification Sections.
- .2 Note that some shop drawings are required to be approved by a Professional Structural Engineer in the Contractor's employ. These include:
- .1 structural steel
 - .2 reinforcing steel
 - .3 precast concrete
 - .4 stairs, ladders, and railings
 - .5 mechanical and electrical equipment - structural supports
 - .6 and other items as required in the specifications.
- .3 Submit Shop Drawings with transmittal forms listing:
- .1 the project name and number
 - .2 the names of the manufacturer, supplier, subcontractor
 - .3 the applicable Drawing numbers
 - .4 the number of copies
 - .5 the names of the items included the submittals
 - .6 number of Specification section to which the Shop Drawings refer
 - .7 dates and revision numbers, and submission numbers
- .4 All dimensions on shop drawings must be in metric.
- .5 Where approvals are required by Authorities having jurisdiction, submit Shop Drawings to those authorities and obtain the approvals required.
- .6 On Shop Drawings for fire rated assemblies show required fire rating and ULC design numbers.
- .7 Submit two (2) to five (5) copies of printed shop drawings as follows:
- .1 Submissions shall be in sufficient quantities for distribution to all reviewers, plus one copy to be returned to the Contractor for reproduction and distribution.
 - .2 The prime Consultant requires one copy of every submission, of all disciplines.
 - .3 Each sub-consultant, of each discipline, will retain one copy of the shop drawings. Where one sub-consultant is responsible for the review of more than one discipline, they will require multiple copies, as applicable.
 - .4 For architectural submissions which do not need to be reviewed by sub-consultants, only two copies are required.
 - .5 Refer to sections prepared by the sub-consultants for possible variations on these requirements.

SECTION 01 33 23 - SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

- .8 Email Submission:
- .1 Submittals that are formatted for 11" x 17" (279 x 432mm) sheets or smaller may be submitted by email, provided the total number of pages, for the entire submission, does not exceed 15.
 - .2 Submittals must be submitted in the same size and scale as they were originally prepared. Drawings may not be reduced in size for email transmission.
 - .3 If acceptable to the individual reviewers, larger format submittals and larger volume submittals may be reviewed by email submission. The Contractor must subsequently print and submit full sized, red line copies of such reviewed documents to the Consultant.
 - .4 Email submissions must be in pdf format and must be high quality documents, preferably generated by computer from the original documents (rather than scans of printed documents). If digital submissions are of insufficient quality, hard copies will be required.
 - .5 Emailed documents shall be reviewed and stamped digitally by the Contractor, or accompanied by a separate sheet from the Contractor listing the documents reviewed and bearing the Contractor's review stamp, along with copies of any revisions made.
 - .6 Email submission is only used as a convenient means of distributing drawings, in lieu of sending hard copies by courier. Reviewed drawings must still be printed for job site files, record copies, etc. All site copies shall be red line prints or colour prints.
- .9 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 the Consultant.
- .10 Shop drawings are to be to scale. Scale shall be large enough to adequately review details included. Provide site measured dimensions on drawings wherever possible.
- .11 All requirements for shop drawings apply also to resubmissions of shop drawings, as may be required by the Consultant.
- .12 Revise all reviewed shop drawings to incorporate Consultant's comments. One complete set of final, revised Shop Drawings, used for construction, shall be submitted to the Consultant.
- .13 Shop Drawings are required for the following items:
- Concrete and masonry Reinforcement
 - Architectural Metals
 - Structural Steel
 - Terrazzo Flooring
 - Wheelchair Lift
- Mechanical and Electrical Equipment as listed in those specification sections
Other items as may be requested within the specifications

SECTION 01 33 23 - SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

- .14 Refer also to the General Conditions of the Contract and Section 00 73 00, Supplementary Conditions.

1.4 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 Indicate operating weight of equipment.
 - .6 Show wiring diagrams and controls.
 - .7 Add to standard sheet the Project identification data.

1.5 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.

1.6 CONTRACTOR'S RESPONSIBILITY

- .1 Prior to submission to the Consultant, review all shop drawings, samples, product data, and other required submittals as follows:
 - .1 Verify that the submission is for products as specified, or otherwise approved by the Consultant.
 - .2 Ensure that the submission is complete.
 - .3 Note any potential interference issues and co-ordinate with the trades to avoid these conflicts.
 - .4 Verify:
 - .1 Field measurements.

SECTION 01 33 23 - SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

- .2 Field construction criteria.
- .3 Catalogue numbers and similar data.

- .2 Coordinate each submittal with requirements of Work and Contract Documents. Refer to Section 01 10 00, General Instructions, and the subsection on Coordination.
- .3 Notify Consultant, in writing at time of submission of any deviations in submittal from requirements of Contract Documents.
- .4 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).
- .5 The Contractor shall be responsible for reproducing and distributing reviewed shop drawings, except for those copies required by the Architect and Consultants.
- .6 After Consultant's review, distribute copies as follows:
 - .1 Job Site file (2 copies) - colour or redline copies
 - .2 As-built 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 Owner's Maintenance Manual (revised, as-built copies).
- .7 Distribute samples as directed by the Consultant.
- .8 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.
- .9 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.

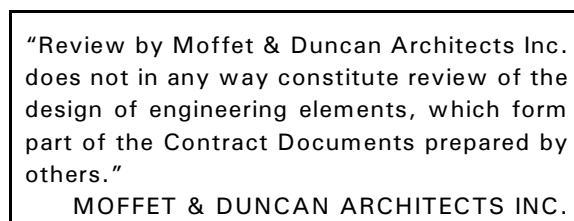
1.7 CONSULTANT'S RESPONSIBILITY

- .1 With reasonable promptness from the receipt of samples and Architectural shop drawings, the Consultant shall review them and return them to the Contractor. Allow 15 working days for review of shop drawings.
- .2 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

SECTION 01 33 23 - SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

information that pertains solely to the processes or techniques of construction and installation and for co-ordination of the work of all subtrades.

- .3 Shop drawing markings shall be interpreted as follows:
 - .1 Shop drawings marked "REVIEWED" by Consultant and/or Subconsultants are released for construction.
 - .2 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.
 - .3 Shop drawings 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.
 - .4 Shop Drawings marked with the Consultant's "RECEIVED" stamp only have not been reviewed by the Consultant.
- .4 Review by the Architect does not in any way constitute review of the design of engineering elements, which form part of the Contract Document's prepared by others.
- .5 Shop drawings for products that are not a specified item, or an approved substitution, will be rejected without being reviewed.
- .6 Shop drawings which have not been requested will be returned to the Contractor with no action taken by the Consultant.
- .7 The Architect will use the following stamps in reviewing Shop Drawings:



SECTION 01 33 23 - SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

REVIEWED	<input type="checkbox"/>
REVIEWED AS NOTED	<input type="checkbox"/>
REVISE AND RESUBMIT	<input type="checkbox"/>
<p>“This review by Moffet & Duncan Architects is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Moffet & Duncan Architects Inc. approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawings or his responsibility for meeting all requirements of the Construction and Contract Documents. The Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of the work of all sub-trades.”</p> <p style="text-align: center;">MOFFET & DUNCAN ARCHITECTS INC.</p>	
REVIEWED BY	
DATE	
PROJECT No.	

END OF SECTION

PART 1 - GENERAL

1.1 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) and Municipal Statutes and Authorities.
 - .1 The Contractor is again reminded that the Contractor is responsible for Occupational Health and Safety on this project. The items listed below are only guidelines of the Owner's expectations in this regard and not to be construed to be comprehensive or total in nature.
- .2 In particular, the Ontario Construction Safety Act, the regulations of the Ontario Department of Labour and Ontario Hydro Safety Requirements shall be strictly enforced.
- .3 In event of conflict between any provisions of above authorities the most stringent provisions will apply.
- .4 The Owner will take every reasonable precaution to prevent injury or illness to students, employees and the public, participating in Owner activities, or performing their duties. This shall be accomplished by providing and maintaining a safe, healthy working environment and by providing the education necessary to perform these activities or duties safely.
- .5 The Owner is also vitally interested in the health and safety of Contractors and their workers performing work for the Owner. Cooperation and support of the Contractor in the protection of the workers from injury or occupational disease is a major, continuing objective of the Owner. To achieve these goals, the Owner, in concert with the Contractors, will endeavour to make every effort to ensure that the Contractors provide a work site which is a safe and healthy work environment. The Owner insists that all Contractors and their workers are dedicated to the continuing objective of reducing risk and injury.
- .6 The Contractor covenants and agrees to comply with all statutory and other obligations, including without limitation, the provisions of the Occupational Health and Safety Act (Ontario) and all Regulations thereto, and all amending and successor legislation, in connection with all work performed by either the Contractor, Sub-contractors, or any Other Contractor on, or in connection with, the Project.
- .7 Without limiting the foregoing, for the purposes of this Contract, the Contractor agrees that it shall be the "constructor" of the Project within the meaning of the Act, and as such, shall assume all the obligations and responsibilities, and observe all construction safety requirements and procedures, and duties of inspection imposed by the Act on the "constructor", as therein defined, for all work and services performed by the Contractor, Subcontractors and Other Contractors on or in connection with the Project. The Contractor further covenants and agrees that the Owner and its existing and former officers, trustees, employees and agents, and their respective heirs, executors, administrators, successors and assigns shall be released from any obligations or liabilities otherwise imposed on the Owner, or on any of them, pursuant to the Act in connection with the Project, and that the Contractor shall assume all liability and responsibility in connection with same. The Contractor agrees to save harmless and indemnify the Owner from any losses, damages, costs and expenses of any kind, or nature whatsoever, including all

SECTION 01 35 20 - SAFETY REQUIREMENTS

- legal expenses, and all defence costs and related expert or consulting fees, incurred by the Owner, or any of them, arising in connection with the failure, default, or inability of the Contractor of the Owner, or any of them, to comply with any of the aforementioned statutory, or other legal requirements, or arising in connection with any breach by the Contractor of any of its covenants, agreements and obligations under this Contract.
- .8 The Contractor shall inform and instruct Other Contractors that they, while performing work on this project, are under the authority of the Contractor. Other Contractors are to discuss and coordinate with, and follow instructions from, the Contractor on all matters of site access, vehicles, deliveries, storage, temporary facilities, coordination with the work of other subcontractors, work methods, scheduling, labour conditions, construction safety, environmental protection, security and all other matters which relate to the safe and proper execution of construction work.
- .9 The Contractor shall ensure that all supervisory personnel on job site are fully aware of the procedures and requirements outlined herein and comply with all requirements specified.
- .10 All contractors are responsible to ensure that all machinery and/or equipment are/is safe and that the workers perform their tasks in compliance with established safe work practices or procedures. Workers must receive adequate training in their specific work tasks to protect their health and safety.
- .11 The Contractor shall be responsible for all persons and companies performing work, including other Contractors, on this project, at all times, up to and including, the date of Substantial Performance of the Work. Authority for coordination and instructions relating to all matters which relate to the safe and proper execution of construction work shall rest with the Contractor. The Contract Price will include the Contractor's fees for the coordination and supervision of the work of all other contractors.
- .12 In addition to the responsibility of all contractors as outlined in 1.1.10, above, Subcontractors will be held accountable for the health and safety of workers under their supervision.
- .13 Every worker must protect his/her own health and safety by working in compliance with the law and with safe work practices and procedures established by the authorities having jurisdiction.
- .14 All sections of the Occupational Health and Safety Act for Industrial Establishments, latest edition, and the Occupational Health and Safety Act for Construction Projects, latest edition, shall be enforced, by the Contractor, in their entirety, throughout the duration of the construction project.
- .15 The Contractor shall provide the Consultant with the telephone number where the Contractor or his representative can be reached at any time, day or night, for the duration of the contract.
- .16 Where an accident, explosion, or fire causes a person injury at the work place, and the worker is disabled from performing the usual task, the Contractor shall prepare a written notice and shall forward same to the Ministry of Labour within four days of the occurrence with a copy to the health and safety representative or the Joint Health and Safety Committee, containing such information and particulars as may be prescribed.

- .1 Where a person is killed or critically injured from any cause at the work place, the Contractor shall immediately call the Ministry of Labour. A written notice from the Contractor shall be given to the Ministry of Labour within forty-eight hours after the occurrence, containing such information and particulars as may be prescribed, with copies to the Consultant and the Owner's Representative.
- .2 The Contractor is advised that the accident scene is 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.

1.2 REPORT ACCIDENTS

- .1 Promptly report in writing to the Consultant 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 relevant public authorities.
- .2 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.

1.3 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.

1.4 FIRE SAFETY REQUIREMENTS

- .1 The appropriate clauses of the Ontario Building Code, Ontario Fire Code, National Building Code of Canada and National Fire Code relating to fire safety and protection shall be strictly followed.
- .2 Provide and maintain free access to temporary or permanent fire hydrants acceptable to local fire department.
- .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 Maintain existing exits and access to exits. Where an exit must be blocked, provide an alternate exit acceptable to Authorities Having Jurisdiction.

SECTION 01 35 20 - SAFETY REQUIREMENTS

- .2 Provide minimum 45 minute rated fire separations at junction between existing corridors in occupied spaces and new corridors under construction. Any required access through these partitions shall be with rated doors, frames with closers and latching.
- .3 Maintain exiting fire department access route or provide new, or temporary, access route acceptable to the fire department.
- .4 Do not store combustible materials adjacent to existing building or where such materials could pose a fire hazard to the building or the occupants.
- .5 Cover existing windows exposed to construction with 16mm gypsum board on steel stud framing, on interior side of such windows. Louvres shall be similarly protected. Replace doors exposed to construction with hollow metal doors.
- .6 Where temporary openings are made in existing floors, pack with mineral wool insulation to create temporary fire barrier.
- .7 Existing fire alarm system is to be kept operational throughout the construction period. Keep fire department informed of any temporary shutdowns and arrange for alternate fire safety measures to be implemented during that period.
- .8 Refer to the Ontario Fire Code for requirements for temporary shutdown of fire protections systems, including sprinklers and standpipe systems.
- .9 Modify Fire Safety Plan in accordance with the Fire Code, when required to facilitate construction. Such modifications shall be determined in cooperation with the Owner and the local fire department.

1.5 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.

1.6 FALSEWORK

- .1 Design and construct falsework in accordance with CSA S269.1 latest version.

1.7 VISITORS

- .1 Provide hard hats for use by all visitors.

1.8 ADDITIONAL REQUIREMENTS FOR OCCUPIED SITES

- .1 The existing school will be occupied throughout the academic year. When 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.

SECTION 01 35 20 - SAFETY REQUIREMENTS

- .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.
- .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.

1.9 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., mounted on all sides of Site, 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. Safety Signage is also required at all construction entrances
- .2 During the school year, signage posted at gates shall state restrictions on hours of entry and egress, as agreed to by the Owner and Principal, and under no circumstances shall construction traffic be allowed within 30 minutes prior to school start, during recess, lunch break, and within 30 minutes after school dismissal.

END OF SECTION

PART 1 - GENERAL

1.1 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 The Owner commissioned a survey of hazardous building materials and identified asbestos and other hazardous materials in the building; refer to the Hazardous Materials Report included in the Supplementary Information volume.
 - .1 Abatement work will be undertaken in the building under the direction of the Owner's Abatement Consultant.
 - .2 Costs Allowance carried in the Contract. Contractor to coordinate the activities of the Abatement Contractor and the work of other subcontractors.
- .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. Such precautions may include, for the substances listed, the measures outlined below.
- .4 Remove, transport, and dispose of hazardous materials in accordance with applicable laws, including the following:
 - .1 Occupational Health and Safety Act, R.S.O. 1990, c. O.1., including the following regulations made under the Act:
 - .1 O.Reg. 213/91, Construction Projects, amended to 345/15 and
 - .2 O.Reg. 278/05, Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations amended 479/10.
 - .2 Regulations for the transport of asbestos waste, including:
 - .1 Transportation of Dangerous Goods Act, 1992 (1992, c. 34)
 - .2 Dangerous Goods Transportation Act, R.S.O. 1990, c. D.1
 - .3 Environmental Protection Act, R.S.O. 1990, C. E.19, and regulations under the Act, including:
 - .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 R.R.O. 1990, Reg. 347: General - Waste Management
- .5 Where a friable building material is found enclosed in a wall, floor or ceiling such as fireproofing, insulation on pipe or ducts etc. (that is not fibrous glass) or an acoustical textured material (stucco) or a non-friable material such as cement board or cement pipe, the Contractor shall refer to the Consultant who shall contact the Owner for further direction.
- .6 Prior to the disposal of building materials a leachate toxicity test in compliance with Water Management Regulation (Revised Regulation of Ontario 1990/Regulation 347) may be required by the local waster receiving site or the Ontario Ministry of Environment and Energy. Prior to disposal these authorities should be consulted with, and tests performed where required.

END OF SECTION

PART 1 - GENERAL

1.1 REGULATING DOCUMENTS

- .1 Conform to the Ontario Building Code (Ontario Reg. 332/12), Ontario Fire Code (Ontario Reg. 213/07), Accessibility for Ontarians with Disabilities Act (Ontario Reg. 191/11), National Building Code of Canada 2010, 2012 Canadian Electrical Code (CEC), CSA B44 - Safety Code for Elevators and Escalators, CSA W59 - Welded Steel Construction, The Occupational Health and Safety Act, Ontario (R.S.O. 1990), 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.

1.2 DOCUMENTS REQUIRED BY BUILDING INSPECTOR

- .1 Confirm with building inspector, at the commencement of construction, what documents are required for submission both during construction and for occupancy. Keep copies of such documents on site.
- .2 At the time of request for occupancy, submit a complete package of all required documents to the building inspector. The package shall contain all documents required for the inspector's sign off for occupancy, and should be expected to include the following documents:
 - .1 Copies of Consultant's General Review Reports
 - .2 Copies of General Review Reports of consulting engineers
 - .3 Consultant's and engineers' letters confirming project is ready for occupancy in accordance with the provisions of the Ontario Building Code, Division C, section 1.3.3, Occupancy of Buildings.
 - .4 Structural steel inspection reports certifying conformance to CSA Standards S16, S136 and A660.
 - .5 Concrete testing reports and inspection reports for reinforcing steel.
 - .6 Roof inspection reports.
 - .7 Verification of compliance with tested designs for rated assemblies.

SECTION 01 41 00 - REGULATORY REQUIREMENTS

- .8 Verification of Fire Protection Systems including:
 - .1 Verification of engineer supervised sprinkler, standpipe and hose system testing.
 - .2 Material and test certificates for all work, including below ground, in conformance with NFPA-13 and NFPA-14, as applicable.

- .9 Verification of Fire Alarm System as follows:
 - .1 Testing to CAN/ULC S537
 - .2 Installation to CAN/ULC S524
 - .3 Monitoring to CAN/ULC S561

- .10 Additional documents as required by the municipality.

END OF SECTION

PART 1 GENERAL

1.1 DESCRIPTION

- .1 This section describes typical abbreviations and acronyms used in these specifications and on the drawings and schedules.
- .2 When references are made in these specifications to the standards, specifications, or other published data of various international, national, regional, or local organizations, such organizations may be referred to by their acronym or abbreviation only.
- .3 The list of abbreviations and acronyms is provided to aid in the interpretation of notations in the construction documents and shall not be used to alter the meaning of notes for which the meaning is readily inferable from the context.
- .4 Abbreviations and acronyms can have more than one meaning. Their use shall be considered with respect to different subjects and disciplines where the context in which each is used makes the meaning clear.
 - .1 Example:
 - .1 CB on floor plans typically refers to a chalkboard
 - .2 CB on site plans typically refers to a catchbasin
 - .3 CB on electrical plans typically refers to a circuit breaker
- .5 Where additional or alternate abbreviations and acronyms are listed and used on drawings, schedules, and in the specification sections prepared by subconsultants, those shall apply to the documents on which they are noted.
- .6 Discrepancies shall be noted and brought to the Consultant's attention for interpretation.

1.2 LIST OF ABBREVIATIONS

A		B	
AB	Air Barrier	BD	Board
A/B	Anchor Bolt	BEV	Bevelled
AC	Air Conditioning	BF	Barrier-free
ACT	Acoustic Ceiling Tile	BH	Bore Hole
ADD	Addendum	B/H	Bulkhead
ADJ	Adjustable	BIT	Bituminous
AFF	Above Finished Floor	BLDG	Building
AFG	Above Finished Grade	BLK	Concrete Block
AHU	Air Handling Unit	BM	Beam
ALM	Alarm	B/M	Bench Mark
ALUM	Aluminum	BN	Bull Nosed
ANN	Annunciator Panel	BOT	Bottom
ANO	Anodized	BP	Bearing Plate
AODA	Accessibility for Ontarians with Disabilities Act	BRDG	Bridging
AUTO	Automatic	BRK	Brick
A/V	Audio Visual or Air/Vapour	BUR	Built-up Roofing
AVB	Air/vapour Barrier	BV	Block Vent
AWT	Acoustic Wall Treatment		
AWU	Acoustic Wall Unit		

SECTION 01 42 13 - ABBREVIATIONS AND ACRONYMS

C		DISP	Dispenser
CAB	Cabinet	DL	Door Louver
CAP	Cementitious Acoustic Panel	DN	Down
CAR	Carpet	DSP	Downspout
CB	Chalkboard, or Catchbasin	DVTL	Dovetail Joint
C/B	Catchbasin	DRY	Dryer
CBMH	Catchbasin Manhole	DW	Dishwasher
C/C	Centre to Centre	DWG	Drawing
CEC	Canadian Electrical Code		
CEM	Cement	E	
CER	Ceramic	EF	Each Face or Exhaust Fan
CH	Cabinet Heater	EC	Emergency Call
CJ	Control Joint	ECS	Emergency Call Signal
CL	Centre Line	EJ	Expansion Joint
CLF	Chain Link Fence	EL	Elevation
CLG	Ceiling	ELEC	Electrical
CLR	Clear	ELEV	Elevator
CMU	Concrete Masonry Unit	EQL	Equal
COL	Column	EQ/T	Equivalent Thickness
CONC	Concrete	EQPT	Equipment
CONSTR	Construction	EX	Existing
CONT	Continuous	EXH	Exhaust
CONTR	Contract or Contractor	EXP	Expansion
CONV	Convactor	EXP STR	Exposed Structure
CORR	Corridor		
CP	Control Panel	F	
CPT	Carpet	F1	Frame Type 1, etc.
CR	Coat Rack	FA	Fire Alarm
CS	Convenience Shelf	FARA	Fall Arrest Roof Anchor
CSA	Canadian Standards Association	FBD	Fibreboard
C/S	Concrete, Sealed	FD	Floor Drain
CT	Ceramic Tile	F/D	Fire Damper
cUL	UL Certified for Canada	FDC	Fire Department Connection
CTR	Centre	FDN	Foundation
CV	Condom Vendor	FEC	Fire Extinguisher Cabinet
CW	Curtain Wall	FFL	Finish Floor Level
CW1	Curtain Wall Type 1, etc.	F.G.	Fixed Glass
C/W	Complete with	FH	Fire Hydrant
CWT	Ceramic Wall Tile	FHC	Fire Hose Cabinet
		FIN	Finish
D		FIX.	Fixture
DAMP	Dampproofing	FLG	Flashing
DAT	Datum	FLEX	Flexible
DBL	Double	FLUOR	Fluorescent
DEMO	Demolish or Demolition	FPR	Fire Protection Rating
DET	Detail	FR	Fire Retardant/rated
DF	Drinking Fountain	FRG	Fire Rated Glass
DIA	Diameter	FRR	Fire Resistance Rating
DIAG	Diagonal	FS	Fire Separation
DIFF	Diffuser	FTG	Footing
DIM	Dimension	FURR	Furring

SECTION 01 42 13 - ABBREVIATIONS AND ACRONYMS

G		LVL	Level
GA	Gauge	LV-1	Louvre (Type 1)
GALV	Galvanized	LWB	Light Weight Block
GB	Gypsum Board	LWC	Linear Wood Ceiling
GL	Glass		
GRB	Grab Bar	M	
GVL	Gravel	M	Metres
GYP BD	Gypsum Board	M1	Mirror Type 1, etc.
GWG	Georgian Wired Glass	MAX	Maximum
		MDF	Medium Density Fibreboard
H		MECH	Mechanical
HB	Hose Bibb	MEMB	Membrane
HC	Handicapped	MET	Metal
HD	Hand Dryer or Heavy Duty	MEZZ	Mezzanine
HM	Hollow Metal	MH	Manhole
HOD	Hold Open Device	MIN	Minimum
HRD	Hair Dryer	MIRR	Mirror
HTD	High Traffic Doors	MISC	Miscellaneous
HVAC	Heating, Ventilation and Airconditioning	MLWK	Millwork
HWT	Hot Water Tank	MM	Millimetres
HYD	Fire Hydrant	MO	Masonry Openings
		MOD BIT	Modified Bituminous
I		MR	Moisture Resistant
ID	Inside Diameter	MTD	Mounted
INS	Insulation	MUL	Mullion
INSUL	Insulate	MWP	Membrane Waterproofing
ISOL	Isolation		
		N	
L		NAT	Natural
LAB	Laboratory	NBCC	National Building Code of Canada
LAM	Laminate	NFHB	Non-freeze Hose Bibb
LAT	Lay-in Acoustical Tile	NFPA	National Fire Protection Association
LAT-1	Lay-in Acoustical Tile (Type 1)	NIC	Not in Contract
LAV	Lavatory	NO.	Number
LBL	Label	NOM	Nominal
LDBR	Load Bearing	NSF	Non-slip Flooring
LDG	Landing	NTS	Not to Scale
LF	Light Fixture		
LH	Left Hand	O	
LHR	Left Hand Reverse	OA	Overall
LIB	Library	OBC	Ontario Building Code
LINO	Linoleum	OC	On Centre
LLH	Long Leg Horizontal	OD	Outside Diameter
LLV	Long Leg Vertical	O/H	Overhead
LNTL	Lintel	OHS	Overhead Stop
LONG	Longitudinal	OWSJ	Open Web Steel Joist
LPT	Low Point	OV	Oven
LMC	Linear Metal Ceiling		
LS	Light Standard		
LSA	Lateral Support Angles		

SECTION 01 42 13 - ABBREVIATIONS AND ACRONYMS

P		RES	Resilient
P	Paint	REV	Revise / Revision
PAP	Prefinished Aluminum Panel	RFG	Roofing
PA	Public Address System	RFS	Room Finish Shedule
PAR	Parallel	RH	Right Hand
PB	Push Button (Door Operator)	R/H	Roof Hopper
PBD	Particleboard	RLG	Railing
PC	Precast Concrete	RM	Room, or Recess Mounted
PE	Porcelain Enamel	RMC	Reinforced Masonry Column
PER.	Perimeter	RSF	Resilient Sheet Flooring
PERF	Perforated	RPF	Resilient Plank Flooring
PERIM	Perimeter	RUBB	Rubber
PERP	Perpendicular	RUH	Recessed Unit Heater
PG	Plate Glass	RWL	Rainwater Leader
PL	Plaster		
PLAM	Plastic Laminate	S	
PLUMB	Plumbing	S-1	Stain (Type) 1
PLYWD	Plywood	SAD	Security Alarm Device
PMF	Prefinished Metal Flashing	SAN	Sanitary
PMS	Prefinished Metal Siding	SC	Security Contact or Solid Core
PMP	Prefinished Metal Panel	SCHED	Schedule
PNL	Panel	SD	Soap Dispenser
POLY	Polyethylene or Polyolefin	SEC	Special Epoxy Coating
PR	Pair	SF	Sheet Flooring
PREFIN	Prefinished	SIM	Similar
PRELIM	Preliminary	SK	Sink
PT	Porcelain Tile, or Paint	SL	Slate
PTD	Paper Towel Dispenser	SND	Sanitary Napkin Disposal
PTN	Partition	SNV	Sanitary Napkin Dispenser
PTW	Preservative Treated Wood	SOG	Slab on Grade
PVG	Paving	SP	Spandrel Panel
PWC	Plastic Wall Covering	SPEC	Specifications
		SPC	Special Coating
Q		SPF	Sports Flooring
QT	Quarry Tile	SPKR	Speaker
		SRCONV	Semi Recessed Convector
R		ST	Steel
R	Radius	ST.ST.	Stainless Steel
RA	Return Air or Roof Anchor	STAG	Staggered
RAD	Radiator	STC	Sound Transmission Class
RB	Rubber Base	STD	Standard
RCP	Reflected Ceiling Plan	STIFF	Stiffener
RD	Roof Drain	STOR	Storage
REBAR	Reinforcing Bar	STRUC	Structure or Structural
RCONV	Recessed Convector	SUPPL	Supplement/al
RCH	Recessed Cabinet Heater	SURF	Surface
REC	Recessed	SUSP	Suspended
REF	Reference / Refer	SVF	Sheet Vinyl Flooring
REFR	Refrigerator	SW	Sidewalk
REINF	Reinforce/d/ing/ment	SWF	Special Wall Finish
REM	Remove or Removable	SYM	Symbol

SECTION 01 42 13 - ABBREVIATIONS AND ACRONYMS

T

TAWF	Textured Acrylic Wall Finish
TB	Tackboard
T&B	Top and Bottom
TBD	To Be Determined
TC	Teacher's Closet, or Top of Curb
TEC	Tectum Panel
T&G	Tongue and Groove
TEMP	Tempered Glass
TERR	Terrazzo
TEL	Telephone
TEMP	Temporary or Tempered
TH	Test Hole
TM	Tilted Mirror
T/O	Top of
TOC	Top of Curb
TOCS	Top of Concrete Slab
TOS	Top of Steel
TPD	Toilet Paper Dispenser
TPG	Tempered Plate Glass
TR	Transom
TYP	Typical

U

U/C	Undercut
U/G	Underground
UH	Unit Heater
ULC	Underwriter's Laboratories of Canada
UL	Underwriter's Laboratories (USA)
UNEX	Unexcavated
UNF	Unfinished
UNO	Unless Noted Otherwise
U/P	Unpainted
UU	Urinal
U/S	Underside
UTIL	Utility

V

VAR	Variable, Varies
VB	Vapour Barrier
VCT	Vinyl Composition Tile
VERT	Vertical
VEST	Vestibule
VF	Vinyl Faced
VR	Vapour Retarder
VT	Vinyl Tile
VWP	Vinyl Wall Panel

W

W1	Window Type 1, etc.
W/	With
WAP	Wood Acoustic Panel
WASH	Washing Machine
WB	White Board
WC	Watercloset (Toilet)
WD	Wood
WDF	Wood Flooring
WF	Wash Fountain
WG	Wired Glass
W/O	Without
WP	Waterproofing, Working Point
WR	Washroom
W/R	Water Resistant
WSF	Wood Sports Flooring

END OF SECTION

PART 1 - GENERAL

1.1 QUALITY ASSURANCE

- .1 Refer also to the Quality Control Provisions of Section 00 10 00, General Instructions.
- .2 Provide a system of quality control to ensure that the minimum standards specified herein are attained.
- .3 Bring to the attention of the Consultant any defects in the work or departures from the Contract Documents which may occur during construction. The Consultant will decide upon corrective action and state recommendations in writing.
- .4 The Consultant's general review during construction and inspection by independent inspection and testing agencies reporting to the Consultant are both undertaken to inform the Owner of the Contractor's performance and shall in no way augment the Contractor's quality control or relieve him of contractual responsibility.

1.2 NOTIFICATION

- .1 Give the Consultant advance notice of shop fabrication, field erection and other phases of the work so as to afford him reasonable opportunity to inspect the work for compliance with contract requirements. Failure to meet this requirement may be cause for the Consultant to classify the work as defective.

1.3 DEFECTIVE MATERIALS AND WORKMANSHIP

- .1 Where factual evidence exists that defective workmanship has occurred or that work has been carried out incorporating defective materials, the Consultant may have tests, concrete cores, inspections or surveys performed, analytical calculation of structural strength made and the like in order to help determine whether the work must be replaced, Test, inspections or surveys carried out under these circumstances will be made at the Contractor's expense, regardless of their results, which may indicate that, in the Consultant's opinion, the work may be acceptable.
- .2 All testing shall be conducted in accordance with the requirements of the Ontario Building Code, except where this would, in the Consultant's opinion, cause undue delay or give results not representative of the rejected material in place. In this case, the tests shall be conducted in accordance with the standards given by the Consultant.

END OF SECTION

PART 1 - GENERAL

1.1 TEMPORARY TELEPHONE AND FAX

- .1 Install and pay for all telephone and internet services for Contractor's own use, and for the Owner's and Consultant's use.
- .2 Refer also to Section 01 52 00, Construction Facilities.

1.2 GAS, POWER AND WATER SUPPLY

- .1 Provide all temporary light and power 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.
- .2 Existing building services may be used, as available. This does not include emergency generators or batteries.
- .3 Provide an adequate pure fresh water supply for the use of trades. Run supply pipe from nearest available source and maintain in good condition until the permanent system is installed and ready for use. Provide a sufficient number of faucets on each floor.
- .4 Ensure continued gas, water and power supply to adjacent residences and buildings throughout the construction period. Arrange for temporary services, including approvals from authorities having jurisdiction, where any interruption is anticipated. Comply with recommendations of local Health authorities.

1.3 TEMPORARY HEATING AND VENTILATION

- .1 Furnish heating apparatus and fuel for heating the temporary offices and sheds.
- .2 Provide for the proper heating and drying out of the work when building systems are unavailable, until the completion of the heating system work, by the use of approved portable heating equipment. The use of Salamanders or other open flame type heaters will not be permitted.
- .3 Provide sufficient temporary piping and temporary unit heaters or radiators or other suitable heating equipment to maintain all parts of the enclosed work at not less than 15°C. or higher if required by any finishing trade. Maintain strict supervision of operation of temporary heating and ventilating equipment. The Contractor shall be fully responsible for damage caused by temporary heating equipment, such as smoke or overheating.
- .4 Maintain sufficient ventilation to prevent build up of moisture and condensation, to enable the work of the finishing trades to be correctly applied. Provide adequate ventilation during and after operation involving materials or processes involving potentially harmful fumes or orders.

SECTION 01 51 00 - TEMPORARY UTILITIES

- .5 Temporary use of the permanent heating system shall be carried out under the direction of the Heating Trade who shall be fully responsible for the safety of the system and its operation including provision of trained operators.
 - .1 The system shall be handed over in perfect condition and where necessary be overhauled to be in new condition.
 - .2 The Contractor pays operation costs and all costs incurred by compliance with these provisions.
 - .3 At completion of work, thoroughly clean equipment and system, replace all filters, and service all components, so that all guaranties and warranties on the equipment and systems used shall remain in effect for a minimum of one year from the date of Substantial Performance of the Work.
- .6 Provide local exhaust ventilation to prevent harmful accumulations of hazardous substances into atmosphere of occupied areas. Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
- .7 Ventilate storage spaces containing hazardous or volatile materials. Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful elements. Store paints & solvents in secure, locked, ventilated room at all times.
- .8 Upon completion of the work, the heating equipment and system shall be thoroughly cleaned, tested and put into operation and turned over to the Owner in perfect condition; after approval by the Consultant and their Consulting Engineers. All warranties must be valid from date of Substantial Performance of the Contract, except in the case of partial occupancy where it shall be date of occupancy.
- .9 Maintain strict supervision of operation of temporary heating and ventilating equipment.
 - .1 Enforce conformance with applicable codes and standards.
 - .2 Enforce safe practices.
 - .3 Prevent abuse of services.
 - .4 Prevent damage to finishes.
 - .5 Vent direct-fired combustion units to outside.

1.4 REMOVAL OF TEMPORARY UTILITIES

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

1.5 FIRE EXTINGUISHERS

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

END OF SECTION

PART 1 - GENERAL

1.1 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 doors, screens and coverings to protect work areas. All such work shall be neatly painted. Doors shall have hasp and substantial padlock. Owners representative shall have key or combination where access is required. Protect existing asphalt and concrete paving and curbs from damage and make good any damage at completion of project.
- .3 Properly protect floors and roofs from any damage. Take special precautions when moving heavy loads or equipment over floors and roofs.
- .4 Keep floors free of oils, grease or other such materials likely to discolour them and/or affect bonding of applied surfaces.
- .5 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.
- .6 Protect glass and other finishes against heat, slab and weld splatters, using appropriate protective shields and covers.
- .7 Provide and maintain, in good working order, appropriately labelled ULC fire extinguishers, to the approval of Authorities Having Jurisdiction.
- .8 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.
- .9 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.
- .10 The Contractor shall be entirely responsible for supervision of project and for protection of public from vehicles in movement, stockpiled materials and construction.
- .11 The Contractor is responsible for the prevention of vandalism and theft of all tools, equipment and materials.
- .12 Any damage to roadways must be repaired immediately, to municipal standards.
- .13 The Contractor is responsible for snow removal on sidewalks adjacent to work areas and all are as required for access to site.

SECTION 01 56 00 - TEMPORARY BARRIERS AND CONTROLS

- .14 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.

1.2 TEMPORARY DUST CONTROLS, DUST PROOF PARTITIONS

- .1 Supply and install a dust proof partition in the occupied school at corridors and doorways abutting new work areas prior to any work taking place. Call for review by Owner/Consultant after dust proof partitions are installed.
- .2 Dust proof partition shall consist of 92mm steel stud framing to the underside of deck with one layer of 13mm plywood sheathing covered by 10 mil polyethylene sheet caulked all around the partition covered by two layers of 16mm Type X gypsum board with off set joints taped and filled. The gypsum board will be painted with two coats of good quality white paint.
- .3 Dust proof partition shall be erected outside of school operating hours and shall remain in place until the new Work is ready for occupancy, and accepted by the Owner.
- .4 Place filters in return air vents in all work areas to prevent dust from entering the existing HVAC system.
- .5 Ensure interior of all new ductwork is cleaned before connection to the existing HVAC system and commencement of operation of new system components. If system is put into operation before work is complete in any area, provide temporary filters in return air vents and grills.
- .6 Minimize the amount of dirt tracked into the existing building. Provide mats at all entrances used by construction personnel to enter the school.
- .7 Keep dust, dirt, and debris away from fresh air intakes, open doors and windows, and from areas where it could be tracked into the building by students, staff, or visitors to the school. Assume responsibility for cleaning up all dirt, debris, mud, water, snow, etc., tracked in by construction personnel.

1.3 MAINTAINING INDOOR AIR QUALITY

- .1 Smoking is not permitted inside the building or on the school property at any time. The Contractor shall post "No Smoking" signs throughout the work areas to enforce this requirement.
- .2 Minimize the time that vehicles are left idling on site. Keep idling vehicles away from open doorways and windows, open areas of the building addition, fresh air intakes, and areas where students are gathered.
- .3 All adhesives, sealants, paints and coatings applied onsite must be low VOC products.
- .4 Products requiring the use of adhesives, sealants, paints and other coatings, are to be assembled offsite as much as possible. Such adhesives, sealants, and coatings shall be low VOC products, where suitable products are available.
- .5 No toxic chemicals or fuels are permitted to be stored inside the building.

SECTION 01 56 00 - TEMPORARY BARRIERS AND CONTROLS

- .6 Refueling of equipment is to be undertaken outside the building.
- .7 Gas powered equipment is not to be used inside the building. Use electric or propane powered equipment only, and to acceptance of Owner and Consultant.

1.4 SECURITY

- .1 The Contractor shall be entirely responsible for supervision of project and for protection of public from vehicles in movement, for stockpiled materials and construction. 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.
- .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.
- .3 The Contractor shall provide 24 hour surveillance on site from date of Substantial Performance to date of acceptance and occupancy by the Owner.

1.5 REMOVAL OF TEMPORARY BARRIERS

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

END OF SECTION

PART 1 - GENERAL

1 .1 DIMENSIONS

- .1 Report any dimensional discrepancies immediately to the Consultant, and confirm as soon as possible any job measurements required for shop drawings, etc. Co-ordinate all trades, including mechanical and electrical.
- .2 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.
- .3 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.
- .4 Check and verify all dimensions including interfacing of services. Dimensions, when pertaining to the work of other trades, shall be verified with the trade concerned. Ensure that all Subcontractors co-operate for the proper performance of the work.
- .5 Do not scale directly from the drawings; this applies all drawings, whether in paper or digital format. 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 SITE VERIFICATION

- .1 Include costs to X-Ray floors, walls, and surfaces which are to be cut to accommodate new work.
- .2 Coordinate with forces performing demolition work.

END OF SECTION

PART 1 - GENERAL

1.1 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 to stop air movement completely. The trade performing work that penetrates a fire, air, vapour, moisture, thermal or acoustic separation element of the building shall pack voids tightly with 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.

1.2 CONCEALMENT

- .1 Conceal all pipes, ducts and wiring in finished areas except where indicated otherwise. This includes new work in existing building.
- .2 Where furring out is required, use material similar to adjacent surfaces except where indicated otherwise.
- .3 All new horizontal runs of ducts, pipes and conduits shall be concealed in ceiling spaces.
- .4 All new duct drops and risers shall be concealed in ceiling spaces, bulkheads or furred out duct shafts. All new pipe and conduit drops and risers shall be buried in walls. New devices in walls shall be recessed.

1.3 MECHANICAL AND ELECTRICAL EQUIPMENT

- .1 Mechanical and Electrical services must be temporarily capped or terminated to permit renovation in existing areas to proceed.

SECTION 01 73 00 - EXECUTION

- .2 Cutting of holes up to 100mm in size in the existing structure and surfaces required by the 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 the 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.

1.4 BLOCKING UP OF EXISTING OPENINGS

- .1 At existing openings in walls shown to be blocked up, masonry shall be used to provide required ratings, unless otherwise noted.

1.5 NEW OPENINGS IN EXISTING WALLS

- .1 Where new openings are shown to be cut into existing walls, provide new lintels over the opening and patch all adjacent materials. This includes new openings with lintels for Mechanical trade.

1.6 EXISTING CEILINGS

- .1 Existing ceiling components and ceiling mounted fixtures and equipment shall be carefully removed as required for new services and reinstalled when work is complete.
- .2 Any existing ceiling tiles, which are removed for services or new connections shall be replaced with new tiles. Existing tiles shall be turned over to the Owner’s staff if in good condition. Transfer any markings for services from existing to new tiles.
- .3 Where new walls are constructed, remove ceilings and grid and replace with new.
- .4 Replace existing ceilings with new where indicated on drawings.
- .5 Existing ceilings are part of a one hour rated floor or roof assembly; all new components to be fire rated.

1.7 FINISHES ON EXISTING FLOORS

- .1 Floors of existing building must be finished flush, ready for final finish in areas affected by the work.
- .2 Existing concrete floors shall be prepared according to manufacturers instructions for new adhesive applied finishes.
- .3 Existing floor finishes shall be removed and old adhesive removed from the existing concrete slab by scraping or solvent, in accordance with Health & Safety requirements. Grinding of floor finishes will not be accepted.
- .4 Where new walls are being constructed, and new flooring is not called for in the Room Finish Schedule, remove floor finish below wall to extent required for work, unless indicated otherwise on drawings. Only full tiles are to remain. Where there is a floor pattern in the room, remove sufficient tiles/flooring to replicate the pattern. Provide new floor finish to match existing, including accent tiles where applicable.

1.8 GENERAL NOTES

- .1 Refer to the Door Schedule, and the Room Finish Schedule, and general notes below.
- .2 Junction of different floor finishes shall occur on centre line of doors.
- .3 All masonry and drywall shall be extended to u/s steel deck. Where walls run parallel and under OWSJs the OWSJs shall be enclosed both sides with gypsum board to provide sound barrier between rooms. Fill with minimum 100 mm batt insulation.
- .4 All structural steel supporting structure above shall be spray fireproofed 1 hr.
- .5 All exposed concrete block corners shall be bullnose block.
- .6 Hardware shown on Door Schedule refers to code requirements only. Refer to Hardware Schedule for total hardware required.
- .7 All fabric finishes on walls shall be maximum 25 flame spread rating.
- .8 All wood trim in corridors is to receive fire-retardant coating, to limit flame spread rating to maximum 25.

END OF SECTION

PART 1 - GENERAL

1.1 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.
- .7 Dispose of waste materials in accordance with the Environmental Protection Act, R.S.O. 1990, C. E.19, and regulations under the Act, including:
 - .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 R.R.O. 1990, Reg. 347: General - Waste Management

1.2 MATERIALS

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

1.3 POLLUTION CONTROL

- .1 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads. Remove mud deposited on public roads. Provide mud mats at all site access roads.
- .2 Prevent dust nuisance to adjacent properties, existing school, and general public by taking appropriate pollution control measures as directed by Consultant.
- .3 Include daily watering of site to maintain dust control as part of tender submission.

1.4 DISPOSAL OF WASTES

- .1 Burying of rubbish and waste materials on Site not permitted.
- .2 Disposal of waste or volatile materials, such as mineral spirits oil or paint thinner into storm or sanitary sewers prohibited.
- .3 Meet Ministry of the Environment Standards and Guidelines.

SECTION 01 74 00 - CLEANING AND WASTE MANAGEMENT

1.5 FIRES

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

1.6 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 Contractor's site enclosure 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 Broom clean and vacuum areas as required for application of finishes. Continue to clean on an "as needed" basis and insure that areas which receive paint, floor tile and other critical finishes are kept dry, dust free, and at acceptable temperatures.
- .6 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.
- .7 Vacuum and/or broom interior building areas when ready to receive painting and other finishes. Continue cleaning on an "as needed" basis until the building is ready for final review and take-over.
- .8 Schedule cleaning operations so that resulting dust and other contaminants do not affect wet, newly painted surfaces, or newly installed equipment, or devices.

1.7 CLEANING AT COMPLETION OF WORK

- .1 Employ a professional cleaning company to thoroughly clean all areas immediately prior to occupancy of the Work by the Owner. Cleaning company shall be an established firm, bonded and fully insured, and acceptable to the Owner.
- .2 Provide manufacturer's printed cleaning and maintenance instructions to cleaning company. All finishes, equipment, fixtures, and other surfaces are to be cleaned in accordance with the product manufacturer's recommendations.
- .3 Use cleaning products which are non-toxic, environmentally friendly products, and which will not leave residues or odours on surfaces.
- .4 Do not apply sealers, wax, or polish to any flooring without the expressed permission of the Owner. All such products, and the methods of application, must be approved in advance by the Owner.
- .5 Remove all temporary protective coverings provided during construction.

SECTION 01 74 00 - CLEANING AND WASTE MANAGEMENT

- .6 Remove all protective film from switchplates and hardware, particularly kick plates. Remove miscellaneous labels from hardware, fixtures, equipment, and appliances, etc.
- .7 Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from all exposed interior and exterior finishes, including glass and other polished surfaces. Clean glass both sides. Vacuum inside all cabinets and drawers and leave millwork ready for use. Remove paint spots and smears from all surfaces, including hardware.
- .8 Remove stains, spots, marks and dirt from decorated work, electrical and mechanical fixtures, and the like. Remove protective materials.
- .9 Clean hardware, aluminum, stainless steel, and other metal surfaces.
- .10 Clean resilient flooring and all floor and wall tile.
 - .1 Vinyl composition tile (VCT) is to be broom swept only. The Owner will wash, wax, and polish VCT floors, and other resilient floors which require a wax finish.
 - .2 Clean no-wax resilient flooring in accordance with manufacturer's instructions.
- .11 Clean lighting reflectors, lenses and other lighting surfaces.
- .12 Clean all plumbing fixtures and fittings, including those located inside cabinetry or otherwise hidden from continuous view.
- .13 Vacuum clean all new carpeting, and all existing building interiors affected by construction operations.
- .14 Remove debris and surplus materials from the roof areas and accessible concealed spaces.
- .15 Replace heating, ventilation and/or air conditioning filters at Substantial Performance, whether or not the units were operated during construction operations. If any units were operated without filters, clean ducts, blowers, and coils.
- .16 Ensure that all clean up operations specified in other sections has been performed.
- .17 Conduct final inspection of interior and exterior surfaces, and concealed spaces.
- .18 Leave premises ready for immediate occupation without further cleaning, all to the Consultant's approval.

1.8 REPAIR WORK

- .1 All equipment, including mechanical and electrical equipment, shall be turned over in "as new" condition. Repair any damage, including dents and scratches. Repaint or touch up paint finish as necessary to return to new condition.
- .2 Replace all broken glass.
- .3 Repair any damage incurred during cleaning operations.

END OF SECTION

PART 1 - GENERAL

1.1 TAKEOVER PROCEDURE

- .1 Subject to detailed instructions included in these specifications, conform to OAA/OGCA document 100, Take-Over Procedures.

1.2 OCCUPANCY REQUIREMENTS

- .1 Review occupancy with the building inspector well in advance of required occupancy date, and ensure that the requirements are met for occupancy, including all document submissions. Refer also to Section 01 41 00, Regulatory Requirements.
- .2 An occupancy permit is required for any project that is not deemed complete prior to the date of occupancy.
- .3 Refer to OBC Division C, section 1.3.3, Occupancy of Buildings, for occupancy requirements. The designated building official is required to issue an occupancy permit only under the conditions outlined therein. Generally, these conditions include the following:
 - .1 Completion of building structure and walls to the roof, including any balcony guardrails;
 - .2 Completion of all required fire separations and closures in all areas to be occupied;
 - .3 Completion of all required exits and fire separations, including all doors and hardware, guardrails and handrails, and exit signs, at all levels of floor areas to be occupied;
 - .4 Completion of all shafts to rated assemblies above occupied area, complete with fire separations.
 - .5 Completion of building drains, sewers, water systems, drainage systems and venting systems, including testing for areas to be occupied;
 - .6 Completion of HVAC, power and lighting for all areas to be occupied, including emergency lighting;
 - .7 Completion of fire safety systems for areas to be occupied, including sprinklers, standpipe, fire extinguishers, fire alarm system, and exterior fire route;
 - .8 Provision of service facilities, including garbage rooms, service rooms, complete with required fire separations;
 - .9 Maintenance of egress routes to and from areas to be occupied, keeping them free of materials that could present hazards to access; and
 - .10 Secure and safe separation of areas to be occupied from areas that are incomplete and not to be occupied.
- .4 In addition to the OBC requirements for occupancy, the spaces must be complete for the purposes of occupancy by the Owner.
- .5 The issue of an occupancy permit shall not imply Substantial Performance of the Contract. Determination of Substantial Performance is defined by lien legislation.

1.3 ACTION REQUIRED AT OCCUPANCY

- .1 When of the opinion that the Occupancy Requirements have been met, perform an inspection of the work, accompanied by the major subcontractors. Submit an inspection report, confirming that the occupancy requirements have been met, to the Consultant and the Owner.

SECTION 01 77 00 - CLOSEOUT PROCEDURES

- .2 Arrange for and pay related fee for all necessary inspections required for occupancy such as Hydro, Fire Department and Building Department.
- .3 Confirm with the building inspector that the occupancy requirements of the municipality have been met, and submit evidence of such to the Consultant and Owner.
- .4 Next, arrange for a review of the Work with the Consultants and Owner. The Consultant will determine whether the Work is Fit for Occupancy.
- .5 Request letters confirming General Review from Consultant, and Structural, Mechanical and Electrical Engineers, for submission to Authorities Having Jurisdiction.
- .6 Upon receipt of the required documents, confirm that occupancy of the Work is accepted by the Authorities Having Jurisdiction. Submit evidence of the permission for occupancy to the Consultant and Owner.
- .7 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.

1.4 ACTION REQUIRED AT SUBSTANTIAL PERFORMANCE

- .1 Perform the actions listed below prior to issue of the Certificate of Substantial Performance of the Contract.
- .2 Submit the documents and material detailed in section 01 78 00, Closeout Submittals. 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.
- .3 Prior to applying for a Certificate of Substantial Performance, perform an inspection in accordance with OAA/OGCA Document 100, Stage 2, Contractor's Inspection for Substantial Performance. Submit a copy of the deficiency list to the Consultant.
- .4 Ensure all sub-systems ie fire alarm, security, E.M.S., are fully operational prior to Substantial Performance.
- .5 When of the opinion that the requirements for Substantial Performance have been met, submit an application for a Certificate of Substantial Performance to the Consultant. The application shall be as outline for Stage 3 of the OAA/OGCA Take-Over Procedures.
- .6 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.
- .7 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.
- .8 Perform final adjustment of Cash Allowance, specified in Section 01 10 00, General Instructions.

- .9 Arrange for Consultant to prepare CAD drawing files for the Board using the final as-built drawings. In addition, have the Consultant prepare an updated Project Manual, in WordPerfect format.
- .10 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.
- .11 Prior to final site review, start up and demonstrate operation of all systems to the Owner and the Consultant.
- .12 Review cash and contingency allowances in relation to contract price, change orders, hold-backs and other contract price adjustments.
- .13 Review inspection and testing reports to verify conformance to the intent of the documents.
- .14 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.
- .15 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.
- .16 Provide on-going review, inspection, and attendance to building call back, maintenance and repair problems during the warranty periods.
- .17 Continue to submit monthly deficiency status reports, as specified in Section 01 32 00, Construction Progress Documentation.

1.5 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.

SECTION 01 77 00 - CLOSEOUT PROCEDURES

.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.

1.6 **WARRANTY PERIOD**

.1 The Warranty Period on this Project will expire **twelve (12) 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.

1.7 **UTILITY CHARGES**

.1 The Owner will retain responsibility for utility service billings for the buildings.

END OF SECTION

PART 1 - GENERAL

1.1 SUBMITTALS REQUIRED FOR OCCUPANCY

- .1 Refer to Section 01 41 00, Regulatory Requirements for documents required to be submitted to Authorities having Jurisdiction, for occupancy.

1.2 SUBMITTALS REQUIRED AT SUBSTANTIAL PERFORMANCE

- .1 Prior to Substantial Performance of the Contract, perform the actions detailed in section 01 77 00, Closeout Procedures, and 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 One complete set of final approved Shop Drawings (bound separately) indicating corrections and changes made during fabrication and installation
 - .5 Keys and construction cores
 - .6 Maintenance materials
 - .7 As-Built Documents as specified in Section 01 33 00, Submittal Procedures
 - .8 Mechanical documents such as valve charts, frames as specified - refer to Divisions 21, 22, 23 and 25.
 - .9 Electrical panel directories (typed and mounted in panels) - refer to Division 26.
 - .10 Pressure Vessels Inspection Certificates
 - .11 Balancing Report for Ventilation System.
 - .12 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:

SECTION 01 78 00 - CLOSEOUT SUBMITTALS

1.3 MAINTENANCE MANUALS

- .1 At Substantial Performance submit to Consultant one hard copy and one digital copy of Architectural, Mechanical, and Electrical Operations Data and Maintenance Manuals made up as follows:
 - .1 Bind data in vinyl hard covered, three-ring loose leaf binders for 212.5mm x 275mm (8-1/2" x 11") size paper. Digital copy shall be submitted in pdf (portable document format) on a single USB flash drive with label or tag identifying project.
 - .2 Enclose title sheet, labelled "Operation Data and Maintenance Manual - Architectural, NORTH HASTINGS HIGH SCHOOL MECHANICAL RENOVATIONS", date and list of contents. Enclose similar sheet labelled Mechanical and Electrical in applicable manuals. Include the following information:
 - .1 name of project
 - .2 name of Owner
 - .3 name of Consultant
 - .4 name of Contractor
 - .5 date of Substantial Performance.
 - .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.
 - .4 All data related to a section of work or product shall be grouped together, except for shop drawings, unless otherwise requested by the Owner. Confirm method of organization with Owner prior to assembling manuals. Typically, each section shall be organized, as applicable, as follows:
 - .1 General information; identify section of work, subcontractor(s) responsible
 - .2 Warranty
 - .3 Guarantees, Bonds
 - .4 Schedules (hardware, paint)
 - .5 Product data sheets
 - .6 Material safety data sheets (MSDS)
 - .7 Operating manual
 - .8 Maintenance instructions
 - .9 Receipts for maintenance materials, keys, etc.,
 - .10 Maintenance contracts (applicable to elevator, wheelchair lift, planting, sod, etc.)
 - .11 Inspection and testing reports
- .2 Provide one copy of each of the following in the first binder:
 - .1 Contractor's final statutory declaration on CCDC form 9A-2001
 - .2 Major Subcontractor's final statutory declarations on CCDC form 9B-2001
 - .3 Workers' Compensation and Insurance Board (WSIB) certificate
 - .4 certificates of approval of the work by the Building Department (if available)
 - .5 Ontario Hydro certificate of inspection.

- .3 Also provide a disk or memory stick containing all construction progress photos submitted; refer to Section 01 32 00. Provide an index with printed images clearly identified with name of project, description of view and date taken. Disks are to be clearly labelled .
- .4 Include the following information, plus any additional data required within the specifications.
 - .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 Operating manuals including lubricating, repair and other instructions to keep all mechanical and electrical/electronic equipment in good working order. Reviewed shop drawings of same. Refer to Mechanical and Electrical Specifications for further requirements.
 - .4 Door and Frame Schedule (as-built); insert in front of Division 08 section in manuals.
 - .5 Final hardware schedule, revised to include all changes during construction, including local manufacturer's descriptive and service literature. Include AHC's final inspection report.
 - .6 Final finish/colour schedule; insert in front of Division 09 section in manuals.
 - .7 Provide paint schedule indicating paint brand and formulas used.
 - .8 Maintenance instructions for all types of floor finish and other special finishes. Include instructions for cleaning, repairing, refinishing and freshening, and warnings of damaging or dangerous practices where necessary.
 - .9 Maintenance and service instructions and manufacturer's literature for all special architectural features: i.e. windows, patent glazing, handicapped lift etc.
 - .10 Description, operations and maintenance instructions for equipment and systems, including complete list of equipment and parts list.
 - .11 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.
- .5 List additional material used in project showing name of manufacturer and source of supply.
- .6 Neatly type lists and notes. Use clear drawings, diagrams or manufacturer's literature.

SECTION 01 78 00 - CLOSEOUT SUBMITTALS

- .7 Supply copies of inspection and testing reports, inspection and acceptance certificates, balancing reports, all bound in all three copies of manuals.
- .8 Supply Operations and Maintenance manuals, and other required documentation as specified for Mechanical and Electrical work.
- .9 Manuals must bear seal and signature of Contractor.
- .10 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.

1.4 SHOP DRAWING MANUAL

- .1 Provide one complete set of final approved Shop Drawings, bound separately. Shop drawings shall be the drawings reviewed and stamped by the consultants. Mark-up shop drawings to indicate corrections and changes made during fabrication and installation.
- .2 Provide a digital copy of the shop drawing manual, included on the USB flash drive with the digital copy of the maintenance manuals.

1.5 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.

1.6 AS-BUILT DRAWINGS AND RECORD DOCUMENTS

- .1 Provide As-Built Drawings, as specified in Section 01 33 00, and Record Documents (electronic files).
- .2 Prior to the date of Substantial Performance, request updated drawings from the Consultant. Transfer all "as-built" markups from the on-site drawings to these updated drawings and return them to the Consultant for preparation of architectural 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 Consultant shall prepare architectural Record documents and be reimbursed for costs by the Contractor through the Cash Allowance included in the Contract.
- .5 Refer to Electrical Specification Divisions for specific requirements regarding preparation and submission of final mechanical and electrical Record Drawings.

1.7 REVIEW OF MANUALS BY CONSULTANT

- .1 Submit all manuals for review by the Consultant. Electrical manuals may be forwarded directly to the consulting engineers for review.
- .2 The Contractor is responsible for confirming the completion of the manuals prior to forwarding to the Consultant for review. If any items are outstanding, provide tabs at the appropriate locations and indicate the nature of the outstanding documents to be inserted.
- .3 Do not submit partially complete manuals to the Consultant; only documents which cannot be provided at the time of Substantial Performance are permitted to be flagged for later insertion. The Consultant will review manuals once for completion and will then review only one resubmission. If additional reviews are required, the Contractor will be invoiced for the Consultant's time at a rate of \$120/hour.

1.8 VALUATION OF CLOSEOUT SUBMITTALS

- .1 Due to the high value to the Owner of the closeout submittals, including maintenance manuals, for the purpose of project administration and calculation of Substantial Performance, the Closeout Submittals will be assigned a value of **\$2,000.00** (architectural / electrical).
- .2 The full assigned value of the submittals will be held in the Contract until such time as all closeout submittals are delivered to the Consultant and are deemed complete and acceptable by the Consultant.
- .3 Architectural record drawings, to be prepared by the Consultant and paid through the Cash Allowance, are not included in the valuation of closeout submittals.

END OF SECTION

PART 1 - GENERAL

1.1 GENERAL

- .1 Maintain existing fire rated separations in building.
 - .1 All ceiling tile to be fire guard type. Provide boxing of fixtures in rated ceilings as typically required for rated floor and roof assemblies.
 - .2 Provide new firestopping at tops of all corridor walls where none is existing. Where existing corridor walls do not extend to the underside of the roof deck, provide rated gypsum board enclosures, filled with mineral wool insulation, between top of wall and underside of deck and firestop perimeter and all penetrations.
 - .3 Provide new firestopping at all new penetrations through corridor walls, and at existing penetrations where no firestopping is existing.
 - .4 Examine existing building to determine the extent of the firestopping work required at existing corridors.
- .2 Test methods used to determine fire hazard classification and fire endurance rating shall be as required by Ontario Building Code.
- .3 Upon request, furnish the Consultant with evidence of compliance to fire protection requirements as noted in documents or specified codes, etc.
- .4 Materials and components used to construct fire rated assemblies and materials requiring fire hazard classification shall be listed and labelled, or otherwise approved, by fire rating authority. Labelled materials and their packaging shall bear fire rating authorities label showing product classification.
- .5 Fire and time rated door assemblies shall include doors, frame, anchors, and hardware and shall bear label of fire rating authority showing opening classification and rating.
- .6 Construct new fire rated assemblies in accordance with applicable fire test report information issued by fire rating authority. Deviation from fire test report will not be allowed. Where existing conditions do not conform to current tested assemblies, conform to similar assemblies acceptable to Authorities Having Jurisdiction and the Consultant.
- .7 Construct fire rated assemblies as continuous, uninterrupted elements except for permitted openings. Extend fire rated walls and partitions from floor to underside of structural deck above.
- .8 Materials which have a fire hazard classification shall be applied or installed in accordance with fire rating authority's printed instructions.
- .9 Provide firestopping as specified in Section 07 84 00.
 - .1 Firestopping shall be a tested system consisting of non-combustible materials, smoke sealant, and means of support, used to fill gaps between fire-rated separations or between fire separations and other assemblies, and used around items that penetrate a fire separation.
 - .2 Firestopping system shall be tested for the time period required for the fire separation; ie. 1 hour, 2 hours, etc.

SECTION 01 82 19 - FIRE RATING AND ASSEMBLIES

- .3 Fill and patch voids and gaps around openings and penetrations in and at perimeter of assemblies so as to maintain continuity and to produce a fire resistant, smoke tight seal, acceptable to jurisdictional authorities.

- .10 Provide fire blocks to compartmentalize concealed spaces as required by the OBC.
 - .1 Fire block means a material, component or system that restricts the spread of fire within a concealed space or from a concealed space to an adjacent space.
 - .2 Fire blocks are also referred to as fire stops in the OBC.

- .11 The Contractor shall ensure that all fire safety features called for in the Contract Documents are supplied and installed to meet fire safety standards established by those authorities having jurisdiction. The Contractor shall ensure that the work of Subcontractors is properly coordinated to achieve the intent of this Specification.

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

END OF SECTION

PART 1 - GENERAL

1.1 RELATED WORK

- .1 Hazardous Materials Section 01 35 43
- .2 Execution Section 01 73 00
- .3 Gypsum Board Section 09 29 00
- .4 Repainting Section 09 92 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 Reg. 332/12); The Ontario Fire Code; The National Building Code, 2010; and the National Fire Code. Refer to current editions of all standards.
- .2 CSA S350-M, code of practice for safety in demolition of structures.
- .3 Environmental Protection Act, R.S.O. 1990, C. E.19, and regulations under the Act, including:
 - .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 R.R.O. 1990, Reg. 347: General - Waste Management
- .4 Occupational Health and Safety Act, and regulations under the Act, including:
 - .1 O.Reg. 213/91 Construction Projects
 - .2 O.Reg. 278/05, Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations amended 479/10.
 - .3 O.Reg. 860/90 Workplace Hazardous Materials Information System (WHMIS)
 - .4 All regulations regarding "Designated Substances"
- .5 Regulations for the transport of asbestos waste, including:
 - .1 Transportation of Dangerous Goods Act, 1992 (1992, c. 34)
 - .2 Dangerous Goods Transportation Act, R.S.O. 1990, c. D.1
- .6 Resilient Floor Covering Institute (RFCI)
 - .1 Recommended Work Practices for Removal of Resilient Floor Coverings.
- .7 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 Copies of the original working drawings for the construction of the building will be made available to the Contractor.
- .3 An inventory of hazardous materials has been conducted for the existing building will be provided by the Owner.

SECTION 02 40 00 - DEMOLITION AND ALTERATIONS

- .4 No allowance will be made for failure to obtain complete information prior to close of tenders.

1.4 SUMMARY OF WORK

- .1 Demolition and alterations in existing masonry school building to accommodate removal of existing lift and enclosing walls, concrete slab and selective demolition to accommodate new lift.
- .2 All removed materials shall become property of the Contractor and shall be removed from the site.
- .3 Carry out all alteration and demolition work required to accommodate new work indicated on drawings. Make good any damage caused by alterations required.
- .4 Repair or replace existing damaged surfaces scheduled to be repainted. Finished surfaces to be ready for finish painting.
- .5 Remove conduit, electrical fixtures and all other items so noted on drawings as required to accommodate new work. Contractor will not be permitted to demolish existing equipment unless new equipment is on site.
- .6 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.
- .7 If the Contractor uncovers additional materials within that building which are suspected to be hazardous, they shall inform the Consultant, and the Owner. The Owner will arrange to have additional materials tested and, if necessary, removed. Removal of any hazardous materials is to be performed by forces appointed by the Owner.
- .8 Remove, transport, and dispose of hazardous materials in accordance with applicable laws.

1.5 PROTECTION

- .1 Erect fencing, as specified, interior barriers, notice and warning boards and maintain all protection of all kinds for the protection of the workmen on the Work, for the protection of adjoining property and for protection of public.
- .2 Protect all existing paving and site amenities. Make good damage to the approval of the Consultant.
- .3 Prevent movement, settlement, and damage to existing building to remain. 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 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.

SECTION 02 40 00 - DEMOLITION AND ALTERATIONS

- .5 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. Cover existing windows, doors, louvres, etc., opening to construction areas with minimum 16mm Type X gypsum board on steel stud framing to prevent exposure to construction activities.
- .6 Employ licensed rodent and vermin exterminators to destroy all discovered vermin and rodents.
- .7 Remove contaminated and dangerous material from the site and dispose of safely and legally. Meet all M.O.E. requirements.
- .8 During demolition 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.
- .9 Take precaution against contamination of air and adjacent properties.

1.6 MAINTAINING FIRE SAFETY IN EXISTING BUILDING

- .1 Maintain all required exiting for safe operations within the existing building. Where an exit is closed off due to construction activities, provide alternate exit acceptable to both the Consultant and to Authorities Having Jurisdiction. If access to exit must be through an area under construction, provide smoke tight enclosure with minimum 45 minute fire resistance rating. Any temporary exits must be clearly identified with appropriate signage.
- .2 Maintain access roadways for fire department vehicles, acceptable to the fire department. Access must be approved prior to commencement of construction activities.
- .3 Store all combustible materials in accordance with the Fire Code and the Occupational Health and Safety Act. Do not store combustible materials within the existing building or against the building. All combustibles shall be stored in a manner which minimizes risks to building and occupants.
- .4 Maintain protection at openings, as specified above, with fire separation ratings as required by Authorities Having Jurisdiction.
- .5 Maintain fire alarm system in operating condition in existing building. Notify the fire department and Owner of any temporary shutdowns of service and provide alternative measures during such periods of time.
- .6 Coordinate with Owner and Authorities Having Jurisdiction for all changes to fire emergency procedures as may be required during construction.

1.7 SERVICES

- .1 Before commencing demolition, isolate mechanical and electrical services serving the building section to be altered, unless otherwise noted. Mark location and type of service of all capped services at the school. Submit record drawing showing locations and dimensions of all isolated services.

SECTION 02 40 00 - DEMOLITION AND ALTERATIONS

- .2 In building areas to be renovated, seal and cap mechanical and electrical services as required to facilitate removals indicated on drawings. Mark location and type of service of all capped services.
- .3 Include cost to X-Ray concrete floors and walls to determine locations of buried hidden services.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Paintable, elastomeric filler:
 - .1 For filling of holes in masonry; and,
 - .2 Mor-Flexx by Sashco, in colour to coordinate with substrate.

PART 3 - EXECUTION

3.1 DEMOLITION

- .1 Refer to drawings for demolition plans and notes.
- .2 Coordinate with asbestos abatement contractor to facilitate asbestos removals and to ensure asbestos is removed where required to permit demolition and alteration Work to proceed.
- .3 Remove metals and combustible materials from walls being demolished.
- .4 Remove electrical equipment and conduit.
- .5 Any items noted to be re-used or re-located are to be removed carefully, cleaned, packaged appropriately, and handed over to Contractor.
- .6 Upon discovery of mould or mouldy materials remove and dispose of these separately.
- .7 If any additional 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.
 - .1 Do not resume work in this area until it has been cleared by an Abatement Consultant.
 - .2 Coordinate removal of any identified designated substances by trained forces appointed by the Owner. Hazardous material abatement is to be completed prior to recommencing demolition work in the area.
- .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.

3.2 REPAIRS AND NEW OPENINGS IN EXISTING WALLS

- .1 Where new openings are shown to be cut into existing walls, break open the wall to the sizes required, provide new lintels over the opening and patch all adjacent materials.

SECTION 02 40 00 - DEMOLITION AND ALTERATIONS

- .2 Repair damage to existing walls in areas scheduled to be repainted, where damage is to substrate, not just the coating. Repair masonry surfaces with patching compounds and fillers. Cut out and replace damaged sections of gypsum panels; refer to section 09 29 00 for gypsum board work. All repairs to be completed to level required for finish painting.

3.3 REMOVAL OF CEILINGS

- .1 Remove parts of existing ceilings as shown on drawings.
- .2 Where ceiling mounted equipment is indicated to be removed and reused, or where it must be temporarily removed to accommodate the Work, it is to be carefully removed, cleaned, wrapped, labelled as to contents, and stored in a safe location, ready for reinstallation.
- .3 Existing ceilings are fire rated; retain fire rating when repairing and replacing ceilings.

3.4 MECHANICAL AND ELECTRICAL WORK

- .1 Mechanical and Electrical services must be temporarily capped or terminated to permit renovation in existing areas to proceed.
- .2 Refer to mechanical and electrical drawings for the extent of removals, relocations, and alterations required.
- .3 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.

3.5 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 WORK INCLUDED

- .1 Supply and installation of new concrete slab on grade construction in location of the work.

1.2 GENERAL REQUIREMENTS

- .1 Conform to the General Requirements and Special Conditions contained in Division 01.
- .2 Comply with the requirements of the Ontario Building Code Act, and the Occupational Health and Safety Act and Regulations for Construction Projects.
- .3 Keep a copy of the Ontario Building Code and the Occupational Health and Safety Act handbook in the project field office.

1.3 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.
- .3 Products Installed But Not Furnished Under This Section:
 - .1 Anchor bolts.
 - .2 Anchorage assemblies and weldments for other structural trades.
 - .3 Members, inserts, sleeves, boxes and embedded items required to be built into, anchored to, or passing through concrete work and which is specified for supply in the work of other sections.
 - .4 Shelf angles and wall plates connected to concrete.

1.4 REFERENCE STANDARDS

- .1 CSA-A23.1/A23.2 Concrete Materials and Methods of Concrete Construction Methods of Test and Standard Practices for Concrete
- .2 CSA W186 Welding of Reinforcing Bars in Reinforced Concrete Construction
- .3 CSA W47.1 Certification of Companies for Fusion Welding of Steel
- .4 CSA W178.1 Certification of Welding Inspection Organizations
- .5 CSA S269.1 Falsework for Construction Purposes
- .6 CSA-S269.3 Concrete Formwork

03 30 00 - CAST-IN-PLACE CONCRETE

- .7 CAN/CSA-G30.18 Billet-Steel Bars for Concrete Reinforcement
- .8 CAN/CSA-G164 Hot Dip Galvanizing of Irregularly Shaped Articles
- .9 ACI 303.1 Guide to Cast-In-Place Architectural Concrete Practice
- .10 Do concrete formwork in accordance with CSA-A23.1 and CSA-S269.3-M, except where specified otherwise.
- .11 Do falsework in accordance with CSA S269.1, except where specified otherwise.
- .12 Do reinforcing work in accordance with CSA A23.1/A23.2.
- .13 Fabricate reinforcing to "Reinforcing Steel Manual of Standard Practice" by Reinforcing Steel Institute of Canada.
- .14 Weld reinforcing steel in accordance with CSA W186-M, except where specified otherwise.
- .15 Do cast-in-place concrete work in accordance with CSA A23.1/A23.2, except where specified otherwise.
- .16 Do cast-in-place architectural concrete work in accordance with ACI 303.1.
- .17 Use only current editions of all reference standards, as amended at date of issue of Contract Documents.
- .18 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 Division 01.
- .2 Review of shop drawings by the Consultant and Engineer is a precaution against oversight or error. It is not a detailed check and must not be construed as relieving the Contractor of responsibility for making the work accurate and in conformity with the Contract Documents. Design of items for which the Contractor is responsible under the Contract will not be reviewed. Work done prior to receipt of the reviewed drawings will be at the risk of the Contractor. Review comments are not authorization for changes to the Contract price.

- .3 Make corrections required by previous review before resubmitting drawings. Do not make changes to drawings which have been reviewed without comment. Highlight or "bubble" any changes made to originally submitted documents. Indicate revision numbers on drawings.
- .4 After review shop drawings will be returned stamped to show one of the following levels of acceptance:
 - .1 Reviewed: No comments
 - .2 Reviewed as Noted: Make corrections noted. Submit final record print.
 - .3 Revise and Resubmit: Correct and resubmit for review.
- .5 Conform to the requirements of each authority that has reviewed the drawings.
- .6 Allow a reasonable length of time for drawing review when preparing the project schedule. Coordinate with Consultant.
- .7 Refer to additional requirements for shop drawings for Reinforcing Steel and Formwork, as noted below.

1.7 SHOP DRAWINGS - REINFORCING STEEL

- .1 Submit to the Consultant for review, four (4) white prints of placing diagrams and bar lists. Each resubmission shall also include four (4) prints. Prints shall be of high quality, suitable for reproducing. Leave space on prints for the stamps of the Consultant and Structural Engineer. Check and sign before submission.
- .2 Include plans, elevations, sections and bar lists necessary to show all reinforcing and to facilitate checking. **This includes all reinforcing steel in masonry walls, piers, and lintels.** 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. See Drawings and Typical Details for concrete cover for reinforcing steel. Show specified cover on placing diagrams. Transparencies made from the Structural Drawings will **not** be accepted.
- .3 Provide the office preparing shop drawings with a complete set of Contract Drawings and Specifications plus all addenda and revisions.
- .4 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.
- .5 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.
- .6 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.

03 30 00 - CAST-IN-PLACE CONCRETE

- .7 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.
- .8 Keep on site at all times a set of shop drawings bearing the review stamps of the Consultant and Engineer. Use only these drawings and the Structural Drawings to set reinforcing steel. Prepare as-built drawings by neatly marking on the Structural Drawings revisions issued during the course of construction as soon as they are received.
- .9 Check shop drawings against the complete set of project documents as soon as available, even if after contract drawings have been issued for this Trade, in order to determine if additions or revisions are required to complete the work. Report results of check to the Consultant.

1.8 SHOP DRAWINGS - FORMWORK

- .1 Submit for review before the start of work, four (4) good quality white prints of formwork drawings. Check and sign before submission to the Consultant.
- .2 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.
- .3 Provide the office preparing shop drawings with a complete set of Contract Drawings and Specifications plus all addenda and revisions.
- .4 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 Allow a reasonable length of time for drawing review when preparing the project schedule. Coordinate with the Consultant.

1.9 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.

1.10 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 foundations and superstructure 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.

1.11 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.

1.12 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.

1.13 SITE CONDITIONS

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

03 30 00 - CAST-IN-PLACE CONCRETE

1.14 FOUNDATION CONDITIONS

- .1 Foundation design is based upon a soils report noted on the Structural Drawings. It is included in the Specification.
- .2 The soils report is furnished in good faith for the information of the Contractor but the possibility of deviation from reported conditions must be recognized. The Owner, Consultant and Engineer assume no responsibility for any interpretation or deduction that the Contractor may make from the data and he shall establish the nature of observable conditions to his own satisfaction.
- .3 Notify the Consultant in accordance with the requirements of the General Conditions of the Contract if during the execution of the work subsurface conditions are found to differ materially from those indicated in the Contract Documents or soils report.
- .4 If foundation elevations or dimensions are revised by the Consultant because of differences between reported and actual subsoil conditions discovered at the time of excavation, the Contract Price will be adjusted. Extras will not be paid because of overexcavation or other conditions within the control of the Contractor.
- .5 The Consultant will appoint a Soils Consultant to examine and report on the sub-soil at founding elevations at the time of excavation. Notify the Consultant as to when such examination will be required. Do not proceed with construction of foundations until the Soils Consultant has reported.
- .6 Keep construction traffic and loads on the subgrade to a minimum.
- .7 Set footings on undisturbed soil capable of supporting the allowable bearing pressures noted on the Drawings.

PART 2 PRODUCTS

2.1 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.

2.2 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.

2.3 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.

2.4 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.
- .4 Air Entraining Admixtures: to CSA-A23.1. Use one of the listed products:

- Darex - Grace Canada Inc.
 - Airextra - Euclid

- .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. Use one of the listed products:

- Plastiment - Sika Canada Inc.

- .7 Surface Set Retarder: Use "Rugasol S" by Sika Canada Inc. or Top-Stop by W.R. Meadows.
- .8 Integral Waterproofing: 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.

2.5 GROUT

- .1 Dry packed concrete: 1:3 cement-sand and minimum water to dampen mixture. Minimum strength 30 MPa at 28 days.

03 30 00 - CAST-IN-PLACE CONCRETE

- .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.

2.6 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:
 - Ceramarc - 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.

03 30 00 - CAST-IN-PLACE CONCRETE

- .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.

2.7 REINFORCEMENT

- .1 Reinforcing Steel: New deformed bars to CAN/CSA-G30.18 from Canadian mills. Grade 400 MPa or as indicated on Drawings.
- .2 Welded Steel Wire Fabric: to CSA Standard G30.15-M from Canadian or American mills. Supply fabric in flat sheets only.
- .3 Chairs, Bolsters, Bar Supports, Spacers: to requirements of the Reinforcing Steel Institute of Canada, "Reinforcing Steel Manual of Standard Practice". Use plastic, precast concrete or plastic protected steel bar supports for exposed concrete surfaces and for all slabs exposed to vehicles.
- .4 Galvanizing of Non-Prestressed Reinforcement and Bar Supports: to CSA Standard G164-M.
- .5 Tie Wire: 16 gauge (1.6 mm) black annealed wire. Use non-corrosive tie-wire for galvanized reinforcing steel.

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.

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.

03 30 00 - CAST-IN-PLACE CONCRETE

- .3 Circular Sections: Use laminated fibre forms "Sonotube" by Sonoco Limited, or approved equivalent.
 - .1 Exposed: "Finish Free", seamless, with rip cord
 - .2 Not exposed: Regular "W" coated
- .4 Circular Void Forms: "Sonovoids" by Sonoco Ltd. or "Permavoid" by Perma Tubes Ltd.
- .5 Lining for Board Formed Surfaces: Air dry Spruce or White Pine, random widths, random thickness, rough sawn. Dress edges for close fit. Use galvanized nails only. Seal with "Pre-Form" by Nox-crete, Inc.
- .6 Grooves, Reglets, Chamfers and Rustication Strips: White Pine selected for straightness and accurately dressed to size. Provide 1 to 3 draw unless otherwise shown. Provide continuous saw-cut at back of strip.
- .7 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.
- .8 Joint Tape for Sealing Panel Joints: "Procan" joint tape supplied by Acrow-Richmond or approved alternative.
- .9 Caulking for Joints between Panels: "Sikaflex 1-a" by Sika Canada Inc., or approved alternative.
- .10 Prefabricated Tongue and Groove Slab Joint Filler:
 - Serviced Joint - Goodco Ltd.
- .11 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%
Exterior walls, columns not exposed to chlorides	25MPa	F-2	20mm	50-110	0.55max.	4-7%
Concrete on deck, steps, landings	25MPa	N	10-20 mm	20-60	0.45-0.55	0-3%
Concrete toppings 25-50mm thick	25MPa	N	10mm	20-60	0.45-0.55	0-3%
Concrete toppings > 50mm thick	25MPa	N	20mm	20-60	0.45-0.55	0-3%
Concrete in block lintels, masonry walls	20MPa	N	10mm	100		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.

03 30 00 - CAST-IN-PLACE CONCRETE

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.

2.12 REINFORCING STEEL FABRICATION

- .1 Fabricate reinforcement to CSA-A23.1.
- .2 Welding of reinforcement to CSA Standard W186-M.
- .3 Fabrication tolerance for reinforcing steel to Reinforcing Steel Institute of Canada, "Reinforcing Steel Manual of Standard Practice".
- .4 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.
- .5 Obtain Consultant's approval for location of reinforcement splices other than shown on the drawings.
- .6 Ship bundles of bar reinforcement clearly identified in accordance with the reviewed bar lists.
- .7 Fabricate, handle and ship epoxy-coated reinforcing steel to ASTM-A775M-88a or O.P.S.S. Form 905.
- .8 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 and Engineer 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 Supply and install grout for base and bearing plates. Coordinate installation with the Structural Steel Trade. Grout shall completely fill space between plate and support.
- .6 Supply and install galvanized dovetail anchor slots and adjustable inserts for anchorage of masonry or attachment of lintels as necessary. Vertical dovetail anchor slots are required at 600 mm centres wherever masonry and concrete abut and where masonry veneer is applied to concrete surfaces.
- .7 Co-ordinate with Division 04 for the construction of concrete columns cast into permanent masonry forms. Provide formwork for sides not formed in masonry.
- .8 Do not install sleeves, ducts, pipes or other openings through joists, beams, or columns, except where expressly detailed on Structural Drawings or approved by the Consultant.
- .9 Do not eliminate or displace reinforcement to accommodate hardware. If inserts cannot be located as specified, obtain approval of all modifications from the Consultant before placing concrete.
- .10 Check locations and sizes of sleeves, openings, etc., shown on structural drawings with architectural, mechanical and electrical drawings.
- .11 Set inserts according to design drawings as required by Non-Destructive Method for Testing Concrete.
- .12 No trade shall cut holes through existing concrete unless approved by the Consultant.
- .13 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.
- .14 Cooperate with other trades to ensure that concrete surfaces are compatible with finishes and to obtain a surface which will ensure adequate bond.

03 30 00 - CAST-IN-PLACE CONCRETE

- .15 Provide dowels from concrete to all masonry walls reinforced with bars, as indicated on the Drawings.

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 panels forming the soffit of slabs as large as possible and arrange symmetrically. Arrange joints on beams symmetrically on the span. Arrange joints on columns to be level from column to column.
- .5 Camber formwork for slabs and beams 6 mm per 3 m of span unless shown otherwise.
- .6 Make forms tight and flush faced to prevent the leakage of mortar and the creation of unspecified fins or panel outlines.
- .7 Place 16 mm chamfer strips at the exposed corners of members unless indicated otherwise on the Drawings.
- .8 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.
- .9 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.
- .10 Construct formwork and falsework such that loads are not transmitted to any adjacent existing structure.
- .11 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.
- .12 Seal all lumber in forms for architectural concrete prior to use.
- .13 Obtain approval from Consultant before reusing formwork for architectural concrete.
- .14 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.

- .15 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.
- .16 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.
- .17 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.

03 30 00 - CAST-IN-PLACE CONCRETE

- .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.
 - .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 unless indicated on the Drawings. 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 as detailed on Drawings.

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.

03 30 00 - CAST-IN-PLACE 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 Place joists, beams, girders, brackets, column capitals and haunches and drop panels monolithically with the floor slabs.
- .15 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.

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 This specification enumerates minimum standards of workmanship only. Increase these requirements as necessary to achieve the specified quality.
- .4 Produce exposed surfaces which are dense, even and uniform in colour, texture and distribution of exposed aggregate. They shall be free from defects such as honeycombing, voids, loss of fines, visible flow lines and cold joints. Defects of this nature shall be cause of rejection of the work.
- .5 Ensure that concrete members have sharp accurate definition of corners, reglets, arrases etc. and are free from chips and spalls.
- .6 Protect finished work from damage and staining during the construction period. Pay special attention to projecting reinforcing at construction joints.
- .7 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.

03 30 00 - CAST-IN-PLACE CONCRETE

- .3 Application of fog spray followed by a covering of impermeable curing paper lapped 150 mm and held down at all edges.
- .5 Apply two coats of curing-sealing compound 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.
- .6 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:
Patch exposed concrete as directed by the Consultant. 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.
 - .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 Sand Blasting:
 - .1 Finish surface as required for smooth rubbed finish.
 - .2 Obtain Consultant's approval before sand blasting.
 - .3 After concrete is at least 21 days old and thoroughly cured, sand blast using a hard sharp sand until coarse aggregate is in uniform relief and a light texture is achieved.

- .7 Bush Hammering:
 - .1 Obtain Consultant's approval of as-cast concrete surfaces before starting work.
 - .2 Bush hammering shall result in a coarse but uniform texture which exposes the broken face of the coarse aggregate to a depth of 3 mm.
 - .3 Do not commence hammering until concrete is at least 21 days old and thoroughly cured.

- .8 Acid Etching:
 - .1 Finish surface as required for smooth rubbed finish. Obtain Consultant's approval before etching. Do not commence etching until concrete is at least 14 days old.
 - .2 Achieve etching by scrubbing the surface with a weak solution of hydrochloric acid whose strength shall be adjusted as required to achieve the desired effect. Treat sample panel initially with 1:6 acid:water solution
 - .3 Immediately after the cement paste has been removed wash the concrete surface thoroughly with water to remove remaining acid and to stop further chemical action.
 - .4 Workmen shall be equipped with gloves, goggles and protective clothing.

- .9 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.

03 30 00 - CAST-IN-PLACE CONCRETE

- .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. Refer to Room Finish Schedule:
 - .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
- .5 Steel trowel exposed interior concrete floors at least twice.
- .10 Stairs:
 - .1 Provide a slip resistant steel trowel finish to exposed concrete stair treads and landings.
 - .2 Install carborundum strips at edges of treads and landings if shown on the Drawings.
- .11 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 BONDED TOPPINGS

- .1 Not more than 24 hours prior to applying concrete toppings, clean base slab of dirt, laitance, loose material and grease. Scrub with 10 percent solution of muriatic acid and rinse clean. Four to six hours before laying topping, saturate surface with clean water. Surface shall have reached a damp condition at the time the new concrete is placed. Apply a slurry coat of cement and water to the surface and immediately follow with the topping.
- .2 Do not allow the temperature difference between base slab and new concrete to exceed 6°C when concrete is placed.
- .3 Make mix consistency as stiff as can be worked with a sawing motion of the strike-off board. Consolidate concrete by rolling and tamping. Float with a power floating machine weighing at least 90 kg. Finish and cure as specified for floors.

- .4 Locate joints in top course directly over joints in base course.
- .5 Minimum thickness of topping over cambered base slab shall be 38 mm at high point.
- .6 Remove any concrete which seeps through joints of precast units and clean surface before concrete sets.

3.12 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 as specified in Section 07 26 16
- .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 Do not pour concrete until vapour barrier installation has been inspected and approved by the testing and inspection company as specified above.
- .7 For underlying materials for slab on grade see Section 31 23 00.

3.13 REINFORCED MASONRY

- .1 Supply concrete and reinforcement required by the Masonry Trade for the construction of band courses and masonry lintels over openings in walls and partitions. Note that Structural Drawings do not show all openings. Refer to General Notes on Structural Drawings.
- .2 Supply reinforcing steel for reinforced masonry walls. Cells containing reinforcement will be filled with concrete grout of 20 MPa minimum 28 day strength, supplied and installed under the Unit Masonry Section.
- .3 Construct control joints which are located at the sides of masonry panels above channel block lintels so as not to reduce the structural capacity of the lintel. The control joint shall not extend through the lintel. Make the aligning vertical mortar joint in the lintel solid and afterwards rake it back 10 mm on the exposed face in order to match the joint in the panel.
- .4 Where the opening spanned by the lintel is adjacent to a concrete face or steel column, provide a shelf L-90 x 90 x 10 mm welded or bolted to the support.

03 30 00 - CAST-IN-PLACE CONCRETE

- .5 Construct reinforced masonry walls to conform to the requirements of the Ontario Building Code. Lay units so as to maintain an unobstructed vertical continuity in the cells. All walls and cross webs shall be fully bedded. No over-hanging mortar or debris shall be allowed inside the reinforced cells. Reinforcing shall be provided full length without splicing but may be installed after the first 1200 mm of masonry is erected. Locate rods accurately in the cells as shown on the Drawings. Hold in position top and bottom. Fill cells containing reinforcement solidly with 20 MPa concrete grout containing 5 mm nominal sized aggregate. Consolidate by puddling when placing and again reconsolidate before plasticity is lost. Place concrete grout in lifts not exceeding 1200 mm. Stop each lift 38 mm below the top of a masonry unit.

3.14 SUMPS, PITS, BASES

- .1 Construct all concrete sumps, pits, trenches and machinery bases forming part of floor slab construction which are required within the building by or for the Mechanical Trades.
- .2 Provide 100mm concrete curbs around all duct and pipe penetrations through all floors above grade.
- .3 Provide isolation joints between machinery bases and slabs.
- .4 Provide concrete bases at all locker locations.

3.15 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 Compact subgrade to 98 percent Standard Proctor Maximum Dry Density. Obtain Consultant's approval of the subgrade before proceeding with the work.
- .3 For underlying materials for exterior sidewalks see Section 31 23 00.
- .4 Provide concrete with a minimum 28 day compressive strength of 32 Mpa, Class C-2 according to the material requirements of this specification.
- .5 Thickness of sidewalk to be 150mm, and 200mm across driveways and access locations to playgrounds and garbage enclosures.
- .6 Reinforce sidewalks with 152 x 152-MW18.7/MW18.7 welded wire fabric. Lap ends 150 mm minimum.
- .7 Reinforce curbs with 1-15M bar top and bottom unless indicated otherwise on the Drawings. Provide all steps with 10M nosing bars.
- .8 See Architectural Drawings for details of jointing, edging, and surface pattern.
- .9 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.

- .10 Install 12 mm preformed joint filler in expansion joints and between sidewalks and curbs and adjacent structures.
- .11 Cure with curing-sealing compound.
- .12 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.
- .13 Construct a sample panel of sidewalk for the Consultant's approval.

3.16 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.

3.17 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.

03 30 00 - CAST-IN-PLACE CONCRETE

3.18 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.

3.19 GENERAL REVIEW OF CONSTRUCTION

- .1 General review during construction by the Consultant and Engineer 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 and Engineer any deficiencies in the Work which may occur during construction. The Engineer will decide upon corrective action and state his recommendations in writing.

3.20 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.

3.21 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 (including testing of the structure and its performance, and load 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.

03 30 00 - CAST-IN-PLACE CONCRETE

- .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 The inspection and testing agency will inspect formwork for Architectural concrete before each section is cast to ensure that all features affecting the appearance of the finished concrete surfaces have been properly considered.
- .13 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.
- .14 Inspect installation of vapour barrier below slab-on-grade, immediately prior to pouring of slab.

3.22 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.

3.23 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.
- .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.

3.24 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 RELATED WORK

- .1 Concrete block Section 04 22 00
- .2 Mortar for Tile Work Section 09 30 16

1.2 REFERENCE STANDARDS

- .1 CAN/CSA A179 Mortar and Grout for Unit Masonry
- .2 CAN/CSA A371 Masonry Construction for Buildings
- .3 CSA A3000 Cementitious Materials Compendium
- .4 ASTM C 780 Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry
- .5 ASTM C 1357 Standard Test Methods for Evaluating Masonry Bond Strength

1.3 QUALITY ASSURANCE

- .1 Arrange for representative of mortar manufacturer to meet with mason on site prior to commencement of masonry work, to review proper mixing procedures of mortar. Mixing must conform to instructions from supplier of pre-mixed mortar materials.
- .2 Mason shall warrant that only mortar containing integral water-repellent mortar admixture, added at the manufacturer's recommended rate, has been placed in exterior concrete masonry walls.
- .3 Submit test data as specified below.

1.4 COLD WEATHER REQUIREMENTS

- .1 During cold weather, lower than 5°C, when danger of freezing exists, heat all masonry materials using methods accepted in the industry, in conformance to CSA-A371, and approved by the Consultant.

1.5 SUBMITTALS

- .1 Submit three (3) copies of performance 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..
- .2 At the completion of the masonry work, submit letter of certification from the mason, certifying that only mortar containing integral water-repellent mortar admixture, added at the manufacturer's recommended rate, has been placed in exterior concrete masonry walls.

1.6 TESTING

- .1 Testing of mortar materials will be carried out by Testing Laboratory designated by Consultant.
- .2 Pay for tests from Cash Allowance, Section 01 10 00.

SECTION 04 05 13- MASONRY MORTAR AND GROUT

- .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.
- .6 Perform compressive strength tests on all mortar and grout in accordance with the requirements of CSA S304.1. Compressive strengths must conform to the property specifications of CSA-A179.
- .7 Perform tests for flexural bond strength of masonry in accordance CSA S304.1. Flexural bond strengths shall not be less than 0.20MPa, in conformance with CSA-A179.

PART 2 MATERIAL

2.1 MATERIALS

- .1 Sand: fine grain aggregate, graded in accordance with CSA A179
- .2 Water: potable, free off 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
- .5 Water-repellant admixture: Dry-Block II Mortar Admixture by Grace Construction Products, for exterior concrete masonry

2.2 MORTAR

- .1 Mortar:
 - .1 Bulk preblended silo mix as supplied by Max-Mix. Preblended, factory calibrated mortar; Betomix Plus by Daubois Inc., or equivalent by King Masonry Products will also be accepted.
 - .2 Colourants to be premixed with mortar materials. Colours shall match existing.
- .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 masonry foundations, load bearing walls and partitions, and lateral force-resisting system components for seismic design, to be Type 'S' as per property specifications of CSA A179.

SECTION 04 05 13 - MASONRY MORTAR AND GROUT

- .4 Mortar for exterior masonry veneer, and non-load bearing walls and partitions to be Type 'N' as per property specifications of CSA A179, unless indicated otherwise on the Structural Drawings.
- .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.

2.3 GROUT

- .1 Grout:
 - .1 Coarse grout to CSA A179, with maximum aggregate size of 12.5mm.
 - .2 Use fine grout where least dimension of void is less than 50mm.
 - .3 All grout to CSA A179, with sufficient water to produce pouring consistency without segregation of ingredients, but to retain cohesiveness.
 - .4 Slump is to be 200mm to 250mm. Minimum compressive strength is to be 20 Mpa.
- .2 Refer to structural drawings for grout requirements at reinforcing steel.

2.4 SOURCES

- .1 Use same manufactured brands and sources of mortar materials for entire project, in order to ensure uniformity of mix and coloration.

2.5 PARGING

- .1 Cement mortar parging: 1 part cement, 1 part lime to 6 parts sand by volume with sufficient water for a trowelable mix.

PART 3 - EXECUTION

3.1 MIXING OF MORTARS

- .1 Mason to review mixing procedures with mortar manufacturer.
- .2 Mix mortar thoroughly, in quantities only as needed for immediate use.
- .3 Mix mortar in mechanical mixer operated until homogeneously blended, but not less than 3 minutes after all materials are in mixer.
- .4 For mortar for concrete masonry units in face of exterior wall, add Dry-Block to water prior to charging mortar mix. Add at rate recommended by Grace Construction Products and reduce water accordingly.
- .5 Obtain manufacturer's approval for any additives.

SECTION 04 05 13- MASONRY MORTAR AND GROUT

3.2 MORTAR BED AT UNIT VENTILATORS

- .1 Provide sloped mortar bed from unit ventilator through wall opening under supply air duct.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED WORK

- .1 Concrete & Masonry Reinforcement Section 03 30 00
- .2 Masonry Accessories Section 04 05 23
- .3 Concrete Masonry Units Section 04 22 00

1.2 SUBMITTALS

- .1 Submit product data sheets for all reinforcement types proposed for use in this project, in accordance with Section 01 33 23.
- .2 Include a copy of the data sheets in the shop drawing manual at the conclusion of the project.
- .3 Submit samples of anchors, ties, and fasteners for approval of Consultant.

PART 2 MATERIALS

2.1 MATERIALS

- .1 All steel components specified herein for installation in exterior wall assemblies shall be hot dipped galvanized after fabrication, or shall be stainless steel.
- .2 Stainless steel shall be type 304 or 316.
- .3 Reinforcing bars: to CSA G30.18, Grade 400.
- .4 Masonry Reinforcement:
 - .1 This Specification is based on products manufactured by Blok-Lok Limited. Products listed by Hohmann and Barnard, Inc. and Wire-Bond are approved equivalents.
 - .2 Size: Wall thickness less 50mm.
 - .3 Weight :
 - .1 Standard Ladder type reinforcement shall be extra heavy duty, with 4.8mm side wires and 3.8mm (9 ga) cross wires, welded.
 - .2 Ladder type reinforcement shall be super heavy duty where noted below or on drawings, with both side and cross wires 4.8mm thick, welded.
 - .3 Truss type reinforcement shall be super heavy duty, with both side wires and cross wires 4.8mm thick, welded.
 - .4 Finish:
 - .1 Hot dipped galvanized after fabrication to ASTM A153-B2 and CSA G164, minimum 1.5 oz/sq. ft.
 - .2 Provide stainless steel where indicated below, or on drawings.

SECTION 04 05 19 - MASONRY ANCHORAGE AND REINFORCEMENT

- .5 Type: For multi-wythe solid walls above & below grade:
 - .1 Blok-Lok Cavity-Lok BL12, extra heavy duty, 4 wire; H&B #240; or Wire-Bond Series 200 Ladder 4 Wire.

- .6 For multi-wythe solid walls above grade consisting of brick and block.
 - .1 Blok-Lok Tri-Lok BL11, extra heavy duty, 3 wire; H&B #230; or Wire-Bond Series 200 Ladder 3 Wire.

- .7 For cavity walls:
 - .1 Blok-Lok Econo-Cavity Lok BL21, super heavy duty, with 4.76 mm wire; H&B #250; or Wire-Bond Series 400 Ladder Fixed Tab.

- .8 For single wythe, solid, interior masonry walls:
 - .1 Blok-Lok BL10; H&B #220, or Series 200 Ladder 2 Wire by Wire-Bond.

- .9 For cavity walls when block wythe is constructed in advance of brick:
 - .1 Blok-Lok BL42 providing rigid two way anchorage of both wythes, with System 2000 ties; H&B #280 Dub'l Loop-Lok; or Wire-Bond Tab Lock Ladder with 4.8mm diameter locking pintles.

- .10 For cavity walls where joints in exterior and interior wythes do not align and adjustable reinforcing specified above cannot be used:
 - .1 Interior wythe block reinforcement: extra heavy duty reinforcement as specified above.
 - .2 Ties between wythes: Blok-Lok BL-507 Anchor and Flex-O-Lok Tie, HB DW-10 with VBT tie
 - .3 Fasteners for anchors: Hilti "Kwik-Con II" -14-114 THWH stainless steel, or Ucan "Scru-it" SSH 14114 stainless steel.
 - .4 All reinforcing and ties hot dipped galvanized, anchors to be stainless steel.

- .11 Provide prefabricated tees and corners.

- .5 Wall Ties:
 - .1 Masonry to Masonry:
 - .1 Corrugated Wall Ties of 1.2 mm (18 ga.) galvanized steel, 22mm wide, by length required for the application.
 - .2 Length to be long enough to embed minimum 75 mm into each bearing or to fit dovetail anchor slots, unless otherwise noted on drawings.

 - .2 Masonry to Structural Steel:
 - .1 Blok-Lok Flex-O-Lok BLT9, sized to suit wall thickness less 50mm, with continuous weld-on anchors Flex-O-Lok, type A; H&B VEE-Byna Tie with 359 weld-on ties; or Wire-Bond Triangular Tie 1100 with Type 1 Weld-On Anchor.
 - .2 Ties minimum to be minimum 4.76mm stainless steel wire. Weld-on anchors to be minimum 6.35mm diameter stainless steel wire.

 - .3 Dovetail anchor slots and ties: Hot dipped galvanized anchor slots with minimum 9 gauge hot dipped galvanized ties.

- .6 For Securing Insulation: Wedge-Lok by Blok-Lok

PART 3 - EXECUTION

3.1 INSTALLATION OF MASONRY ANCHORAGE AND REINFORCEMENT

- .1 Refer to Section 04 22 00 for installation of masonry anchorage and reinforcement.
- .2 Refer to structural drawings for additional requirements. All reinforcing shall conform to structural requirements as a minimum. Where structural requirements differ from these specifications, the most stringent requirements shall apply.
- .3 Note that "solid wall" describes a masonry wall consisting of 1 or more wythes of brick and/or block (which may be solid or hollow core) with mortar joint only between wythes - no air space.
- .4 Install reinforcement as indicated above for the materials specified, in conformance with structural drawings and manufacturer's instructions.
- .5 Provide and install prefabricated tees and corners at wall corners and intersections.
- .6 At exterior walls where coursing results in non-alignment of interior and exterior wythe horizontal joints, each wythe shall be reinforced in every second horizontal joint. Interior and exterior wythes shall be tied together with ties anchored to exterior face of interior block and vee wall ties laid into horizontal joints of exterior wythe.
- .7 Install ties in accordance with Ontario Building Code.
- .8 Pre-drill for anchors using appropriate type and size of bit. Provide two anchors per tie with minimum embedment of 25mm. Conform to manufacturers specifications.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED WORK

- | | | |
|----|-------------------------------------|------------------|
| .1 | Masonry Anchorage and Reinforcement | Section 04 05 19 |
| .2 | Concrete Unit Masonry | Section 04 22 00 |
| .3 | Vapour Barrier | Section 07 26 00 |

1.2 SUBMITTALS

- .1 Submit colour charts to Consultant for colour selections.

PART 2 MATERIALS

2.1 MATERIALS

- | | | |
|----|-----------------------|---|
| .1 | Control joint filler: | Blok-Lok "Exp-Joint", closed cell neoprene expansion joint material. |
| .2 | Masonry flashing: | membrane specified for through wall flashing at masonry walls; refer to Section 07 26 00. |

PART 3 - EXECUTION

3.1 INSTALLATION OF MASONRY ACCESSORIES

- .1 Refer to Sections 04 21 00 and 04 22 00 for installation of masonry accessories.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED WORK

.1	Masonry Mortar and Grout	Section 04 05 13
.2	Masonry Anchorage and Reinforcement	Section 04 05 19
.3	Masonry Accessories	Section 04 05 23
.4	Loose Angle Lintels	Section 05 52 00
.5	Building Insulation	Section 07 21 00
.6	Vapour Barrier	Section 07 26 00
.7	Joint Sealant	Section 07 92 00

1.2 REFERENCE STANDARDS

.1	CAN/CSA-A165 Series	CSA Standards for Concrete Masonry Units
.2	CAN/CSA-S304.1	Design of Masonry Structures
.3	CAN/CSA-A371	Masonry construction for Buildings
.4	CAN/CSA-A370	Connectors for Masonry
.5	National Concrete Masonry Association	
.1	NCMA TEK 10-2C	Control Joints for Concrete Masonry Walls - Empirical Method
.2	NCMA TEK-2A	Removal of Stains from Concrete Masonry
.3	NCMA TEK-3A	Control and Removal of Efflorescence
.4	NCMA TEK-4A	Cleaning Concrete Masonry

1.3 SUBMITTALS

- .1 Submit duplicate samples of masonry units in accordance with Section 01 33 23.
- .2 Construct sample panel of total exterior wall work, 1200 x 1800mm located on site where directed and showing use of reinforcement, through-wall-flashing, jointing, coursing, insulation, vapour barrier, mortar and inner and outer wythe materials.
- .3 Submit Spec-Data Sheet on Grace Construction Products' Dry-Block System of Integral Water-Repellent Admixtures for Block and Mortar.
- .4 Submit certification from manufacturer of exterior block that units shipped to site contain integral water repellent, added at appropriate rate.
- .5 Submit certification from Masonry Subcontractor that only concrete block units containing integral water-repellant have been used in construction of the exterior face wall, and that the mortar used for these units also contained the specified water-repellant additive.
- .6 Submit Technical Bulletin on Cleaning Masonry Containing Dry-Block.

1.4 EXTREME WEATHER REQUIREMENTS

- .1 During cold weather, lower than 5°C, when danger of freezing exists, heat all masonry materials using methods accepted in the industry and conforming to CAN/CSA-A371, and approved by the Consultants.

SECTION 04 22 00 - CONCRETE UNIT MASONRY

- .2 Protect scaffolds from cold and wind with polyethylene or other barricades. Use heaters on the scaffolds where necessary to protect workmen and materials. PROVIDE PROTECTION WHENEVER NECESSARY TO PREVENT CESSATION OF WORK.
- .3 During hot weather protect freshly laid masonry from drying too rapidly, by means of waterproof, non-staining coverings. Wet units during hot drying weather so that mortar does not dry too rapidly. Units must be free of water adhering to their surfaces when they are laid. Conform to Hot Weather Requirements in CAN/CSA-A371.

1.5 PROTECTION

- .1 Cover completed and partially completed wall not enclosed or sheltered, with water proof coverings at end of working day. Drape cover over wall and extend 600mm down both sides. Anchor securely in position with metal wall clamps.
- .2 Protect adjacent surfaces from marking or damage due to masonry work.

PART 2 - MATERIALS**2.1 MATERIALS**

- .1 Concrete blocks:
 - .1 to CAN/CSA-A165 Series, metric modular, Type H/20/A/M for foundations, Type H/15/A/M in concealed spaces, and H/15/D/M lightweight for exposed walls above grade.
 - .2 Provide block of higher compressive strength where indicated on structural drawings.
 - .3 Blocks for fire rated partitions to have required percentage of solid material necessary to provide rating.
 - .4 Sizes as indicated on drawings.
- .2 Curing of lightweight block:
 - .1 Autoclave or low pressure steam curing is acceptable, provided that masonry units comply with linear shrinkage and moisture content requirements of CSA A165.1 for type M units at time of delivery to site.
 - .2 Age all units, prior to delivery to site, as follows:
 - .1 Autoclaved units: minimum 7 days.
 - .2 Low pressure steam cured units: minimum 28 days
- .3 Special Shapes:
 - .1 Bond beam, lintel beam, corner and other shapes as required or indicated on drawings.
 - .2 Provide external corner units as a single unit, with required architectural face appearance on one side and one end.
- .4 Metal Anchors: Conforming to Ontario Building Code and Section 04 05 19.
- .5 Mortar: as specified in Section 04 05 13.
- .6 Control joints: Sealant and backing rod, with filler specified Section 04 05 23.

2.2 EXPOSED MASONRY FACES

- .1 Notwithstanding visual inspection requirements of CSA standards, masonry units shall be free of surface indentations, surface cracks due to manufacture, or chipping. Units so delivered shall be culled from use for exposed purposes, but may be used where concealed.
- .2 Concrete masonry units exposed both sides, such as at interior partitions walls, must be visibly uniform in width, so that both faces of the wall are smooth, with all block faces in plane. Total variation in width must not exceed 2mm. Mason shall reject blocks which do not conform to this size requirement.
- .3 All exterior concrete masonry units shall have Dry-Block integral water repellent.

PART 3 - EXECUTION

3.1 WORKMANSHIP

- .1 Build masonry work true-to-line, plumb, square and level, with vertical joints in proper alignment.
- .2 Assume complete responsibility for dimensions, plumbs and levels of this work and constantly check same with graduated rod.
- .3 Masonry courses to be of uniform height, and both vertical and horizontal joints to be of equal and uniform thickness.
- .4 Extend non-loadbearing partitions to underside of floor or roof structure above, providing 25mm deflection clearance. Install lateral support angles, as specified in Section 05 52 00, and insulation filler as detailed.
- .5 Carry wall up in uniform manner, no one portion being raised more than 1200mm above another at any time. Build no more than 1500mm of wall measured vertically in any one day.
- .6 Buttering corners of units, throwing mortar into joints, deep or excessive furrowing of bed joints not permitted. Do not shift or tap units after mortar has taken initial set. Where adjustments must be made after mortar has started to set, remove mortar and replace with fresh supply.
- .7 Isolate masonry from vertical structural steel framing in exterior walls using 6mm thick asphalt impregnated rigid board cemented to steel columns.
- .8 Where new masonry abuts old or fully set masonry, clean existing surfaces and dampen if necessary to obtain bond.
- .9 Evidence of non compliance with Contract Documents including the following will require replacement and/or repair:
 - .1 Shrinking
 - .2 Curling
 - .3 Spalling
 - .4 Poor color blend
 - .5 Poor texture blend
 - .6 Discolouration of mortar
 - .7 Chipping

SECTION 04 22 00 - CONCRETE UNIT MASONRY

3.2 BLOCKWORK

- .1 Refer to drawings for block locations and coursing. Lay concrete block in running bond, except as noted on Drawings, with thicker end of face shell upward. Standard coursing to be modular 200mm for one block and one joint.
- .2 Use lightweight concrete blocks for exposed interior surfaces of walls and partitions. Regular concrete blocks may be used for concealed surfaces.
- .3 Use special shaped, and finished units where indicated, specified or required. Use bull-nosed units for exposed external corners, window jambs, etc. Exposed open cells not permitted.
- .4 Concrete masonry units shall have face shells and their end joints fully filled with mortar, and joints squeezed tight. Also fill webs at cores, to be reinforced and grouted, and strike flush at core taking care to prevent mortar from falling into core.
- .5 Tie intersecting non-bearing walls together with masonry reinforcing every second course.
- .6 Do not tie intersecting bearing walls together in masonry bond, except at corners.
- .7 Exercise special care laying up concrete block in locations where plastic wall coating finish is indicated. Block walls in these locations shall be plumb with joints tooled, concave.
- .8 Where resilient base is indicated, tool the joints to within 100mm of the floor. Cut joints flush behind the base.
- .9 All concrete block at parapets shall be filled solid. Install building paper and wire mesh reinforcing in the bed below solid fill.

3.3 MORTAR AND POINTING

- .1 Mortar is specified in Section 04 05 13. Ensure that only mortar with Dry-Block admixture is used for exterior block work.
- .2 Make all joints uniform in thickness, straight, in line, with mortar compressed to form concave joints.
- .3 Strike joints flush where walls are to receive insulation, plaster, ceramic tile, or similar finishes.
- .4 Point faced blockwork by filling holes and cracks in exposed mortar joints. Cut out defective joints, refill solidly with mortar and tool to form neat concave joint.

3.4 BUILDING IN COMPONENTS

- .1 Build in door frames, steel lintels, sleeves, anchor bolts, anchors, nailing strips and other items to be built into masonry. Install windows using clip angles supplied by window manufacturer and co-operate with subcontractors installing windows, entrances and screens.
- .2 Do not distort metal frames. Bed anchors of frames in mortar and fill frame voids with mortar or grout as wall is erected.

3.5 BEARING POINTS

- .1 Fill concrete block solid with 20 MPa concrete grout at the following locations:
 - .1 for two courses below bearing points of structural members;
 - .2 where ladders are bolted to walls;
 - .3 where benches, shelves, cubbies, coat racks, J-hooks and other items are supported on walls;
 - .4 behind wall-mounted basketball equipment;
 - .5 behind wall mounded elevator rail brackets;
 - .6 behind wall-hung mechanical fixtures;
 - .7 and elsewhere as indicated on drawings.
- .2 Install building paper over wire mesh reinforcing in the beds below solid block section.
- .3 Use 100% solid concrete blocks where indicated.

3.6 CONTROL JOINTS

- .1 Provide continuous vertical control joints in concrete block and brick partitions and walls at locations indicated, and at maximum 4.0m o.c. Control joints may be at 6.0m o.c. for autoclaved block only.
- .2 Control joints are required at changes in wall height, at pilasters and changes in wall thickness, at movement joints in foundations and floors and roofs, at one side of door or window openings under 1.8m wide, on both sides of openings over 1.8m wide, and adjacent to corners.
- .3 Confirm all control joint locations with the Consultant prior to wall construction. Provide drawings marked up to show locations of all control joints.
- .4 Form control joints as detailed. Stop masonry reinforcing each side of joints; except where structural reinforcing is required, such as at bond beams.
- .5 Provide bond breaker at each control joint, of building paper or black polyethylene. Continue bond breaker over lintels at openings.
- .6 Control joints and bond breaker to be continuous from floor to roof, including any horizontal portions of a control joint. Review details with Consultant on site.

3.7 HORIZONTAL REINFORCING

- .1 Refer to structural drawings for requirements for additional masonry reinforcing.
- .2 Cavity wall and concrete block walls above and below grade shall be continuously reinforced and tied together with horizontal masonry reinforcing in every second block bed joint.
- .3 Additionally place masonry reinforcing in first and second bed joints above and below openings. Reinforcing in first bed joint shall be continuous. Second bed joint reinforcing shall extend 600 mm beyond each side of opening.
- .4 Place continuous reinforcing in second bed joint below top of wall.

SECTION 04 22 00 - CONCRETE UNIT MASONRY

- .5 At stack bond brick, provide reinforcing in every block bed joint, to provide reinforcing every 3 courses of brick.
- .6 Lap reinforcement minimum of 150mm at splices. Supply & install prefabricated sections at corners and intersection of walls to insure continuity of reinforcing.

3.8 FIRE-RATED INTERIOR PARTITIONS

- .1 Block shall be of density required to achieve fire rating, in accordance with the Ontario Building Code.
- .2 At door openings in fire rated masonry partitions, fill concrete block solid with 20 MPa concrete for a distance of 400mm at each side and 400mm above openings.

3.9 REINFORCED MASONRY WALLS

- .1 Construct reinforced masonry walls to conform to the requirements of the Ontario Building Code and CSA-A371, and as indicated on Structural drawings.
- .2 Lay units so as to maintain an unobstructed vertical continuity in the cells. All walls and cross webs shall be fully bedded. No over-hanging mortar or debris shall be allowed inside the reinforced cells unless otherwise on the drawings.
- .3 Vertical reinforcing shall be provided full length without splicing. It may be installed after the first 1200mm of masonry is erected. Locate rods accurately in the cells as shown on the Drawings. Hold in position top and bottom. Fill cells containing reinforcement solidly with 20 MPa concrete grout, unless noted otherwise on Structural drawings. Consolidate by puddling when placing and again reconsolidate before plasticity is lost. Place concrete grout in lifts not exceeding 1200mm. Stop each lift 38mm below the top of a masonry unit.
- .4 Refer to Structural and Architectural drawings for locations and grout strength.

3.10 THROUGH-WALL FLASHINGS

- .1 Install masonry flashing in locations where brick or block is bearing on foundation walls and elsewhere as indicated.
- .2 Carry through-wall flashings minimum 150mm up backing material and turn top edge into joint or anchor top edge continuously. Keep flashing 12mm from exterior exposed face. Lap joints minimum 150mm.
- .3 Lap and completely seal joints with adhesive to manufacturer's instructions. Bond flashing to vertical surfaces over whole area using flashing material manufacturer's recommended adhesive.

3.11 CUTTING MASONRY

- .1 Cutting of masonry units exposed in finished work shall be done with approved type power saw. Where electrical conduit outlet or switch boxes occur, grind and cut units before services installed. Quick saw not permitted for cutting block above grade.

SECTION 04 22 00 - CONCRETE UNIT MASONRY

- .2 Obtain Consultants approval before cutting any part or area which may impair appearance or strength of work.
- .3 Patching of masonry not permitted without Consultants approval.

3.12 BOND BEAMS

- .1 Install concrete block bond beams where indicated and where required for bearing of structural members.
- .2 Unless more stringent requirements are noted on Structural drawings, make bond beams of special channel blocks with two 15M reinforcing bars placed in bottom, and filled with 20 MPa concrete grout. Extend a minimum length of 200mm, each side of structural member.

3.13 REINFORCED LINTELS

- .1 Install reinforced concrete block lintels at openings where steel lintels are not indicated.
- .2 Cast and cure lintels on a plank. Set special channel lintel blocks using specified mortar. Place wood stops at each end of lintel to prevent movement.
- .3 Refer to Structural drawings for lintel sizes and dimensions. As a minimum, place 25mm of 20 MPa concrete grout in voids, lay in two 15M reinforcing bars and place concrete to level of block sides. Rod and tamp concrete well without disturbing reinforcing. Allow lintels to cure 7 days before loading.

3.14 COORDINATION

- .1 Provide openings in masonry walls where required or indicated. Provide reinforced lintels over all openings in both loadbearing and non-loadbearing walls.
- .2 Accurately locate chases and openings, and neatly finish to required sizes. Refer to Mechanical and Electrical drawings and co-operate with all trades.
- .3 Where masonry encloses conduit or piping, bring to proper level indicated and as directed. Do not cover any pipe or conduit chases or enclosures until advised that work has been inspected and tested.
- .4 Extend vapour barrier at window, door, and louvre openings and at tops of walls for building in to frames and flashings as detailed.
- .5 Build in frames and anchor bolts, and metal brackets for vanities, benches, coat racks and gym equipment, etc.
- .6 Coordinate with forces installing lateral support angles and acoustic insulation at the tops of non-load bearing masonry partitions.

3.15 CLEANING

- .1 On completion, remove excess mortar and smears using wood paddles or scrapers.
- .2 Point or replace defective mortar to match existing, as required or directed.

SECTION 04 22 00 - CONCRETE UNIT MASONRY

- .3 Clean concrete masonry walls exposed in the finished work in accordance with manufacture's recommendations and NCMA TEK Bulletin #8-4A.
- .4 Remove efflorescence from masonry walls exposed in the finished work in accordance with manufacturer's recommendations and NCMA TEK Bulletin #8-3A.
- .5 Remove dirt and stains from masonry walls exposed in the finished work in accordance with manufacturer's recommendations and NCMA TEK Bulletin #8-2A.
- .6 Repeat cleaning operations until work is satisfactory.

END OF SECTION

PART 1 - GENERAL

1.1 WORK INCLUDED

- .1 Supply and installation of miscellaneous structural steel supports and other steel fabrications required for the Work of this project.

1.2 RELATED WORK

- .1 Concrete Block Section 04 22 00
- .2 Finish Carpentry Section 06 20 00
- .3 Painting Section 09 92 00
- .4 Mechanical Divisions 20, 21, 22, 23, 25
- .5 Electrical Divisions 26, 27, 28

1.3 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)

1.4 SUBMITTALS

- .1 Submit Shop Drawings in accordance with Section 01 33 23. Show and describe detail work of this Section.
- .2 Include large scale details of members and materials, connections, joining details, and of anchorage devices, dimensions, gauges, thicknesses, description of materials, metal finishing specifications, as well as all other pertinent data and information.
- .3 Indicate field dimensions on shop drawings.
- .4 Shop drawings for shall be stamped by a professional structural engineer, registered in the Province of Ontario, retained by the Contractor, who shall be responsible for the structural design of metal fabrications.

1.5 FABRICATION

- .1 Design, fabricate and erect structural steel members in accordance with CAN/CSA-S16.1.

1.6 INSPECTION AND TESTING

- .1 The Owner will appoint a Testing and Inspection Company who shall ensure that the deflection and lateral support angles for non-loadbearing masonry walls have been securely anchored to wall and to structure above.

SECTION 05 52 00 - METAL FABRICATIONS

- .2 The cost of this testing and inspection shall be paid through the Cash Allowance included in the Contract; refer to Section 01 10 00.
- .3 Contractor shall cooperate with inspectors and provide full access to all places where the work is being performed.

PART 2 - PRODUCTS**2.1 MATERIALS**

- .1 Structural Steel: to CAN/CSA - S161.1; CAN/CSA-G40.20/G40.21.
- .2 Mild Steel Shapes: CAN/CSA A3-G40.20/G40.21, grade 350W.
- .3 Welding Materials: to CSA W59, CSA W55.3 for stainless steel, ASTM A371; for aluminum, ASTM B 285 and CSA-S244.
- .4 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.
- .5 Prime Paint: CGSB 1-GP-40 M.
- .6 Bituminous Paint: CGSB-1-GP-108 M.
- .7 Zinc-Rich Coating: organic zinc rich coating, "ZRC 221 Cold Galvanizing Compound" by ZRC Worldwide.
- .8 Steel pipes: to CAN/CSA-G40.20 type 300W; heavy duty, Schedule 40 or better.
- .9 Galvanizing: to CAN/CSA G164, G90.
- .10 Sheet Aluminum: 2mm thick, clear anodized, satin finish.
- .11 Stainless Steel: Type 304 for interior work, Type 317 for exterior applications, No. 4 brushed finish
- .12 Reflective Tape: 3M Diamond Grade Fluorescent Yellow Conspicuity Markings; 50mm wide fluorescent, retroreflective tape for exterior applications.
- .13 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.
- .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 GENERAL

- .1 Execute work according to details and reviewed shop drawings.
- .2 Take all measurements at the building before proceeding with fabrications.
- .3 Report discrepancies in dimensions to the Consultant who shall determine the adjustments to be made.
- .4 Where drawings indicate modifications to existing metal fabrications, the work shall be done by the subcontractor responsible for the work of this Section.

3.2 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 Make joints in built-up sections with hairline joints in the least conspicuous locations and manner.
- .4 Welding:
 - .1 to CSA W59.
 - .2 Weld all connections, unless otherwise noted.
 - .3 File or grind exposed welds smooth and flush, so as to be invisible after painting.
- .5 Counter sink screws, unless otherwise noted.
- .6 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.
- .7 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.
- .8 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.
- .9 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.

SECTION 05 52 00 - METAL FABRICATIONS

- .10 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.
- .11 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.
- .12 Galvanize all exterior work and all steel which will be embedded in concrete or masonry. Partially embedded items shall be galvanized beyond the point of embedment, to protect steel at junction point. Do galvanizing after welding.
- .13 After installation, remove any rust and touch up all galvanized work with two coats zinc rich coating.
- .14 Finish painting is specified in Section 09 92 00.

3.3 SUPPORT STEEL

- .1 Provide and install miscellaneous structural steel lintels, supports and any other steel fabrications required for wall openings and screens.

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.: 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 | Finish Carpentry | Section 06 20 00 |
| .3 | Door Hardware | Section 08 71 00 |
| .4 | Painting | Section 09 92 00 |
| .5 | Electrical | Division 26, 27, 28 |

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.

END OF SECTION

PART 1 - GENERAL

1.1 WORK INCLUDED

- .1 All finished wood items and trim, shown on drawings or architectural details.
- .2 Installation of all interior door and room signage is supplied under Interior Signage Allowance Supplier.
- .3 Installation of all hardware required for the work.

1.2 RELATED WORK

- .1 Metal Fabrications Section 05 52 00
- .2 Rough Carpentry Section 06 10 00
- .3 Painting Section 09 90 00

1.3 DELIVERY AND STORAGE

- .1 Protect materials against high humidity and moisture at all times.

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 - 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. Comply with CSA Standard 0141 Softwood Lumber. Use only grade marked lumber.
- .3 All wood materials: well seasoned NLGA, free from defects which impair strength and durability. Moisture content limit: S-GRN: Unseasoned; S-DRY: Maximum 19% moisture content: KD: Maximum 15% moisture content.
- .4 Hardwood Lumber: Select white birch, suitable for clear finish except as noted.
Clear maple, suitable for clear finish
Clear oak, suitable for clear finish
- .5 Douglas Fir plywood: all veneer ply; comply with CSA Standard 0121, COFI Exterior. Exposed two sides shall be grade G2S, and exposed one side shall be grade G1S
- .6 Canadian Softwood Plywood : all veneer ply; comply with CSA Standard 0151, COFI Waterproof glue WSP. Exposed two sides shall be grade S2S, and exposed one side shall be grade S1S.

SECTION 06 20 00 - FINISH CARPENTRY

- .7 Hardwood plywood : all veneer ply conforming to CSA 0115 and AWMAC. Birch or maple ply for stain finish, where noted on drawings.

- .8 Fasteners:
 - .1 Wood screws: electroplated, to CSA-B35.4
 - .2 Nails and Staples: to CSA-B111

- .9 Typical wood finish:
 - .1 Premium Grade, AWS System 9, UV curable, acrylated epoxy, polyester or urethane; semi-gloss.
 - .2 System shall consist of stain (where noted), sealer and transparent top coat
 - .3 The individual components of the system used must be chemically compatible to assure perfect adhesion and a top quality, durable final finish.
 - .4 Stain to be of colour as later selected.
 - .5 Finish to match wood casework finish unless otherwise indicated.

2.2 FURNITURE FINISHING (WOOD)

- .1 Carefully prepare all work to receive finish. Thoroughly sand all wood surfaces to remove machine marks and make dust-free before finishing.

- .2 Finish all surfaces, except permanently concealed surfaces, in accordance with AWMAC specifications:
 - .1 One coat of selected stain (where indicated);
 - .2 one coat of sealer with B-stage curing;
 - .3 one coat of sealer, fully cured, sanded smooth;
 - .4 one coat of finish with B-stage curing;
 - .5 second coat of finish with full curing.
 - .6 Apply finish in accordance with best practice and the resultant finish must be of highest quality for furniture use.

- .3 Finish unexposed surfaces with two coats of tinted sealer.

- .4 The colours of stains shall be selected by the Consultant. Before proceeding submit prepared 300mm x 300mm finished samples of materials for approval.

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.

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.

3.3 WOOD TRIM

- .1 Supply and install all wood trim, for stain finish, where shown on drawings and details including, but not limited to, the following:
 - .1 Solid maple trim at control panels.
 - .2 Solid birch, oak and maple trim where noted on drawings.
 - .3 Provide steel angles and brackets for concealed fastening of trim. Co-ordinate installation with acoustic panels.
 - .4 Provide cut outs as required for electrical, sprinkler and mechanical equipment.

3.4 TOUCH-UP

- .1 Touch up all finishes on site.
- .2 Inspect finish carpentry products immediately before occupancy of the building by the Owner. Repair all damage and touch up finishes, to leave in as-new condition.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED WORK

- .1 Acoustic sealant Section 09 29 00

1.2 REFERENCE STANDARDS

- .1 ASTM International:
 - .1 ASTM C 510 Standard Test Method for Staining and Color Change of Single- or Multicomponent Joint Sealants
 - .2 ASTM C 719 Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle)
 - .3 ASTM C 794 Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants
 - .4 ASTM C 834 Standard Specification for Latex Sealants
 - .5 ASTM C920 Standard Specification for Elastomeric Joint Sealants
 - .6 ASTM C 1087 Standard Test Method for Determining Compatibility of Liquid- Applied Sealants with Accessories Used in Structural Glazing Systems
 - .7 ASTM C 1193 Standard Guide for Use of Joint Sealants
 - .8 ASTM C 1247 Standard Test Method for Durability of Sealants Exposed to Continuous Immersion in Liquids
 - .9 ASTM C 1248 Standard Test Method for Staining of Porous Substrate by Joint Sealants
 - .10 ASTM C 1311 Standard Specification for Solvent Release Sealants
 - .11 ASTM D 2203 Standard Test Method for Staining from Sealants

1.3 APPROVED MANUFACTURERS

- .1 The 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 Material 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 documented experience.

1.5 SUBMITTALS

- .1 Submit samples of each sealant, in conformance with Section 01 33 23.
- .2 Provide colour cards for Consultants selection.

SECTION 07 92 00 - JOINT SEALANTS

- .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 "Type A" sealant listed below.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Sealant Type A: For exterior locations. Non-Staining, primer less, silicone weather-proofing sealant:
 - .1 SilPruf SCS9000 NB, manufactured by Canadian General Electric Company Limited,
 - .2 Dow Corning 756 SMS, manufactured by Dow Corning Canada Inc., or
 - .3 Spectrem 3, manufactured by Tremco Ltd., and
 - .4 conforming to the product properties published.
 - .5 to ASTM C920 Type S, Grade NS, Class 50, Use NT, M, G, A, and O
- .2 Sealant Type B: For interior locations. Non-staining, primer less, silicone hybrid sealant:
 - .1 SCS7000, manufactured by Canadian General Electric Company Limited.
 - .2 Dow Corning 756 SMS, manufactured by Dow Corning Canada Inc., or
 - .3 Spectrem 3, manufactured by Tremco Ltd.
 - .4 to ASTM C920 Type S, Grade NS, Class 50, Use M, G, A, and O
- .3 Sealant Type C: For interior locations where conditions of high humidity exist such as washrooms. Mildew resistant, one component silicone conforming to CGSB 19-GP-22M and ASTM C920:
 - .1 CGE SCS1700 Sanitary Sealant,
 - .2 Dow Corning 786, or
 - .3 Tremco Tremsil 200 White
- .4 Sealant Type D: For interior locations. Paintable, non-staining, primer less, silicone hybrid sealant:
 - .1 SCS7000, manufactured by Canadian General Electric Company Limited.

- .5 Sealant Type E:
 - .1 One-part, moisture cure, medium modulus silicone sealant; Contractors Weatherproofing Sealant (CWS) BY Dow Corning; to ASTM C 920 Type S, Grade NS, Class 50, Use NT, M, A, O (granite).
 - .2 One-part, moisture-cure, low-modulus silicone sealant; Contractors Concrete Sealant by Dow Corning; to ASTM C 920 Type S, Grade NS, Class 50, Use T, NT, M, G, A, O.
- .6 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.
- .7 Primers for sealing: As manufactured or recommended by the manufacturer of the sealing materials for the specific applications.
- .8 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.
- .9 Bond Breaker: pressure sensitive plastic tape backing material, which will not bond to sealant; 3M #226 or #481, or Valley Industries #40.
- .10 Cleaning material for surfaces to receive sealant to be as recommended by the manufacturer of the sealant.

PART 3 - EXECUTION

3.1 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 with Sealant Type A. 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.

SECTION 07 92 00 - JOINT SEALANTS

- .2 Seal all interior 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 with Sealant Type B. 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 walls.
 - .5 Between hollow metal frames and screens and adjacent materials.
 - .6 Between window, louvre, and skylight frames and sills and adjacent materials.
 - .7 At all joints between millwork and masonry, to provide neat junction.
 - .8 At junction between all counters and/or splashbacks and adjacent substrate with neat 3mm bead.
 - .9 At all control and expansion joints.
- .3 Seal with Sealant Type C at the following locations:
 - .1 Around access panels in ceramic tile faced walls with a neat 3mm bead.
 - .2 Around perimeter of piping penetration at tile work.
 - .3 At junctions between all counter tops and/or splashbacks and adjacent substrate in washrooms, with neat 3mm bead.
 - .4 At junctions of lavatories, toilets, and other plumbing fixtures and adjacent substrate.
- .4 Seal with Sealant Type D at all interior non-moving joints to be painted.
- .5 Seal at all other vertical and horizontal joint locations with Sealant Type E.
- .6 Refer to Section 07 84 00, Firestopping and Smoke Seal, for location of fire stopping and fire resistant caulking.
- .7 Refer to Section 09 29 00, Gypsum Board, for acoustic sealant work.

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 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 Remove chalk lines completely. Do not place clear sealant over coloured chalk lines.
- .6 Test materials for indications of staining or poor adhesion before any sealing is commenced.
- .7 Submit colour chart to Consultant and obtain his written instructions for colours and locations of colours.

3.4 PRIMING

- .1 If recommended by the manufacturer of the sealing materials, prime joints to prevent staining, or to assist the bond, or 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.

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.

SECTION 07 92 00 - JOINT SEALANTS

- .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.
- .2 Remove excess sealant and droppings using recommended cleaners as work progresses.
- .3 Remove masking after joint tooling.

END OF SECTION

PART 1 - GENERAL

1.1 WORK INCLUDED

- .1 Patching and repair of existing concrete slab, to prepare for new flooring.
- .2 Provision of moisture reduction barrier, to reduce moisture vapour transmission through new sections of concrete slab. Apply to properly prepared sound and stable concrete substrates, at least 7 days old.
- .3 Apply moisture reduction barrier over all new sections of concrete floor scheduled to receive any floor finish.
- .4 Levelling of concrete floors.

1.2 RELATED WORK

- .1 Painting Section 09 90 00
- .2 Terrazzo Section 09 66 13

1.3 SUBMITTALS

- .1 Submit product data sheets, MSDS, and installation instructions.

1.4 STORAGE

- .1 Store materials in original containers in a dry area at normal room temperature (approximately 20°C).

PART 2 - MATERIALS

2.1 MATERIALS

- .1 Patching Compound:
 - .1 Ardifix by Ardex Americas; two-part polyurethane repair compound
- .2 Moisture-Reduction Barrier:
 - .1 MC Rapid Moisture Control System by Ardex, one-coat; 100% solids epoxy moisture management system, for suppressing moisture vapour emissions in new or existing concrete.
- .3 Levelling Agent:
 - .1 K60 Arditec Rapid Setting Latex Smoothing and Levelling Compound by Ardex; Portland cement based, self-smoothing, trowelable, latex levelling compound.
- .4 Equivalent products as manufactured by Mapei or Laticrete will also be considered, subject to proof of equivalent properties and capabilities. Materials must be compatible with each other and with mortars and adhesives used for floor finishes.

SECTION 09 01 61 - FLOORING RESTORATION

PART 3 - EXECUTION**3.1 GENERAL**

- .1 Confirm environmental requirements with product manufacturer.
- .2 All moving joints and moving cracks must be continuous through entire floor system; install flexible compound designed for this purpose.
- .3 Flooring restoration and moisture barrier compounds to be "feathered" out at intersection with existing flooring to avoid raising floor level at junction between new and existing flooring.
- .4 Flooring restoration and moisture control system must be in place prior to installation of partition walls. Moisture control barrier must be continuous under new partitions and furring.

3.2 EXISTING CONDITIONS

- .1 Examine surfaces to receive the work of this Section and proceed only when conditions are satisfactory for a proper installation.
- .2 Do not apply over gypsum-based substrates or gypsum-based patching compounds.
- .3 Verify substrate is free of bond-inhibiting or bond-breaking materials such as curing compounds and dust.
- .4 Test concrete substrate using a Calcium Chloride Test (ASTM F1869) and concrete moisture probes to measure the relative humidity. Concrete substrate shall be acclimated to 23°C and 50% relative humidity prior to testing.

3.3 SURFACE PREPARATION

- .1 Substrate must be structurally sound, dry, solid and stable. Clean surface of dust, dirt, oil, grease, paint, curing compounds, concrete sealers, loosely bonded toppings, old adhesive residues (including cutback adhesive residue) and any other substances that may prevent or reduce adhesion, by mechanical methods acceptable to the Consultant and the product manufacturer. No chemical etching is permitted.
- .2 Mechanically prepare cracks as well as control, construction and expansion joints with a diamond crack-chasing/ concrete-cutting blade. Overcut the joint width to obtain a sound substrate. Use an industrial type of vacuum to completely remove the dust and contaminants. Use an appropriate attachment with a rubber seal around the suction end of the nozzle for maximum pickup of contaminants and dust.
- .3 Patch existing concrete floors with patching compound in accordance with manufacturer's printed instructions. Patch concrete before applying moisture reduction barrier.

3.4 INSTALLATION - MOISTURE REDUCTION BARRIER

- .1 Apply moisture reduction barrier in accordance with manufacturers printed instructions. Apply to all new concrete, and to existing concrete to receive new floor finishes.

SECTION 09 01 61 - FLOORING RESTORATION

- .2 Apply using application methods and tools prescribed by the manufacturer. Allow 24 hours before re-coating.
- .3 Apply product at rate recommended by the manufacturer; assume median of application rate range is required for first application. Apply additional product as required to ensure complete coverage.
- .4 Finished application shall cover concrete floors completely, without voids or pinholes.
- .5 Allow moisture reduction barrier to cure as recommended by the manufacturer, generally for a minimum of 4 hours and a maximum of 8 hours, prior to installing smoothing and levelling compound.
- .6 Expansion and other movement joints must continue through finished floor system.

3.5 INSTALLATION - SMOOTHING / LEVELLING COMPOUND

- .1 Apply smoothing and levelling compound over moisture reduction barrier, to smooth and level floor prior to application of resilient flooring. Surface must be properly prepared, in accordance with manufacturers requirements.
- .2 Protect from excessive heat or drafty conditions during curing period.
- .3 Consult manufacturer to confirm when flooring materials may be installed. Do not apply adhesive or flooring before material is completely dry; for ARDEX K 60, cure 16-24 hours at 21°C (70°F) prior to installing finish flooring.

3.6 CLEANUP

- .1 Fresh, wet materials can be cleaned off with soapy, warm water.
- .2 Cured material must be mechanically removed from surfaces.

END OF SECTION

PART 1 - GENERAL

1.1 WORK INCLUDED

- .1 Preparation of concrete slab to receive new flooring.
 - .1 Levelling of slab, including transition of floor levels at changes in finish materials.
 - .2 Patching and repairs to slab, as may be required.

1.2 RELATED WORK

- .1 Concrete, MVRA in slab-on-grade Section 03 30 00
- .2 Terrazzo Section 09 66 13

1.3 SUBMITTALS

- .1 Submit product data sheets, MSDS, and installation instructions for all products.

1.4 STORAGE

- .1 Store materials in original containers in a dry area at normal room temperature (approx. 20°C).

PART 2 - MATERIALS

2.1 MATERIALS

- .1 Patching Compound:
 - .1 Ardifix by Ardex Americas; two-part polyurethane repair compound
- .2 Moisture-Reduction Barrier:
 - .1 MC Rapid, one-coat moisture control system by Ardex Americas; 100% solids epoxy moisture management system, for suppressing moisture vapour emissions in new concrete.
- .3 Levelling Agent:
 - .1 K60 Arditec Rapid Setting Latex Smoothing and Levelling Compound by Ardex Americas; Portland cement based, self-smoothing, trowelable, tow component, latex levelling compound.
- .4 Equivalent products as manufactured by Mapei or Laticrete will also be considered, subject to proof of equivalent properties and capabilities. Materials must be compatible with each other and with mortars and adhesives used for floor finishes.

PART 3 - EXECUTION

3.1 GENERAL

- .1 Confirm environmental requirements with product manufacturer.

SECTION 09 01 69 - FLOORING PREPARATION

- .2 All moving joints and moving cracks must be continuous through entire floor system; install flexible compound designed for this purpose.
- .3 Flooring preparation work, including moisture control system, must be in place prior to installation of partition walls. Moisture control barrier must be continuous under new partitions and furring.

3.2 EXAMINATION OF WORK IN PLACE

- .1 Examine surfaces to receive the work of this Section and proceed only when conditions are satisfactory for a proper installation.
- .2 Verify substrate is free of bond-inhibiting or bond-breaking materials such as curing compounds and dust.
- .3 Test concrete substrate using a Calcium Chloride Test (ASTM F1869) and concrete moisture probes to measure the relative humidity. Concrete substrate shall be acclimated to 23°C and 50% relative humidity prior to testing.

3.3 SURFACE PREPARATION

- .1 Substrate must be structurally sound, dry, solid and stable. Clean surface of dust, dirt, oil, grease, paint, curing compounds, concrete sealers, and any other substances that may prevent or reduce adhesion, by mechanical methods acceptable to the Consultant and the product manufacturer. No chemical etching is permitted.
- .2 Mechanically prepare control, construction and expansion joints, and any cracks, with a diamond crack-chasing/ concrete-cutting blade. Overcut the joint width to obtain a sound substrate. Use an industrial type of vacuum to completely remove the dust and contaminants. Use an appropriate attachment with a rubber seal around the suction end of the nozzle for maximum pickup of contaminants and dust.
- .3 Patch any damaged areas of concrete floors with patching compound in accordance with manufacturer's printed instructions. Patch concrete before applying moisture reduction barrier.

3.4 INSTALLATION - MOISTURE REDUCTION BARRIER

- .1 Apply moisture reduction barrier in accordance with manufacturers printed instructions. Apply to all new concrete, and to existing concrete to receive new floor finishes.
- .2 Apply using application methods and tools prescribed by the manufacturer. Allow 24 hours before re-coating.
- .3 Apply product at rate recommended by the manufacturer; assume median of application rate range is required for first application. Apply additional product as required to ensure complete coverage.
- .4 Finished application shall cover concrete floors completely, without voids or pinholes.

SECTION 09 01 69 - FLOORING PREPARATION

- .5 Allow moisture reduction barrier to cure as recommended by the manufacturer, generally for a minimum of 4 hours and a maximum of 8 hours, prior to installing smoothing and levelling compound.
- .6 Expansion and other movement joints must continue through finished floor system.

3.5 INSTALLATION - LEVELLING COMPOUND

- .1 Apply levelling compound at doorways and other locations where floor finishes of different thicknesses meet, to provide level transition.
 - .1 This includes over concrete floors without floor finishes.
 - .2 Feather levelling compound out in each direction over lower floor area, so that slope is unnoticeable in finished floor. This would require extending levelling compound out to a distance of over 2 metres, for example, where an exposed concrete floor meets a porcelain tiled floor.
- .2 Apply levelling compound over moisture reduction barrier, to smooth and level floor prior to application of resilient flooring. Surface must be properly prepared, in accordance with manufacturers requirements.
- .3 Protect from excessive heat or drafty conditions during curing period.
- .4 Consult manufacturer to confirm when flooring materials may be installed. Do not apply adhesive or flooring before material is completely dry; for ARDEX K 60, cure 16-24 hours at 21°C (70°F) prior to installing finish flooring.

3.6 CLEANUP

- .1 Fresh, wet materials can be cleaned off with soapy, warm water.
- .2 Cured material must be mechanically removed from surfaces.

END OF SECTION

SECTION 09 22 16 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- | | | |
|----|--|------------------|
| .1 | Rough Carpentry | Section 06 10 00 |
| .2 | Gypsum Board | Section 09 29 00 |
| .3 | Acoustic tile ceilings, suspension systems | Section 09 51 00 |

1.2 REFERENCES

- | | | |
|-----|--------------------|---|
| .1 | CSA S136 | North American Specification for the Design of Cold-Formed Steel Structural Members |
| .2 | CAN/ULC-S101 | Standard Methods of Fire Endurance Tests of Building Construction and Materials |
| .3 | ASTM International | |
| .1 | A641/A641M | Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire |
| .2 | A653/A653M | Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process |
| .3 | A792/A792M | Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process |
| .4 | A1003 | Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic coated for Cold-Formed Framing Members |
| .5 | C645 | Standard Specification for Nonstructural Steel Framing Members |
| .6 | C754 | Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products |
| .7 | C841 | Standard Specification for Installation of Interior Lathing and Furring |
| .8 | C1002 | Standard Specification for Steel-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster bases to Wood Studs or Steel Studs |
| .9 | E90 | Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements |
| .10 | E413 | Classification for Rating Sound Insulation |
| .11 | E488 | Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements |
| .12 | E1190 | Standard Test Methods for Strength of Power-Actuated Fasteners Installed in Structural Members |

SECTION 09 22 16 - NON-STRUCTURAL METAL FRAMING

- .4 Canadian Sheet Steel Building Institute (CSSBI) Technical Bulletins:
 - .1 Volume 7, Number 1: Maximum Height Tables for Interior Non-Loadbearing Partitions
 - .2 Volume 7, Number 3: Specification of Non-Load Bearing Steel Studs
 - .3 Volume 7, Number 4: Applications of Non-Load Bearing Steel Studs
 - .4 Volume 7, Number 8: Non-Loadbearing Steel Stud Composite Limiting Height Calculation for Canadian Applications

1.3 QUALITY ASSURANCE

- .1 Fire-Test-Response Characteristics:
 - .1 For fire-resistance-rated assemblies that incorporate non-loadbearing interior steel framing, provide materials and construction identical to those tested in assembly indicated according to CAN/ULS-S101.
- .2 STC-Rated Assemblies:
 - .1 For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E90 and classified according to ASTM E413.

1.4 DELIVERY AND STORAGE

- .1 Handle and store materials carefully to prevent damage.
- .2 Obtain approval of proposed locations for stockpiling material. Provide any necessary temporary covers, skids and the like.
- .3 Do not install damaged or deteriorated material but remove from Site.

1.5 RELATIONS WITH OTHER TRADES

- .1 Coordinate with other trades for the locations of items to be framed in and framed around, and locations of items to be wall mounted. Provide blocking at appropriate locations behind all wall mounted cabinetry, heavy millwork, washroom accessories, mirrors, equipment, service fittings, fixtures, and other surface mounted items indicated on the drawings.
- .2 Co-ordinate with mechanical and electrical trades to accommodate installation of all services and fittings prior to application of wall board or sheathing.
- .3 Co-ordinate with forces installing insulation and vapour barrier in exterior soffits.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Metal framing shall be as manufactured by Bailey Metal Products, as specified below. Equivalent products, where available, will be accepted from Steelform Group, Imperial Group, DCM Metal, or Trebor Building Products. Metal framing shall conform to ASTM C645.
- .2 Metal framing shall be fabricated from sheet steel with minimum base thickness of 0.455mm (18 mils), galvanized, and specially designed for application of impact-resistant or abuse-resistant gypsum board. Do not use standard 25 gauge framing for impact-resistant or abuse-resistant gypsum panels; where specialty framing is not available, provide framing with a minimum base thickness of 0.836 mm, (33 mils).
- .3 Metal Studs and Track:
 - .1 Fabricated from sheet steel, galvanized; depths as indicated on drawings.
 - .2 Typical studs and track shall be Bailey B18 Hard Board Stud, minimum 0.455mm (18mils) base metal thickness and 50 ksi (Grade 50) tensile strength, with min. 36.5mm (17/16") flange; required where abuse-resistant or impact-resistant panels, or cement board, are to be applied. Note that typical panels are abuse resistant for this project.
 - .3 Where standard gypsum panels are permitted, Bailey Platinum Plus steel framing, minimum 0.455mm (25 ga), is the minimum required for framing.
 - .4 Base thickness shall be 0.455mm and 0.836mm, as specified above.
 - .5 Conform to manufacturer's maximum height tables for steel studs. For heights in excess of height limitations for 0.455mm steel studs, use studs with base metal thickness of 0.836mm (33 mils).
 - .6 Track shall be of same base metal thickness as studs, with minimum 50mm deep flanges. Bottom track shall be single piece. Top track shall be single piece or double track, manufactured to prevent cracking of applied finishes resulting from deflection of structure above.
- .4 Metal Furring Channels:
 - .1 sheet galvanized steel channel and accessories as manufactured by Bailey Metal Products, or approved alternate; to ASTM C645.
 - .2 minimum 0.836 mm, design thickness, (20 ga) steel furring channels required at walls, and where abuse resistant or impact-resistant panels are to be applied.
 - .3 minimum 0.455mm (25 ga) required for all other furring channels.
 - .4 Hat channels shall be minimum 22mm deep, with minimum 12.7mm flanges.
 - .5 Resilient furring channels shall be designed to reduce sound transmission and shall have a minimum depth of 12.7 mm.
- .5 Carrying Channels:
 - .1 Channels shall conform to ASTM C754 and shall be cold-firmed from steel with minimum 228 MPa yield strength and 1.37 mm base steel thickness.
 - .2 Channels shall have a minimum coating of Z120 galvanizing in accordance with ASTM A653/A653M.

SECTION 09 22 16 - NON-STRUCTURAL METAL FRAMING

- .3 Carrying channels shall have minimum 12.7mm wide flanges and minimum depth of 38mm.

- .6 Bracing and Blocking:
 - .1 Provide flat straps and backing plates of galvanized sheet steel for blocking and bracing; length and width as required.
 - .2 Minimum base steel thickness shall match studs or furring in which it is installed.
 - .3 Width of bracing shall match width of studs. Width of blocking shall be as required to sustain loading of wall mounted items.

- .7 Channel Bridging:
 - .1 Channel bridging shall have a minimum base steel thickness of 0.455mm with minimum 12.7 mm wide flanges and minimum depth of 19 mm.

- .8 Fasteners for Metal Framing:
 - .1 Fasteners to be of type, material, size, corrosion resistance, strength, and holding power, as required to fasten steel members to substrates in accordance with ASTM C1002.

- .9 Hanger wire: minimum 3.77mm (9ga) galvanized steel wire.

- .10 Tie Wire: minimum 1.5mm (16 ga) galvanized, soft annealed, steel wire.

- .11 Screws: CGC Brand Screws (or approved equal) of type recommended by the board manufacturer.

- .12 Ceiling Anchors: Self drilling tie wire anchors, Phillips "Red Head" T-32 or approved equal.

- .13 Thermal Break: Permanent adhesive faced rubberized cork, 3 mm thick by width of stud on channel to be used between masonry in exterior wall and metal furring channels.

- .14 Dampproofing: 6.3mm thick closed cell polyethylene foam strip, by width of bottom track.

- .15 Acoustic sealant is specified in Section 09 29 00.

- .16 Note that where fire rated assemblies are required, the materials shall be of the types used in the fire test and listed on the tested design documentation.

PART 3 - EXECUTION

3.1 GENERAL

- .1 Provide plumb, straight, level, rigid, and secure installation. Failing to achieve this result shall be cause for rejection and reinstallation of this work.

SECTION 09 22 16 - NON-STRUCTURAL METAL FRAMING

- .2 Where walls run parallel and under steel joists, the joists shall be framed both sides, for enclosing with gypsum board to provide sound barrier between rooms.

3.2 STEEL STUD SYSTEM (PARTITION) INSTALLATION

- .1 Conform to the guidelines for metal framing contained in The Gypsum Construction Handbook, CSA A82.31, and these specifications. The most stringent requirements shall apply.
- .2 Attach metal runners at floor and ceiling to structural elements with suitable fasteners located 50mm from each end and spaced 600 mm. o.c. with toggle or molly bolts spaced 400mm o.c.
- .3 Position studs vertically, engaging floor and ceiling runners, and spaced 400mm o.c., unless otherwise noted on drawings. When necessary, splice studs with 200mm nested lap and one positive attachment per stud flange. Place studs in direct contact with door frame jambs, abutting partitions, partition corners and existing construction elements. Where studs are installed directly against exterior walls install rubberized cork stip between studs and wall surfaces to provide thermal break.
- .4 Anchor studs for shelf-walls and those adjacent to door and window frames, partition intersections and corners to ceiling and floor runner flanges with an approved crimping tool. Securely anchor studs to jamb and head anchor clips of door or borrowed-light frames by bolt or screw attachment. Over metal door and borrowed-light frames, place horizontally a cut-to-length section of runner, with a web-flange bent at each end, and secure with one positive attachment per flange. Position a cut-to-length stud (extending to ceiling runner) at vertical panel joints over door frame header.
- .5 Stiffen partitions exceeding 3m long or 2.7m high with 19mm. cold rolled channels. Fix horizontally and provide the number of rows necessary to ensure a rigid installation. Provide other partition reinforcing necessary to support wall hung components, cupboards, closets and the like. Use 2 studs at jambs of openings and corners.
- .6 Where horizontal runs of service lines are to be installed within the partition, erect studs with web openings aligned.
- .7 Provide reinforcing and necessary stiffeners to support hollow metal frames and screens. Reinforcing to be capable of supporting screens rigidly and solid without deflection.

3.3 CHASE WALL INSTALLATION

- .1 Align two parallel rows of floor and ceiling runners spaced apart as indicated. Attach to concrete slabs with concrete stub nails or power driven anchors 600 mm o.c. Attach to suspended ceilings with toggle or molly bolts 400mm o.c. Attach to wood framing with suitable fasteners 600mm o.c.
- .2 Align metal studs vertically in runners, 200mm o.c. with flanges in the same direction and with studs on opposite sides of chase directly across from each other. Anchor studs to floor and ceiling runner flanges with an approved metal crimping tool.

SECTION 09 22 16 - NON-STRUCTURAL METAL FRAMING

- .3 Cut cross bracing to be placed between rows of studs from gypsum panels, 400mm high by chase wall width. Space braces at quarter points not to exceed 600mm o.c. vertically and attach to stud webs with six 25mm screws 200mm o.c. maximum on each side.
- .4 Bracing with 64mm metal studs may be used in place of gypsum panels. Anchor web at each end of metal brace to stud web with two 10mm pan head screws. When chase wall studs are not opposite, install metal stud cross braces 400mm o.c. horizontally and securely anchor each end to a continuous horizontal 64mm runner screw-attached to chase wall studs with the cavity.
- .5 Adapt cross bracing as necessary to avoid interference with service.

3.4 WALL FURRING INSTALLATION

- .1 Direct Furring Channel Attachment
 - .1 Attach metal furring channels, vertically or horizontally spaced 400mm o.c. to masonry or concrete surfaces with hammer-set or power-driven fasteners or concrete stub nails staggered 600mm o.c. on opposite flanges.
 - .2 Nest channels 200mm at splices and anchor with two fasteners in each wing.
 - .3 Where furring channel is installed directly to exterior wall, install thermal break strip between furring channel and wall.
 - .4 For horizontally placed channels attach maximum 100mm from floor and ceiling.
- .2 Bracketed Furring Channel Attachment
 - .1 Attach adjustable wall furring brackets with serrated edges up, 900mm o.c. horizontally, 1200mm o.c. vertically, within 100mm of columns or other abutting construction, within 150mm of floor and ceiling, and as required above and below openings.
 - .2 Use 50mm cut nails in mortar joints of brick or clay tile or concrete block, or in field of lightweight aggregate blocks; use 16mm concrete stub nails or power driven nails or other suitable fasteners in monolithic concrete. Place fastener in top hole of bracket.
 - .3 Lay cold-rolled channels horizontally with flanges down, on furring brackets, plumb with other channels, and tie with double strand 16 ga. or triple strand 18 ga. wire at each junction with cold rolled channel.
- .3 Free Standing Furring:
 - .1 In locations where wall furring is indicated as self-supporting, use steel studs and furring channels installed to provide a rigid frame to receive wall board.

3.5 CEILING SUSPENSION

- .1 Do not regard grillage system indicated on drawings as exact or complete. The Specification for metal framing contained in CGC Gypsum Construction Handbook and ASTM C840 shall govern installation conditions not covered by this Specification. The more stringent specifications shall apply.

SECTION 09 22 16 - NON-STRUCTURAL METAL FRAMING

- .2 Hangers
 - .1 Install hangers for suspended wallboard ceilings to support the grillage independent of walls, columns, pipes, ducts and the like. Erect plumb and securely anchor to the structure. Submit details of proposed method to the Consultant for approval. If so requested, test hangers to prove that anchorage is adequate to support the proposed loading. Erect hangers plumb and securely anchor to structural steel or support channels fastened to structural steel (DO NOT FASTEN TO STEEL DECK).
 - .2 Space hangers at 1200mm maximum o.c. along the carrying channels and not more than 150mm from ends (or as required to conform with fire tested assemblies where applicable).
- .3 Carrying Channels
 - .1 Space channels at 1200mm maximum o.c. (or as required to conform with fire tested assemblies where applicable).
 - .2 Run channels transversely to structural framing members.
 - .3 Where splices are necessary, lap members at least 200mm and wire each end with two laps; avoid clustering or lining up splices.
 - .4 Attach to hangers by bending hanger under runner and securely wire in place with a saddle tie.
 - .5 Provide 25mm clearance between channels and abutting walls and partitions.
- .4 Cross Furring
 - .1 Install drywall screw channels transversely across runner channels, joists or other supports.
 - .2 Space drywall screw channels at 600mm o.c. and not more than 150mm from perimeter walls. Provide 25mm clearance between channels and abutting walls and partitions. Use closer spacing if so noted on drawings.
 - .3 Secure drywall screw channels to each support with approved clip or attachment; splice joints by messing minimum 200mm and tying channels together with double strand 16 gauge tie wire.
 - .4 Level drywall screw channels to a maximum tolerance of 4mm over 3600mm.
 - .5 Drywall shall not be fixed directly to open web steel joists and the like. Provide cross furring as specified.
- .5 Openings
 - .1 Frame openings with suitable channels; check clearances with respective Trades. Provide support for edges of boards at all cut-outs and openings in ceilings.
 - .2 Provide all additional hangers and supports for fixtures as required.

SECTION 09 22 16 - NON-STRUCTURAL METAL FRAMING

- .3 Provide additional hangers and framing for enclosure of radiant heating panels.

- .6 Bulkheads
 - .1 Furr out bulkheads in areas indicated and as required to conceal mechanical, electrical or other services in rooms where drywall finishes are scheduled, and elsewhere if called for on drawings.

 - .2 Use methods and materials as previously specified in this section.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- | | | |
|----|------------------------------|------------------|
| .1 | Rough Carpentry | Section 06 10 00 |
| .2 | Non Structural Metal Framing | Section 09 22 16 |
| .3 | Acoustic Ceilings | Section 09 51 00 |
| .4 | Painting | Section 09 92 00 |

1.2 REFERENCES

- .1 ASTM International
 - .1 ASTM C1396 Standard Specification for Gypsum Board
 - .2 ASTM C840 Standard Specification for Application and Finishing of Gypsum board
 - .3 ASTM C1629 Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fibre-Reinforced Cement Panels
- .2 CAN/ULC-S101 Standard Methods of Fire Endurance Tests of Building Construction and Materials
- .3 Gypsum Association
 - .1 GA-214 Recommended Levels of Gypsum Board Finish
 - .2 GA-216 Application and Finishing of Gypsum Panel Products
- .4 The Gypsum Construction Handbook - CGC Inc.

1.3 DELIVERY AND STORAGE

- .1 Handle and store materials carefully to prevent damage. Materials must be delivered to site in their original, unopened packages.
- .2 Obtain approval of proposed locations for stockpiling material. Materials must be stored in an enclosed shelter providing protection from exposure to the elements. Provide any necessary temporary covers, skids and the like.
- .3 Store all panels flat.
- .4 Do not install damaged or deteriorated material but remove from Site.
- .5 Materials as delivered shall bear manufacturer's name, brand name of material and where applicable, ULC designation.

1.4 ENVIRONMENTAL CONDITIONS

- .1 Do not apply gypsum board or joint filler to surfaces that are damp or contain frost.
- .2 During gypsum panel application and joint finishing, temperatures within work areas shall be within the range 12°C. to 25°C.

SECTION 09 29 00 - GYPSUM BOARD

- .3 Provide adequate ventilation to carry off excess moisture.

1.5 RELATIONS WITH OTHER TRADES

- .1 Co-ordinate with mechanical and electrical Trades to ensure that all services are installed prior to application of wall board.
- .2 Coordinate with mechanical and electrical trades for locations of access panels. Install access doors and panels supplied by those trades.
- .3 Co-ordinate with forces installing insulation and vapour barrier in exterior soffits.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 All materials to conform to ASTM C1396 unless specified otherwise. Except where noted otherwise, products listed herein are produced by Canadian Gypsum Company (CGC). Equivalent products from Georgia Pacific (GP) and Certainteed will be accepted, subject to acceptance of equivalency by the Consultant.
- .2 Gypsum panels:
 - .1 Typical panels to be 16mm thick abuse resistant and mould resistant, to ASTM C1629.
 - .2 CGC Sheetrock Mold Tough Abuse Resistant Firecode Core gypsum panels or GP ToughRock Fireguard X Mold-Guard Abuse Resistant gypsum board.
- .3 Rated Gypsum panels:
 - .1 to ASTM C1629. Abuse resistant, mould resistant, Type X-Fire Rated
 - .2 CGC Sheetrock Mold Tough Abuse Resistant Firecode Core gypsum panels or GP ToughRock Fireguard X Mold-Guard Abuse-Resistant gypsum board.
 - .3 Minimum thickness to be 16mm.
- .4 High Impact Panels:
 - .1 to ASTM C1629. Impact resistant, mould resistant wallboard
 - .2 CGC "Sheetrock Mold Tough VHI Firecode Core" gypsum board, or GP DensArmor Plus Impact-Resistant interior panels.
 - .3 Minimum thickness to be 16mm.
 - .4 All framed partition walls within 3m of a floor area shall be constructed using high impact wallboard.
- .5 Shaft liner
 - .1 Mould and moisture resistant panels
 - .2 to ULC tested assembly
 - .3 CGC Sheetrock Enhanced Gypsum Liner Panels; 25mm
- .6 Tile Backer board: CGC Durock Cement Board Next Gen

SECTION 09 29 00 - GYPSUM BOARD

- .7 Cement board: CGC Durock Cement Board Next Gen
- .8 Exterior soffit board: cement board, as specified above
- .9 Exterior Sheathing: 16 mm, Type X, CGC "Securock" glass-mat exterior sheathing, DensGlass by Georgia Pacific, or GlasRoc Sheathing by CertainTeed Gypsum Canada Inc.
- .10 Metal Studs and Channels:
 - .1 galvanized steel, as manufactured by Bailey Metal Products or approved alternate; to ASTM C645.
 - .2 minimum 0.836 mm (20 ga) steel framing required at all partitions, and where impact-resistant panels are to be applied.
 - .3 minimum 0.455mm (25 ga) required for all other framing.
- .11 Metal Furring Channels:
 - .1 sheet galvanized steel channel and accessories as manufactured by Bailey Metal Products, or approved alternate; to ASTM C645.
 - .2 minimum 0.836 mm, design thickness, (20 ga) steel framing required at walls, and where impact-resistant panels are to be applied.
 - .3 minimum 0.455mm (25 ga) required for all other framing.
- .12 Cold Rolled Carrying Channel: 38mm x 15mm zinc coated channel weighing min 0.707 kg per m.
- .13 Corner Bead and Casing Bead: 28 ga. galvanized steel with perforated flanges; one piece per location.
- .14 Control Joint: CGC No. 093.
- .15 Hanger wire: minimum 3.77mm (9ga) galvanized steel wire.
- .16 Tie Wire: minimum 1.5mm (16 ga) galvanized soft annealed steel.
- .17 Screws: CGC Brand Screws (or approved equal) of type recommended by the board manufacturer.
- .18 Thermal Break: Permanent adhesive faced rubberized cork, 3 mm thick by width of stud on channel to be used between masonry in exterior wall and metal furring channels.
- .19 Joint Treatment Material:
 - .1 Joint compound, topping compound, laminating compound; to ASTM C474 and C475.
 - .2 Use material recommended by board and tape manufacturer for the proposed use.
 - .3 CGC/Synko Setting-Type joint compound, for use with CGC joint tape.

SECTION 09 29 00 - GYPSUM BOARD

- .20 Reinforcing Tape:
 - .1 Paper or fibreglass mesh tape, as recommended by the panel manufacturer for the panel type.
- .21 Finish materials
 - .1 use level 5 finisher; CGC Sheetrock Tuff-HideT Primer-Surfacers.
- .22 Acoustic sealant: Quietseal Pro as manufactured by Quietrock, or equivalent as manufactured by CGC, Tremco or Presstite Division of Interchemical Corporation for acoustic partitions.
- .23 Acoustic Insulation: As specified in section 07 21 00.
- .24 Vapour Barrier: As specified in Section 07 26 00
- .25 Ceiling Anchors: Self drilling tie wire anchors, Phillips "Red Head" T-32 or approved equal.
- .26 Drywall Reveals: Fry Reglet reveal moulding DRM-625-75, giving 5/8" x 5/8" reveal, aluminum alloy 606 375 with chemical conversion coating.

PART 3 - EXECUTION**3.1 GENERAL**

- .1 Provide plumb, straight, level, rigid, and secure installation. Failing to achieve this result shall be cause for rejection and reinstallation of this work.
- .2 Conform to The Gypsum Construction Handbook, ASTM C840, and these specifications. The most stringent requirements shall apply.
- .3 Where walls run parallel and under steel joists, the joists shall be enclosed both sides with gypsum board to provide sound barrier between rooms. Fill with minimum 100 mm acoustic batt insulation.

3.2 CEILING SUSPENSION

- .1 Do not regard grillage system indicated on drawings as exact or complete. The Specification for metal framing contained in CGC Gypsum Construction Handbook and ASTM C840 shall govern installation conditions not covered by this Specification. The more stringent specifications shall apply.

- .2 Hangers
 - .1 Install hangers for suspended wallboard ceilings to support the grillage independent of walls, columns, pipes, ducts and the like. Erect plumb and securely anchor to the structure. Submit details of proposed method to the Consultant for approval. If so requested, test hangers to prove that anchorage is adequate to support the proposed loading. Erect hangers plumb and securely anchor to structural steel or support channels fastened to structural steel (DO NOT FASTEN TO STEEL DECK).
 - .2 Space hangers at 1200mm maximum o.c. along the carrying channels and not more than 150mm from ends (or as required to conform with fire tested assemblies where applicable).
- .3 Carrying Channels
 - .1 Space channels at 1200mm maximum o.c. (or as required to conform with fire tested assemblies where applicable).
 - .2 Run channels transversely to structural framing members.
 - .3 Where splices are necessary, lap members at least 200mm and wire each end with two laps; avoid clustering or lining up splices.
 - .4 Attach to hangers by bending hanger under runner and securely wire in place with a saddle tie.
 - .5 Provide 25mm clearance between channels and abutting walls and partitions.
- .4 Cross Furring
 - .1 Install drywall screw channels transversely across runner channels, joists or other supports.
 - .2 Space drywall screw channels at 600mm o.c. and not more than 150mm from perimeter walls. Provide 25mm clearance between channels and abutting walls and partitions. Use closer spacing if so noted on drawings.
 - .3 Secure drywall screw channels to each support with approved clip or attachment; splice joints by messing minimum 200mm and tying channels together with double strand 16 gauge tie wire.
 - .4 Level drywall screw channels to a maximum tolerance of 4mm over 3600mm.
 - .5 Drywall shall not be fixed directly to open web steel joists and the like. Provide cross furring as specified.
- .5 Openings
 - .1 Frame openings with suitable channels; check clearances with respective Trades. Provide support for edges of boards at all cut-outs and openings in ceilings.

SECTION 09 29 00 - GYPSUM BOARD

- .2 Provide all additional hangers and supports for fixtures as required.
- .3 Provide additional hangers and framing for enclosure of radiant heating panels.
- .6 Bulkheads
 - .1 Furr out bulkheads in areas indicated and as required to conceal mechanical, electrical or other services in rooms where drywall finishes are scheduled, and elsewhere if called for on drawings.
 - .2 Use methods and materials as previously specified in this section. Drywall panels at bulkheads shall be as specified for walls.

3.3 STEEL STUD SYSTEM (PARTITION) INSTALLATION

- .1 Conform to the guidelines for metal framing contained in The Gypsum Construction Handbook, CSA A.82.31, and these specifications. The most stringent requirements shall apply.
- .2 Metal framing for partitions and wall furring shall be minimum 20 gauge.
- .3 Attach metal runners at floor and ceiling to structural elements with suitable fasteners located 50mm from each end and spaced 600 mm. o.c. with toggle or molly bolts spaced 400mm o.c.
- .4 Position studs vertically, engaging floor and ceiling runners, and spaced 400mm o.c., unless otherwise noted on drawings. When necessary, splice studs with 200mm nested lap and one positive attachment per stud flange. Place studs in direct contact with door frame jambs, abutting partitions, partition corners and existing construction elements. Where studs are installed directly against exterior walls install rubberized cork stip between studs and wall surfaces to provide thermal break.
- .5 Anchor studs for shelf-walls and those adjacent to door and window frames, partition intersections and corners to ceiling and floor runner flanges with an approved crimping tool. Securely anchor studs to jamb and head anchor clips of door or borrowed-light frames by bolt or screw attachment. Over metal door and borrowed-light frames, place horizontally a cut-to-length section of runner, with a web-flange bent at each end, and secure with one positive attachment per flange. Position a cut-to-length stud (extending to ceiling runner) at vertical panel joints over door frame header.
- .6 Stiffen partitions exceeding 3m long or 2.7m high with 19mm. cold rolled channels. Fix horizontally and provide the number of rows necessary to ensure a rigid installation. Provide other partition reinforcing necessary to support wall hung components, cupboards, closets and the like. Use 2 studs at jambs of openings and corners.
- .7 Where horizontal runs of service lines are to be installed within the partition, erect studs with web openings aligned.
- .8 Provide reinforcing and necessary stiffeners to support hollow metal frames and screens. Reinforcing to be capable of supporting screens rigidly and solid without deflection.

3.4 CHASE WALL INSTALLATION

- .1 Align two parallel rows of floor and ceiling runners spaced apart as indicated. Attach to concrete slabs with concrete stub nails or power driven anchors 600 mm o.c. Attach to suspended ceilings with toggle or molly bolts 400mm o.c. Attach to wood framing with suitable fasteners 600mm o.c.
- .2 Align metal studs vertically in runners, 200mm o.c. with flanges in the same direction and with studs on opposite sides of chase directly across from each other. Anchor studs to floor and ceiling runner flanges with an approved metal crimping tool.
- .3 Cut cross bracing to be placed between rows of studs from gypsum panels, 400mm high by chase wall width. Space braces at quarter points not to exceed 600mm o.c. vertically and attach to stud webs with six 25mm screws 200mm o.c. maximum on each side.
- .4 Bracing with 64mm metal studs may be used in place of gypsum panels. Anchor web at each end of metal brace to stud web with two 10mm pan head screws. When chase wall studs are not opposite, install metal stud cross braces 400mm o.c. horizontally and securely anchor each end to a continuous horizontal 64mm runner screw-attached to chase wall studs with the cavity.
- .5 Adapt cross bracing as necessary to avoid interference with service.

3.5 WALL FURRING INSTALLATION

- .1 Metal framing for wall furring shall be minimum 20 gauge.
- .2 Direct Furring Channel Attachment - Attach metal furring channels, vertically or horizontally spaced 400mm o.c. to masonry or concrete surfaces with hammer-set or power-driven fasteners or concrete stub nails staggered 600mm o.c. on opposite flanges. Nest channels 200mm at splices and anchor with two fasteners in each wing. Where furring channel is installed directly to exterior wall, install thermal break strip between furring channel and wall. For horizontally placed channels attach maximum 100mm from floor and ceiling.
- .3 Bracketed Furring Channel Attachment
 - .1 Attach adjustable wall furring brackets with serrated edges up, 900mm o.c. horizontally, 1200mm o.c. vertically, within 100mm of columns or other abutting construction, within 150mm of floor and ceiling, and as required above and below openings. Use 50mm cut nails in mortar joints of brick or clay tile or concrete block, or in field of lightweight aggregate blocks; use 16mm concrete stub nails or power driven nails or other suitable fasteners in monolithic concrete. Place fastener in top hole of bracket.
 - .2 Lay cold-rolled channels horizontally with flanges down, on furring brackets, plumb with other channels, and tie with double strand 16 ga. or triple strand 18 ga. wire at each junction with cold rolled channel.
- .4 Free Standing Furring - In locations where wall furring is indicated as self-supporting, use steel studs and furring channels installed to provide a rigid frame to receive wall board.

SECTION 09 29 00 - GYPSUM BOARD

3.6 APPLICATION OF GYPSUM BOARD

- .1 Do not apply gypsum board until bucks, anchors, blocking, electrical and mechanical work are approved.
- .2 Apply all gypsum board parallel to framing. Position all ends over studs. Use maximum practical lengths to minimize end joints. Fit ends and edges closely, but not forced together.
- .3 Stagger joints on opposite sides of partition.
- .4 Apply single, double or triple layers of gypsum board to metal furring as indicated using screw fasteners.
- .5 Maximum screw spacing for single-ply gypsum board and face ply of 2-ply gypsum board to be 300mm o.c.
- .6 Maximum spacing of screws for base-ply of 2-ply gypsum board over steel framing to be 300mm o.c. along edges of the gypsum board and 600mm o.c. into stud or furring channel in the field of the gypsum board.
- .7 Use cement board as backer board wherever tile is to be installed to walls of shower partitions.

3.7 CONSTRUCTION OF SUSPENDED AND FURRED CEILINGS

- .1 Apply gypsum panels of maximum practical length with long dimension at right angles to drywall furring channels. Position end joints over furring channel web and staggered in adjacent rows.
- .2 Closely fit together, ends and edges but not forced together.
- .3 Fasten panels to drywall furring channels with screws spaced a maximum of 300mm o.c. in field of panels and along abutting ends and edges.
- .4 Provide control joints in ceilings as noted but maximum 7500 mm o.c. each way or at change in direction.
- .5 Provide framing and drywall finish in stairwells, where required to enclose underside of stairs and landings.
- .6 Where noted on plans, provide bulkheads with steel framing and drywall finish.

3.8 WALL FURRING

- .1 Apply gypsum panels parallel to framing. Position all edges over drywall furring channels with joints staggered in successive courses.
- .2 Use maximum practical lengths to minimize end joints. Fit ends and edges closely, but not forced together.
- .3 Fasten panels to channels with screws spaced a maximum 300mm oc.

3.9 APPLICATION OF ACCESSORIES

- .1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Joints shall be made tight, accurately aligned and rigidly secured.
- .2 Reinforce all vertical and horizontal exterior corners with cornerbead fastened with screws 200mm O.C. on both flanges along entire length of bead.
- .3 Where assembly terminates against masonry or other dissimilar material, apply ledge trim over panel edge and fasten with screws or staples spaced 300 mm. oc.
- .4 Power drive screws at least 9mm. from edges or ends of panel to provide uniform dimple 0.8mm deep.
- .5 Where recessed reglets are noted on drawings, built into drywall assembly to provide edges flush with drywall.

3.10 TAPING AND FILLING

- .1 Finish in accordance with GA-214, as follows:
 - .1 Exposed gypsum board to Level 5 finish, suitable for finish painting with semi-gloss and gloss coatings. Use full skim coat of joint compound over entire surface to achieve smooth and uniform appearance.
 - .2 Concealed gypsum board to minimum Level 1 finish. Where a fire-resistance rating is required, finishing level must conform to ULC rated assembly design.
- .2 Finish face panel joints and internal angles with joint system consisting of self-adhering cross-fibre fibreglass joint tape and joint compound installed according to manufacturer's directions and feathered out into panel faces. Note: If self-adhering joint tape is not used, taping compound will be required.
- .3 Be sure drywall surface is dry and clean.
- .4 Centre and apply drywall tape directly over joint, pressing firmly to ensure even adherence to surface. Eliminate wrinkles by pressing entire length of tape with drywall knife. Avoid overlapping tape at intersections. Cut tape with drywall knife.
- .5 Cover taped joint with a layer of setting-type joint compound, forcing compound through the tape with a drywall knife or trowel to completely fill and level the joint. Allow joint to dry, and sand lightly. Apply second coat of setting-type or drying-type joint compound, feathering approximately 50mm beyond first coat. Let dry and sand lightly as required.
- .6 To finish inside corners, bend tape with to form a "U" shape. Apply tape along one side only. Press tape into corner for approximately 30mm, then apply the other side. Work downward, alternating sides in this manner until tape is pressed firmly in place. Apply setting-type joint compound as specified above, first on one side for the length of the corner and then repeating the process on the second side.

SECTION 09 29 00 - GYPSUM BOARD

- .7 Finish fastener heads, corner bead and trim as required with two to three coats of joint compound, feathered out onto panel faces and sanded to a smooth surface.
- .8 Provide skim coat over entire face of boards to ensure smooth surface for painting.
- .9 Fill screw head depressions to bring flush with adjacent surface of gypsum board so as to be invisible after painting is completed.
- .10 Sand dried taping compound lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.
- .11 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for painting.
- .12 Painting shall be done in accordance with Section 09 92 00.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- .1 Gypsum Board Section 09 29 00
- .2 Electrical Equipment Divisions 26, 27

1.2 CEILING SYSTEMS

- .1 This Specification includes the ceiling systems listed below, noted in schedules and shown on reflected ceiling plans.
- .2 Ceiling systems shall be 610mm x 1220mm lay in exposed Tee system, one hour rated. Rated ceiling systems to conform to U.L.C. details for assembly R210.

1.3 REFERENCE STANDARDS

- .1 ASTM C635 Specifications for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings
- .2 ASTM C636 Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
- .3 CAN/CGSB 92.1 Sound Absorptive Prefabricated Acoustical Units

1.4 DESIGN

- .1 N.R.C. Range: Unless otherwise noted under description of ceiling system the N.R.C. Range shall be 60-65 (Table 1 of CAN/CGSB 92.1).
- .2 Ceiling S.T.C.: Unless otherwise noted under description of ceiling system the S.T.C. rating shall be 35 or better.
- .3 Light Reflectance: Unless otherwise noted under description of ceiling system, panels shall have a light reflectance co-efficient designation of L.R.1 (0.75 minimum). Table 3 of CAN/CGSB 92.1 refers.
- .4 Support of HVAC and Electrical Equipment:
 - .1 Provide additional hangers as required for support of light fixtures and radiant panels, mechanical diffusers, sound diffusers, etc.

1.5 SHOP DRAWINGS

- .1 Reflected ceiling plans indicate proposed layout but this shall not relieve Contractor of responsibility for co-ordination of the work and provision of Shop Drawings where field conditions call for variation from proposed layout.
- .2 Accurately locate lighting fixtures, ventilating grilles, exit lights and other ceiling fittings.
- .3 Conform to Section 01 33 23.

SECTION 09 51 00 - ACOUSTIC CEILINGS

1.6 SAMPLES

- .1 Upon award of the Contract submit full size sample panels proposed for installation in the project. All panels subsequently used on the job shall match the approved sample.
- .2 Submit samples of suspension system members for approval prior to commencement of installation.

1.7 DELIVERY AND STORAGE

- .1 Transport, handle and store material in manner to prevent warp, twist and damage to tile and board edges and surfaces in accordance with the manufacturer's recommendations.
- .2 Any warped and/or damaged boards, tile and trim shall be rejected and be replaced by new, straight, undamaged and acceptable materials at no cost to the Owner.
- .3 Store material in warm, dry place away from water and the elements. Protect against undue loading stresses and shock.
- .4 All packaged material shall be delivered in original manufacturers' wrappers and containers with labels and seals intact.

1.8 PROTECTION

- .1 Exercise care in the execution of work under this Section to prevent damage to finished surfaces and adjacent work, and mechanical and electrical installations.

1.9 EXTRA PANELS

- .1 Provide 2% typical acoustic panels of each type specified for use in maintenance work. Obtain receipt from the Consultant or Owner's representative on site.
- .2 Do not use panels supplied to Owner for maintenance work to make good any damaged or removed tile required by Contract.

1.10 SPECIAL CLEANING

- .1 Clean, repair or replace dirty, discoloured or defective units or exposed suspension members to Consultant's satisfaction.

1.11 ENVIRONMENT

- .1 Commence installation after building enclosed and dust- generating activities completed.
- .2 Permit wet work to dry prior to commencement of installation.
- .3 Maintain uniform minimum temperature of 15 deg. C. and humidity of 20% to 40% prior to, during and after installation.

1.12 **WARRANTY**

- .1 The Warranty stipulated in the General Conditions of the Contract shall be deemed to include the following definition in reference to Work specified in this Section. The following will be considered defects without being limited thereto:
 - .1 Failure of the suspended ceiling to remain water level.
 - .2 Lifting or sagging of tile and board between supports.
 - .3 Staining and discolouration of factory finishes.
 - .4 Development of corrosion of galvanized ferrous metal.
 - .5 Development of cracks, splits and other surface deterioration in acoustic panels.
 - .6 Failure of hanging wire anchorage.
- .2 The warranty period shall be **two (2) years**, commencing on the date of Substantial Performance of the Work.

PART 2 - PRODUCTS

2.1 **MATERIALS - LAY-IN SYSTEM**

- .1 Acoustic Ceiling Panels
 - .1 Refer to Finish Schedules for LAT numbers and locations as follows:
 - LAT 1: 610mm x 1220mm, min. NRC of .70, CAC min. 40, fire guard; CGC Radar High NRC/CAC panels 22541 or Armstrong School Zone Fine Fissured 1811.
 - .2 Suspension
 - .1 Suspension system to be "DX" 24mm wide faced T-bar by CGC. Equivalent grid by Chicago Metallic, or Armstrong will be accepted, contingent on its compatibility with the specified ceiling tiles.
 - .2 Provide rated grid where fire rated ceiling to floor or roof assembly is required.
 - .3 Exposed interlocking tee grid system, formed out of cold rolled zinc-bond steel 0.54mm thick. Provide fire rated grid where fire ratings noted.
 - .4 Main Tees: 38mm x 25.4mm double web rectangular bulb top with capping plate in precoat baked-on white paint finish and incorporating holes for hangers and slots for connecting pieces, and capable of supporting 12.5 kg per 1200mm. for continuous spans and 6.5 kg per 1200mm span for single span without exceeding a deflection fo 1/360 of the span.
 - .5 Standard Cross-Tees: 25.4 x 25.4mm double web, bulb top, capping plate in precoated white baked-on finish, capable of supporting 11.3 kg per 600mm span without exceeding a deflection of 1/360 of span, and with positive interlock with main tees.

SECTION 09 51 00 - ACOUSTIC CEILINGS

- .6 Structural Cross-Tees as main tees, but with crimped ends for lapping bottom flange of main tees and interlocking tack ends to engage slots in main tees.
- .7 Suspension system at radiant panels shall be CGC wide face grid, Type "DXW", 38mm wide, or equivalent by one of the approved grid manufacturers listed above.
- .8 Accessories:
 - .1 Splice plate, clips, screws, etc. as required to complete the installation. All galvanized finish.
- .9 Concealed flat spline: 0.71mm flat steel spline.
- .10 Edge Trim:
 - .1 0.635mm zinc bonded, cold rolled steel mould.
 - .2 Trim shall be minimum 22mm x 22mm angles.
 - .3 Provide 7906 "F" Molding at perimeter of ceiling grids along transition to window heads.
- .11 Finish to tees and edge trim: flame resistant white baked enamel satin finish to match panel finish, 2 coats on exposed surfaces, 1 coat elsewhere.
- .12 Carrying Channels: 38mm x 19mm cold rolled galv. weighing 1.042 kg per metre.
- .13 Tie Wire: 1.6mm galvanized soft annealed steel
- .14 Hangers: 2.6mm galvanized steel wire.
- .15 Screws: Corrosion resistant, self-tapping Philips truss head, of length and gauge to suit installation.
- .16 Ceiling Hanger Pins (for fixing to metal): capacitor discharge ceiling hanger pins, by Continental Studwelding Ltd., or approved equivalent, of type approved by Consultant.

PART 3 - EXECUTION**3.1 INSTALLATION - GENERAL**

- .1 Employ mechanics skilled in this Trade and install work in strict accordance with the system manufacturer's printed directions to produce a first class, true finish, free from dropping, warpage, soiled or damaged tile.
- .2 Make provisions for thermal movement.
- .3 Install hanger inserts in a manner approved by Consultant.

- .4 Locate hangers directly over Main Tees and as close to intersections as possible. Secure hangers firmly to concrete inserts, steel joists and beams, bracing, etc. Do not install hangers to roof deck, provide separate grid off joists if required.
- .5 Erect ceiling grid plumb and square with accurately fitted locked-in joints in true alignment, secure and rigid and with provision for thermal movement. Water level ceiling to tolerance of 1mm in 1m and maximum deviation of 4mm. from mean level.
- .6 Frame around recesses fixtures, diffusers, grilles, radiant panels, and the like and provide heavier section hangers and supports as necessary to support same. Provide hanger within 150mm of each fixture corner.
- .7 Provide wide face tees and trim at radiant ceiling panel locations.
- .8 Consult with Electrical and Mechanical Trades for requirements and provide access to valves and switches.
- .9 Ensure that all hangers and carrying members are designed and spaced to support entire ceiling system including recessed lighting fixtures. Note, weight of fixtures is approximately 9-13.5 kg.
- .10 Install panels only after all mechanical and electrical equipment, conduits, piping, telephone distribution, etc. are in place.
- .11 Typical ceiling panels shall be type LAT1.

3.2 INSTALLATION OF LAY-IN SUSPENSION SYSTEM

- .1 Generally hangers shall be spaced at not more than 1200mm o.c. directly above main runner tees, except at fixtures, where they shall be 600mm o.c. or closer as required to adequately support fixtures. Locate hangers as close as possible to tee junctions. Locate first hanger within 300mm of perimeter wall.
- .2 Install main tee runners continuous at 1200mm o.c. with interlocking structural cross-tees each side of fixtures at right angles to main tees. Install standard cross-tees generally at 90 degrees to main tees and as required to achieve pattern shown on reflected ceiling plans. Secure joints by web of tees; snaplock into place forming rigid connections. Main tees shall be as long as possible with butt ends joined by means of splice plates locked into webs.
- .3 Frame up around light fixtures, grilles, diffusers, speakers, openings, etc. as required.
- .4 Secure edge mouldings to walls, bulkheads and other vertical surfaces at perimeter edges of acoustic ceilings. Note special mouldings required.
- .5 Securely fix hangers to tees by bending ends 90 degrees at the correct height and inserting through holes in top of main tees, then wiring around open side at least 3 turns twisting ends together. Flats shall be bolted to tees. Secure to concrete inserts in similar manner.

SECTION 09 51 00 - ACOUSTIC CEILINGS

3.3 LAY-IN PANEL INSTALLATION

- .1 End panels shall not be less than half full size and installation in each area shall be symmetrical, with end tiles and abutting opposite vertical wall surface to be of the same width. Do all necessary cutting and fitting neatly and accurately to suit grid openings and accommodate fixtures, grilles, detectors, speakers and the like located on the ceiling panels.
- .2 Lay directionally patterned acoustic panels in one direction, parallel to the longest direction of the grid concerned.
- .3 Place panels between tees so that edges bear evenly on flanges.
- .4 Conform with reflected ceiling plans.
- .5 Provide fire rated enclosures as required around light fixtures and mechanical equipment in fire rated ceilings, according to applicable ULC Design Criteria.
- .6 Where mechanical equipment is located above the ceiling, panels shall be suitably and inconspicuously marked by the use of small colour-coded stickers. Mechanical equipment to be located shall include valves, dampers, heat exchangers, heat pumps, VAV boxes, electrical disconnects, as applicable, and other such equipment not visible from below.

3.4 CLEANING

- .1 Upon completion, clean acoustic tile of all finger marks and other defacements.
- .2 Remove all accumulated rubbish and excess materials from the site.
- .3 Clean acoustic tile and replace any damaged tiles immediately before occupation of building by Owner.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- .1 Demolition Section 02 40 00
- .2 Concrete Section 03 30 00
- .3 Wheelchair Lift Section 14 42 16

1.2 SCOPE OF WORK

- .1 Repair and alterations to terrazzo flooring and cove base in existing corridors where floors are cut to extend pit for new elevator and for new masonry walls, where lockers and concrete base are removed, at new door frame locations and elsewhere as required due to renovation work.
- .2 Provide terrazzo floor finish to match existing in detailing of base, colour and patterning. Installation details shall match existing. Existing drawings available indicate a 45mm depth of terrazzo; assumed to consist of 16mm terrazzo topping on 29mm underbed.
- .3 Work included:
 - .1 inspection of surfaces and conditions
 - .2 divider strips to match existing
 - .3 primer
 - .4 Portland cement terrazzo mixes
 - .5 installation of flooring and cove base
 - .6 surfacing and grouting
 - .7 cleaning and sealing

1.3 REFERENCES

- .1 Do terrazzo work in accordance with 09 66 00 Terrazzo Specification Guide, produced by Terrazzo Tile and Marble Association of Canada (TTMAC).
- .2 Conform to the following standards:
 - .1 CAN/CSA-A5 Portland Cement
 - .2 CSA A194.1 Terrazzo Aggregate
 - .3 ASTM C-144 Standard Specification for Aggregate for Masonry Mortar
 - .4 ASTM A821M Standard Specification for Steel Wire, Hand Drawn for Prestressing Concrete Tanks
 - .5 ASTM A185M Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete
 - .6 CAN/CGSB-51.34 Vapour Barrier, Polyethylene Sheet for Use in Building Construction
 - .7 CAN/CGSB-25.20 Surface Sealer For Floors
 - .8 CAN/CGSB-2.107 General Purpose Built Liquid Detergent
 - .9 CAN/CGSB-25.21 Detergent Resistant Floor Polish
 - .10 TTMAC 09 66 00 Terrazzo Specification Guide

SECTION 09 66 13 - TERRAZZO FLOORING

1.4 QUALITY ASSURANCE

- .1 Installer shall be a member in good standing of the TTMAC, with a minimum of 5 years experience in similar work. Installer must employ skilled mechanics trained and experienced in terrazzo work.
- .2 Supplier shall be a member in good standing of the TTMAC, providing materials which meet the minimum standards of the TTMAC.

1.5 SUBMITTALS

- .1 Submit three (3) samples 152mm x 152mm of each colour and type of terrazzo for approval by the Consultant. Submit samples (305mm in length) of all specified divider strips and control joints.
- .2 Show shop drawings showing locations of all joints. Provide details where new terrazzo flooring meets existing, and where it meets other floor finishes. Indicate depth of and area of depressed concrete slab required. Note all colours on drawings.
- .3 Submit three (3) copies of the latest edition of the TTMAC Hard Surface Maintenance Guide, to be included in the Maintenance Manuals specified in Section 01 78 00. Include specific warnings of any practices which could damage the materials or decrease slip resistance of the surface.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle products in a manner to avoid damage. Store materials in a clean, dry heated location furnished by others.
- .2 Material must be conditioned to ambient temperatures for a period of 24 hours prior to installation.

1.7 PROJECT CONDITIONS

- .1 Examine areas where the work of this section is to be located.
- .2 Ensure that concrete slab is properly cured, is at proper level to receive terrazzo, and is clean, smooth and free of curing compounds. Slab temperature must not be less than 12°C.
- .3 Do not place terrazzo until unacceptable conditions have been corrected.
- .4 Protect work during installation and protect finished corners exposed to construction operations and traffic.

1.8 WARRANTY

- .1 All terrazzo work, shall be warranted for one year from date of Substantial Performance.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Cement: Portland cement to CAN CSA-A5, with colouring to suit selected sample
- .2 Sand: Sharp, screened sand: ASTM C-144
- .3 Water: Clean water, free from oil, acids, alkali or organic matter
- .4 Aggregate: Marble, granite, onyx, plastic or glass chips; clean and sound ; colours to match existing.
- .5 Colour pigments: Non fading mineral pigments
- .6 Slip resistant material: No. 36 grit aluminum oxide
- .7 Slip resistant channel strips: Brass or zinc 10mm x 10mm, 20 gauge dove-tailed shaped channels with anchor tapes; colour to contrast adjacent materials
- .8 Reinforcing mesh: 50 x 50mm mesh size, fabricated from 1.6mm thick galvanized wire/fabric welded mesh. ASTM A821/ASTM A185
- .9 Divider Strips: 25mm to 32mm deep with anchorage devices, except where specified otherwise, 14 gauge zinc, as indicated in applicable TTMAC details. To match existing in appearance.
- .10 Cleavage Plane: 4 mil thick polyethylene film, to CAN/CGSB-51.34
- .11 Crack Suppression Membrane: As specified, install as per manufacturer's recommendations
- .12 Epoxy bonding agent: Two part liquid epoxy resin adhesive
- .13 Sealers: Conforming to CAN/CGSB-25.20
- .14 Floor Finish: Conforming to CAN/CGSB-25.21

2.2 MIXES/PROPORTIONS - AT POURED-IN-PLACE CONCRETE

- .1 Underbed:
 - .1 One part Portland cement to four parts sand by volume.
 - .2 Wet and mix thoroughly to a low slump to provide workability. Adjust water volume depending on moisture content of sand to obtain consistency and workability.
- .2 Scratch Coat:
 - .1 One part Portland cement, 4 parts sand and latex additive if required.
 - .2 Adjust water volume depending on moisture content of sand to obtain consistency and workability.

SECTION 09 66 13 - TERRAZZO FLOORING

- .3 Slurry Bond Coat: Mix Portland cement and water to a creamy paste consistency. Add latex additive to increase bond.
- .4 Terrazzo topping to consist of 2 parts cement to three parts aggregate. Chip size ratio 70% No. 2 and 30% No. 1, unless otherwise required to match existing.
- .5 Epoxy Bonded Terrazzo Topping: Same mix as standard terrazzo topping with a specified epoxy bonding agent.
- .6 When mixed with water the underbed shall be of such a consistency and workability that will allow maximum compaction during tamping of the underbed, and achieve a minimum compressive strength of 15 Mpa (2000 psi) after 28 days. A stronger mix can be achieved by adding a latex additive to the water.

PART 3 - EXECUTION**3.1 INSPECTION**

- .1 Verify existing conditions are ready to receive work.
- .2 Verify substrate surfaces are clean, dimensionally stable, cured and free of contaminants, including sealers and curing compounds.
- .3 Verify that concrete has been allowed to cure for a minimum of 28 days.
- .4 Notify Consultant in writing of unacceptable substrate conditions. Beginning of installation implies acceptance of existing conditions.

3.2 PREPARATION

- .1 Substrate is to be depressed to accommodate the terrazzo system, depressions from the finished floor level to be 45 - 50mm, or as required to match existing conditions, for a bonded terrazzo floor.
- .2 Concrete substrate shall be sound, with steel trowel finish, free from cracks, contaminants, sealers, curing compounds, and laitance. Surface variation of concrete is not to exceed 2mm in 305mm or 6mm in 3040mm. Provide levelling coat over concrete as required to attain required level.

3.3 INSTALLATION - GENERAL

- .1 Demolition: Chip out existing terrazzo and underbed to nearest control joint location and prepare for new terrazzo to match existing.
- .2 Install terrazzo flooring in conformance with TTMAC details for Portland Cement Terrazzo Epoxy Bonded to Concrete Slab, Thin-Set Method, similar to existing conditions.

SECTION 09 66 13 - TERRAZZO FLOORING

- .3 Underbed: Install underbed over substrate and screed to required levels. The levels should allow for the thickness of the terrazzo topping in order to provide a flat and continuous transition between terrazzo and adjacent flooring. Permit underbed to cure for a minimum 48 hours prior to installation of terrazzo topping.
- .4 Divider strips: Install divider strips in underbed while still in plastic state. Set strips true and level to required pattern. Terrazzo panels created by the installation of divider strips should be no greater than 1200mm in any direction. Structural or movement joints must be addressed by mechanical devices. Divider strips are not intended to replace or to be used as structural expansion joints.
- .5 Provide control joints in terrazzo over cold joints in concrete slab. The divider strips required for these control joints shall be in addition to those required to replicate the pattern of the existing floor.

3.4 INSTALLATION OF TERRAZZO TOPPINGS

- .1 Standard terrazzo topping:
 - .1 Allow underbed to cure for 48 hours, sweep or vacuum underbed, saturate with water and remove excess.
 - .2 Apply a cement slurry bond coat and immediately follow with application of terrazzo topping mix.
 - .3 Wet terrazzo topping mixture, mix thoroughly and spread with trowel level to top of strips. Sprinkle topping with dry aggregate chips. Roll with heavy rollers to compact topping until excess cement and water has been extracted. Hand trowel topping surface flush with top of divider strips to close all voids and pin holes.
 - .4 Control cure a minimum of 48 hours.
 - .5 After floor has sufficiently cured, grind with No. 24 grit abrasive stones or with diamond plugs. Follow initial grind with No. 80 grit of finer stones, to a maximum of 120 grit, remove excess, rinse with clean water and apply grout by hand trowel or machine to fill all voids. Let grout cure for a minimum of 48 hours and re-grind with No. 80 grit of finer stones, to a maximum of 120 grit, until all grout is removed from surface.
 - .6 Let surface dry thoroughly and apply sealer as per manufacturer's recommendations.
- .2 Epoxy Bonded Terrazzo:
 - .1 Clean base slab, remove laitance by shotblasting, sandblasting, grinding, or scarifying.
 - .2 Clean thoroughly.
 - .3 Ensure moisture content in the slab is not to exceed the manufacturer's recommendations.
 - .4 Install divider strips and base bead top strips where required.
 - .5 Mix and install epoxy bonding agent following the specifications of the epoxy manufacturer.
 - .6 Install terrazzo topping as specified above for standard terrazzo, omitting the first two steps (water saturation of concrete slab and slurry bond coats).
- .3 Aggregate chip coverage must show a density in excess of 90% exposure on the finished terrazzo surface.

SECTION 09 66 13 - TERRAZZO FLOORING

3.5 PATCHING

- .1 Remove and replace all defective or damaged work promptly and when directed by the Consultant.

3.6 CLEANING AND SEALING

- .1 Clean and seal terrazzo in accordance with the recommendations of the latest TTMAC Hard Surface Maintenance Guide.

3.7 PROTECTION

- .1 Standard protection includes 1 layer of Kraft paper. Contractor to provide adequate protection to completed terrazzo work. Protect work of other trades. Prohibit traffic during installation and for 48 hours after completion. Protect floor from impact and vibration for a minimum of 48 hours after installation. Protect base from impact, vibration, heave hammering on adjacent and opposite walls.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- | | | |
|----|--|---------------------|
| .1 | Demolition and Alterations | Section 02 40 00 |
| .2 | Rough Carpentry | Section 06 10 00 |
| .3 | Finish Carpentry | Section 06 20 00 |
| .4 | Gypsum Board System | Section 09 29 00 |
| .5 | Shop Priming Specified in various Sections of the Specification. | |
| .6 | Factory applied paint coatings unless otherwise specified. | |
| .7 | Electrical | As shown on Drawing |

1.2 SCOPE OF WORK

- .1 This Section is intended to cover all repainting of existing surfaces and painting of new surfaces in renovated areas, both interior and exterior. With the exception of painting specifically called for in other Sections of the Specifications, all painting work is included in the scope of this Section of the Specification.
- .2 Colours will be specified at a later date by the Consultant, allow for accent walls of primary colour to some areas. Unless otherwise noted on room finish schedule, new painting will match existing colours in renovated areas.
- .3 In locations where drawings and Room Finish Schedule do not call for paint or similar finish on walls and/or ceilings, the intent of this Specification is that all new work and existing surfaces in areas affected by the Work of this project, including miscellaneous metal work, shall be painted.
- .4 In renovated areas, paint all affected walls in accordance with the paint systems specified. All other walls in the same room are to be cleaned, prepared, and repainted, unless specified otherwise. If finish schedule indicates that new colours will be required, existing walls will require a prime coat and of two coats of finish paint. If more than one colour is present, or called for, in the room, confirm colours with Consultant.
- .5 Work includes:
- .1 testing of substrates for moisture and alkalinity
 - .2 surface preparation of substrates as required for acceptance of paint, including sanding, cleaning, small crack repair, patching, caulking, and making good surfaces
 - .3 recoatability testing
 - .4 pre-treatments, sealing, and priming of surfaces
 - .5 painting of existing and new surfaces in accordance with specified systems
 - .6 provision of adequate ventilation and safe working conditions
 - .7 clean up and protection
- .6 Paint all new exterior surfaces which normally require painting, including hollow metal doors, screens, soffits, roof fans and hoods, galvanized steel lintels, ladders, bollards, steel gates and hardware, metal fencing. All new woodwork on exterior must be fully primed before erection or be of pressure treated wood. Paint all altered and repaired exterior surfaces.

SECTION 09 92 00 - PAINTING AND REPAINTING

- .7 Perform interior painting called for in Room Schedule and noted on drawings. Paint all new walls, ceilings, bulkheads, tectum, and all surfaces which normally receive a paint finish, whether noted on schedules, or not noted. Walls shall be completely painted before installation of new tackboards, writing boards, millwork, lockers, etc.
- .8 All heating units, recessed convectors, grilles, pipes, access panels, hangers and miscellaneous exposed metal work (other than stainless steel, anodized aluminum and baked enamel) to be painted to match the surfaces on which they occur, unless otherwise directed by Consultant.
- .9 For special painted graphics, colour changes, accent stripes, etc. see drawings.
- .10 Paint exposed drywall and the like in locations where finish is not otherwise specified or noted. Do not paint such surfaces in mechanical shafts, unless specifically noted.
- .11 Paint all new exposed structural steel and mechanical ducts in finished areas. Paint new items to match existing. Where colour change is required schedules, repaint existing structural steel and ducts also.
- .12 Paint all new exposed structure and metal deck, except Water Meter and Electrical Rooms.
- .13 Paint pipes, conduit, ducts and related thermal insulation and all prime painted mechanical and electrical equipment and supports located in mechanical and electrical rooms and in all locations where Drawings call for paint or similar finish on walls and/or ceilings. Paint all mechanical equipment exposed on the roof. Exposed pipes shall be painted to Owner's Colour Coding/Piping schedule to suit use (i.e. hot water, etc.), included below.
- .14 Paint all gas piping, inside and out, whether exposed or concealed. Do not paint other pipe, conduit, ducts, insulation and the like where concealed above ceilings or in service shafts.
- .15 Make good paint finish on shop coated work where damaged.
- .16 Paint visible portions of steel shelf angles, lintels and structural steel.
- .17 Paint edges and all faces of metal doors.
- .18 Paint entirely, including all top and bottom edges, of all wood doors.
- .19 Interior of ducts and diffusers visible from exterior on room side.
- .20 Painting, as referred to herein shall include paint, enamel, stain, varnish and other finishes herein specified and normally applied to the various materials by the painting Subcontractor.

1.3 REFERENCE STANDARDS

- .1 Do painting and finishing work to material manufacturer's instructions and to the most recent edition of the Master Painters Institute (MPI) Maintenance Repainting Manual and Architectural Painting Specification Manual. The most stringent standards shall apply.

SECTION 09 92 00 - PAINTING AND REPAINTING

- .2 All coatings must conform to Regulation SOR/2009-264, Volatile Organic Compound (VOC) Concentration Limits for Architectural Coatings Regulations, under the Canadian Environmental Protection Act, 1999, and the VOC limits set therein.

1.4 QUALITY ASSURANCE

- .1 The Painting Subcontractor must be a member in good standing of the Ontario Painting Contractors' Association.
- .2 Painting Subcontractor shall have a minimum of five (5) years documented successful experience with projects of a similar type and scope. When requested to do so by the Consultant, provide references confirming satisfactory performance of work on such projects.
- .3 Painting crew shall be composed of experienced, qualified journeypersons. Apprentices may undertake work only when fully supervised by senior, qualified workers.
- .4 All painting and coating products shall be as listed in the current Approved Product List published by the Master Painter's Institute (MPI).
- .5 Materials, surface preparation and workmanship shall conform to the latest edition of the MPI Maintenance Repainting Manual and Architectural Painting Specifications Manual.
- .6 The Painting Subcontractor shall inspect all surfaces requiring repainting and shall notify the Consultant and Contractor, in writing, of any defects or problems, prior to commencing repainting or after preparation work. Commencement of work will infer acceptance of existing conditions.
- .7 Where special coatings or decorating systems (i.e. textured coatings or non-MPI listed products or systems) are to be used in repainting, provide certification from the paint manufacturer of all surfaces and conditions for application of the specific paint or coating system. Arrange and pay for field inspection by the manufacturer and their approval of their paint or coating system application, at no additional cost to the Owner. Submit manufacturer's inspection reports and approvals to the Consultant.
- .8 Standard of Acceptance:
 - .1 For interior work, surfaces will be viewed using full final lighting in the space. For exterior work, surfaces will be viewed at time of peak sunlight exposure to the subject surface.
 - .2 Walls shall exhibit no defects when viewed from a distance of 1000 mm at a 90° angle.
 - .3 Ceilings and soffits shall exhibit no defects visible from grade at 45° angle to surface.
 - .4 Final coat shall be uniform in colour and sheen across the entire surface area.

1.5 WORK ENVIRONMENT

- .1 Do not apply paint finish in areas where dust is being generated. Apply paint only to dry, clean, properly cured and adequately prepared surfaces.

SECTION 09 92 00 - PAINTING AND REPAINTING

- .2 Maintain environmental conditions within limits recommended by manufacturer, for optimum results. Do not apply coatings under environmental conditions outside manufacturer's absolute limits.
 - .1 Do not perform painting or decorating work when the ambient air and substrate temperatures are below 10°C, for both interior and exterior work.
 - .2 Maintain minimum ambient air and substrate temperatures for 24 hours before, during and after paint application.
 - .3 Provide adequate, continuous ventilation during work and for at least one week after completion of painting.
 - .4 Provide supplemental ventilating and heating equipment if ventilation and heating from existing system is inadequate to meet minimum requirements.
 - .5 For exterior work, provide suitable weatherproof enclosure and sufficient heating facilities where required to provide suitable environmental conditions for painting.
 - .6 Do not perform painting or decorating work when the relative humidity is above 85% or when the dew point is less than 3°C variance between the air/surface temperature.
 - .7 Test concrete, masonry, plaster, and wood surfaces for moisture and alkalinity.
 - .1 Do not do painting or decorating work when the maximum moisture content of the substrate exceeds 15% for wood, or 12 % for concrete, masonry, plaster, and gypsum board.
- .3 Work areas shall be well illuminated during painting work. Do not perform work unless a minimum lighting level of 323 Lux (30 foot candles) is provided on surfaces to be painted or repainted.
- .4 Conform to requirements of MPI Maintenance Repainting Manual and Architectural Specification Manual.

1.6 INSPECTION AND ACCEPTANCE OF EXISTING CONDITIONS

- .1 Submit written confirmation of acceptance of existing conditions, to the Consultant, prior to commencing painting work. Painting may not commence without submission of this confirmation.
- .2 Receipt of this confirmation will be considered a prerequisite for certification of payment for this work.
- .3 Examine the conditions of existing surfaces to be repainted and evaluate with respect to MPI's Maintenance Repainting Manual. This includes the following:
 - .1 check thickness and adhesion of existing coatings. Perform adhesion tests on existing surfaces where existing coatings are peeling, flaking, or showing signs of delamination.
 - .2 determine what type of paint products were used previously
 - .3 assess defects in existing coatings
 - .4 Determine the degree of surface degradation. Refer to MPI guidelines for accessing levels of surface degradation.
- .4 Notify the Consultant, in writing, immediately if any existing condition is encountered that will prevent the attainment of satisfactory results in this work.

- .5 Existing paint materials used in the building may not be compatible with new materials specified for the surface types in some cases. This includes surfaces that may be coated with alkyd paints. Additionally, encapsulation of old lead paint may be required. Review hazardous materials report to determine if any lead based paint is known to be present in the building.

1.7 SUBMITTALS

- .1 Samples:
 - .1 Submit triplicate samples consisting of 300mm x 200mm panels of each type of paint finish specified.
 - .2 Panels shall be of same material as that on which sample coatings are to be applied in the field where possible.
 - .3 Identify each sample as to job, name of paint manufacturer, finish, colour, name and number, sheen and gloss units and name of Contractor.
 - .4 Retain one set of approved samples on site until completion of the Work.
- .2 Submit a list of all paint materials for review by Consultant, prior to ordering materials.
- .3 Submit manufacturer's data sheets for each paint product to be used on the project, including:
 - .1 MPI approved product number
 - .2 Product characteristics
 - .3 Surface preparation instructions and recommendations
 - .4 Primer requirements and finish specifications
 - .5 Storage and handling recommendations
 - .6 Application methods
 - .7 Cautions
 - .8 VOC data
- .4 Submit WHMIS Material Safety Data Sheets (MSDS) for all paint/coating materials.
- .5 Submit list of all paint brand names and colour formulas used on the job. This can be a sheet containing copies of the labels added to the paint containers at time of purchase.
- .6 Submit written confirmation of acceptance of existing conditions, as specified above, or an assessment of existing conditions noting all problematic areas.
- .7 When repainting occupied areas, submit work schedule for staging of work for the Consultant's review and Owner's approval, as noted above.
- .8 Submit a receipt for maintenance materials required to be provided to Owner; receipt to be signed by building Custodian.

1.8 STORAGE AND HANDLING

- .1 Store paint and painter's materials in clean, dry, well ventilated locations approved by the Consultant. Store materials in an area that is within the acceptable temperature range, per manufacturer's instructions. Protect from freezing.

SECTION 09 92 00 - PAINTING AND REPAINTING

- .2 All paint shall be in unopened containers, labelled with:
 - .1 manufacturer's name,
 - .2 product name, product type,
 - .3 instructions for surface preparation and product application,
 - .4 VOC content,
 - .5 compliance with applicable standards,
 - .6 batch date, and
 - .7 colour name and number.
- .3 Provide CO₂ fire extinguisher minimum 9 kg capacity in paint storage area.
- .4 Handle, store, use and dispose of flammable and combustible materials in accordance with the Ontario Fire Code and to requirements of Authorities Having Jurisdiction.
- .5 Do not permit contaminants to enter waterways, sanitary or storm drain systems, or into ground. Adhere to the following procedures:
 - .1 Retain cleaning water for water-based materials to allow sediments to be filtered out. In no case shall equipment be cleaned using free draining water.
 - .2 Retain cleaners, thinners, solvents and excess paint and place in designated containers and ensure proper disposal.
 - .3 Return solvent and oil soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.
 - .4 Close and seal tightly partly used cans of materials including sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.
- .6 Dispose of materials in accordance with the requirements of authorities having jurisdiction. Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility. Empty paint cans are to be dry prior to disposal or recycling.

1.9 SIGNS

- .1 Provide legible signs throughout the Work reading "WET PAINT" in prominent positions during painting and while paint is drying.
- .2 Use 75mm high letters on white card or board.

1.10 TEMPORARY COVERS AND PROTECTION

- .1 Protect floors and other surfaces with temporary covers such as dust sheets, polyethelene film or tarpaulins. All to Consultant's approval.
- .2 Mask identification plates occurring on equipment, switch boxes, and fire rating labels, etc. which require painting.
- .3 Protect, remove and replace hardware, accessories, lighting fixtures, and similar items as required except primed for paint door closers which shall be painted. Light switches and electrical communication outlet plates to be removed and reinstalled on completion of paint application.

SECTION 09 92 00 - PAINTING AND REPAINTING

- .4 Keep oily rags, waste and other similar combustible materials in closed metal containers; take every precaution to avoid spontaneous combustion, remove waste and combustible materials daily.
- .5 Clean surfaces soiled by spillage of paint, paint spattering and the like. If such cleaning operations damage the surface, repair and replace damaged work at no cost to the Owner.

1.11 RETOUCHING

- .1 Do all retouching, etc. to ensure that the building may be handed over to the Owner in perfect condition, free of spatter, finger prints, rust, watermarks, scratches, blemishes of other disfiguration.
- .2 After fully decorating and retouching a room or other area, notify Consultant. After inspection and final approval by Consultant post sign 'DECORATING COMPLETE - NO ADMITTANCE WITHOUT PERMISSION'.

1.12 TEST AREA

- .1 A room or area in the building will be designated by the Consultant as a test area to establish standard of workmanship, texture, gloss and coverage.
- .2 Prior to any painting being started, request a meeting on Site between Consultant, Contractor, and Subcontractor to review conditions, surfaces, anticipated problems and to clarify quality of workmanship acceptable to Consultant.
- .3 Apply finishes to each type of surface within room with correct material, coats, colour, texture and degree of gloss in sample area and have same approved prior to providing Work of this Section.
- .4 Retain test area until after completion of Work. Test area to be minimum standard for the Work.
- .5 Failure to comply with the above will be cause for Consultant to request all Work previously painted to be repainted.

1.13 MAINTENANCE MATERIALS

- .1 Provide one sealed can, one litre capacity, of each product in each colour used in the Work for Owner's use in maintenance Work.
- .2 Container to be new fully labelled with manufacturer's name, type of paint, and colour.
- .3 Store materials where directed by Owner's representative on site. Obtain receipt, signed by building custodian and listing all maintenance materials provided, and submit to Consultant.

1.14 WARRANTY/GUARANTEE

- .1 Furnish a 100% Maintenance Bond, valid for **two (2) years** from date of Substantial Performance, or from date of completion of Work if work is not complete at date of Substantial Performance.

SECTION 09 92 00 - PAINTING AND REPAINTING

- .2 Subcontractor's Maintenance Bond, shall warrant that the work has been performed in accordance with the standards and requirements of the MPI Maintenance Repainting Manual and Architectural Painting Specification Manual, most recent editions.

PART 2 - PRODUCTS**2.1 MATERIALS**

- .1 Paint and finishing materials shall be the highest grade, first line quality, low VOC products, included on the MPI Approved Product List under the MPI reference numbers specified herein, and the products of the following manufacturers:
 - .1 Benjamin Moore & Co.
 - .2 Devoe High Performance Coatings
 - .3 Dulux Paints
 - .4 The Sherwin-Williams Company
 - .5 General Paints
 - .6 Sico Paints
 - .7 PPG Canada
 - .8 Para Paints
- .2 Paints, enamels, fillers, primers, varnishes and stains shall be ready mixed products of one of the manufacturers listed. Substitutes will not be allowed. The only exception to this is where a specific product of another manufacturer is specified herein; such products shall be provided as specified. Paint products shall have minimum 40% volume solids.
- .3 All paints shall be ready-mixed and pre-tinted. Thoroughly re-mix all paint in containers prior to and during application to ensure break-up of lumps and uniformity of colour and gloss.
- .4 Thinners, cleaners - type and brand recommended by the paint manufacturer.
- .5 Only products manufactured by paint manufacturer stated at time of submission of samples will be allowed on Site unless other materials specifically specified herein or otherwise approved. No painting to be performed until paint manufacturer is identified and acceptance received from the Consultant.
- .6 Where available, paint products shall meet MPI Environmentally Friendly E3 ratings for VOC content.
- .7 All materials and paints shall be free of lead and mercury, shall conform to Canadian Regulations for VOC limits, and shall meet flame spread and smoke developed limits required by code.
- .8 Deliver materials to Site in original unbroken containers bearing brand and maker's name. The presence of any unauthorized material or containers for such, on Site shall be of sufficient cause for rejection of ALL paint materials on Site at that time, and all previous painted work repainted with proper material.

2.2 COLOUR SCHEDULE

- .1 Consultant will provide detailed colour schedule at a later date. Conform to schedule including patterns, colours, and locations for all finishes.
- .2 In each room, the Consultant may select one wall where an accent colour may be applied.
- .3 Refer to room finishing notes for detailed instructions.

PART 3 - EXECUTION

3.1 PREPARATION - GENERAL

- .1 Remove existing hardware and surface fittings, fastenings, plates, mechanical louvers, door and window hardware removable rating / hazard / instruction labels, washroom accessories, light fixture trim, signage, etc., from walls, ceilings, doors and frames, prior to repainting and replace upon completion. Clean all items, wrap carefully, fully labelling each package, and store on site for reinstallation at completion of the work. Do not use solvent or reactive cleaning agents on items which may mar or lose finishes.
- .2 Protect all adjacent interior surfaces, equipment, and furnishings to remain in work areas, including rating and instruction labels on doors, frames, piping, etc., from repainting operations and damage by use of drop cloths, shields, masking, templates, or other suitable methods. Make good any damage caused by failure to provide adequate protection.

3.2 PREPARATION OF SURFACES

- .1 Prepare surfaces in accordance with the following standards and to MPI Maintenance Repainting Manual and Architectural Specification Manual; the most stringent requirements shall apply.
- .2 Existing Surfaces:
 - .1 Refer to the MPI Maintenance Repainting manual for the levels of surface degradation and the corresponding surface preparation requirements and recommended repaint systems. Prepare existing surfaces as recommended for the finish required.
 - .2 Remove all surface contamination such as oil, grease, loose paint, mill scale, dirt, foreign matter, rust, mould, mildew, mortar, efflorescence, smoke stains, sap, and sealers from existing surfaces to assure sound bonding to tightly adhering old paint.
 - .3 Scrape peeling paint off existing masonry surfaces and apply a compatible masonry sealer, approved for use by the paint manufacturer, before applying new coatings.
 - .4 Glossy surfaces must be clean and dull before repainting. Wash with abrasive cleanser, or, wash thoroughly and dull by sanding. Use full coat of bonding primer below finish coats.
 - .5 Where smoke and water stains cannot be adequately removed by cleaning, provide stain blocking primer over affected areas.

SECTION 09 92 00 - PAINTING AND REPAINTING

- .6 Spot prime any existing bare areas with an appropriate primer.
- .3 New Surfaces:
 - .1 Prepare wood surfaces to CGSB 85-GP-IM. Use CAN/CGSB 1.126 vinyl sealer over knots and resinous areas. Use CGSB 1-GP -103M wood paste filler for nail holes. Tint filler to match.
 - .2 Touch up damaged spots of shop paint primer on steel with CAN/CGSB 1.40M to CGSB 85-GP-14M.
 - .3 Prepare galvanized steel and zinc coated surfaces to CGSB 85-GP-16M. This includes wiped coated steel surfaces.
 - .4 Prepare masonry and concrete surfaces to CGSB 85-GP-31M.
 - .5 Test coat concrete surfaces to ensure adhesion of primer prior to proceeding with painting. If concrete contains fly ash, a solvent based primer will be required.
 - .6 Prepare wallboard surfaces to CGSB 85-GP-33M. Fill minor cracks with plaster patching compound for stained woodwork.
 - .7 Prepare concrete floors to CGSB 85-GP-32M.
 - .8 Prepare copper piping and accessories to CGSB 85-GP-20M.
 - .9 Apply prime coat on wood scheduled for paint finish before installation.
 - .10 Back prime wood scheduled for transparent finish. Do not prime surfaces scheduled for transparent finish.
- .4 Coat test areas to confirm adhesion of all coatings over pipe insulations and plastics prior to proceeding with painting.
- .5 NOTE: ABOVE NOTED SURFACES MAY NOT ALL BE APPLICABLE TO THIS PROJECT.

3.3 RECOATABILITY TESTING

- .1 Perform a minimum of ten (10) recoatability tests at existing surfaces to be repainted as outlined below. Testing of interior surfaces must be performed in the presence of the Consultant.
- .2 Check for compatibility between existing and new coatings by applying a test patch of the recommended coating system, covering at least 2 to 3 square feet. Allow surface to dry one week before testing adhesion per ASTM D3359. If the coating system is incompatible, complete removal is required.
- .3 Clean and prepare test areas of the surface to be repainted. Areas selected shall be areas of the surfaces most vulnerable to weathering and/or wearing.
- .4 Repeat the recoatability testing until satisfactory results are obtained.

3.4 FINISHING SYSTEMS

- .1 Finishing systems specified below are based on the repainting and new painting systems included in the MPI manuals. Painting in renovated areas consists of repainting of existing surfaces and painting of new surfaces.
 - .1 RIN and REX formulas are found in the Maintenance Repainting Manual and apply to repainting work.
 - .2 INT and EXT formulas are found in the Architectural Painting Specification Manual and apply to new painting work.
 - .3 Finishing systems are to be modified where indicated below.
 - .4 Finishes must be low VOC products; use paint products meeting MPI Environmentally Friendly E3 ratings, where such products are available in Ontario.
 - .5 All finishing systems shall be Premium Grade.
- .2 Existing surfaces to be repainted are to be primed in accordance with MPI Maintenance Repainting Manual recommendations for the degree of surface degradation, as follows:
 - .1 DSD-1: Touch-up
 - .2 DSD-2: Spot prime
 - .3 DSD-3: Full prime coat
 - .4 DSD-4: After repair by others, full prime coat
- .3 Bonding Primer:
 - .1 Where existing surfaces are coated with different coating types than they are specified to receive, including old alkyd paints, glazed coatings, epoxies, etc., or where surfaces are inherently slick or glossy, use a full prime coat of bonding primer before applying new finish coats.
 - .2 All existing metal doors, frames and screens are to receive a full coat of bonding primer before repainting.
 - .3 Bonding primer shall be MPI #17 X-Green, or MPI #17 within VOC range E3, selected as appropriate for the substrate and new coating.
- .4 Interior Work:
 - .1 Drywall and Plaster:
 - .1 Walls: High Performance Architectural Latex, satin finish
 - .1 RIN 9.2B - G5, for repainting work:
 - .1 Bonding primer: MPI #17 X-Green
 - .2 Where bonding primer is not required, prime as required by DSD level
 - .3 2 coats HIPAC Latex; MPI #141, VOC Range E3
 - .2 INT 9.2B - G5, for new painting work:
 - .1 1 coat Latex Primer Sealer; MPI #50, VOC Range E3
 - .2 2 coats HIPAC Latex; MPI #141, VOC Range E3
 - .2 Ceilings: Latex (over latex sealer), flat finish
 - .1 RIN 9.2A - G1, for repainting work:
 - .1 Bonding primer: MPI #17 X-Green
 - .2 Where bonding primer is not required, prime as required by DSD level
 - .3 2 coats MPI #53; VOC Range E3

SECTION 09 92 00 - PAINTING AND REPAINTING

- .2 INT 9.2A - G1 for new painting work:
 - .1 1 coat Primer; MPI #50
 - .2 2 coats MPI #53; VOC Range E3
- .3 All new drywall, whether requiring finish painting or not, must receive prime coat.
- .2 Concrete Block, paint: High Performance Architectural Latex, semi-gloss finish
 - .1 RIN 4.2D - G5 (modified) for repainting work
 - .1 1 coat bonding primer; MPI #17 X-Green
 - .2 Where bonding primer is not required, prime as required by DSD level
 - .3 2 coats finish; MPI #141, VOC Range E3
 - .2 INT 4.2D - G5 (modified) - 4 coat system, for new painting work
 - .1 2 coats latex blockfiller; MPI #4
 - .2 2 coats finish; MPI #141, VOC Range E3
- .3 Concrete Block, glaze: Epoxy-modified Latex Finish, gloss
 - .1 RIN 4.2F - G6 (modified) for repainting work
 - .1 1 coat bonding primer; MPI #17 X-Green
 - .2 2 Coats epoxy-modified latex finish; MPI #115
 - .2 INT 4.2J - G6 (modified) - 4 coat system, for new painting work
 - .1 2 coats latex blockfiller; MPI #4
 - .2 2 Coats epoxy-modified latex finish; MPI #115
 - .3 Provide in all hallways and washrooms, and where noted as "glazed" in Room Finish Schedule.
- .4 Concrete Block, wet areas: Epoxy, Gloss; "Tile like" Finish
 - .1 RIN 4.2D for repainting work
 - .1 1 coat bonding primer; MPI #17. VOC Range E3
 - .2 2 Coats epoxy finish; MPI #77, VOC ≤250 g/L
 - .2 INT 4.2G (modified) 4 coat system for new painting work
 - .1 2 coats epoxy blockfiller; MPI #116, VOC Range E3
 - .2 2 Coats epoxy finish; MPI #77, VOC ≤250 g/L
 - .3 Provide in all wet areas, including washrooms.
- .5 Cast in Place Concrete
 - .1 walls: High Performance Architectural Latex, semi-gloss finish
 - .1 RIN 3.1J - G5 for repainting work
 - .1 Bonding primer: MPI #17 X-Green
 - .2 Where bonding primer is not required, prime as required by DSD level
 - .3 2 coats HIPAC Latex finish; MPI #141, VOC Range E3
 - .2 INT 3.1C - G5 for new painting work
 - .1 1 coat alkali resistant primer; MPI #3
 - .2 2 coats HIPAC Latex finish; MPI #141, VOC Range E3

SECTION 09 92 00 - PAINTING AND REPAINTING

- .2 ceilings: High Performance Architectural Latex, low sheen finish
 - .1 RIN 3.1J - G2 for repainting work
 - .1 Bonding primer: MPI #17 X-Green
 - .2 Where bonding primer is not required, prime as required by DSD level
 - .3 2 coats HIPAC Latex finish; MPI #141, VOC Range E3
 - .2 INT 3.1C - G2 for new painting work
 - .1 1 coat alkali resistant primer; MPI #3
 - .2 2 coats HIPAC Latex finish; MPI #141, VOC Range E3
 - .3 For concrete mixes containing fly ash, primer shall be alkali resistant solvent based primer MPI #223 or, on cured concrete, solvent based bonding primer MPI #69. Confirm suitability of primer for substrate, with product manufacturer.
- .6 Woodwork - Opaque Finish: High Performance Architectural Latex, semi-gloss finish
 - .1 RIN 6.3T for repainting work
 - .1 prime as required by DSD level; MPI #39
 - .2 2 coats HIPAC latex finish; MPI #141. VOC Range E3
 - .2 INT 6.4S for new painting work
 - .1 1 coat latex primer MPI #39
 - .2 2 coats HIPAC latex finish; MPI #141. VOC Range E3
- .7 Woodwork - Polyurethane Varnish over Semi-transparent Stain, gloss
 - .1 RIN 6.3E - G6 for repainting work
 - .1 stain as required by DSD level; MPI #90
 - .2 2 coats Polyurethane Varnish, clear gloss; MPI #56
 - .2 INT 6.3E - G6 for new painting work
 - .1 Wood Stain; MPI #90
 - .2 3 coats Polyurethane Varnish, clear gloss; MPI #56
- .8 Ferrous Metal: W.B. Light Industrial Coating, semi-gloss finish
 - .1 RIN 5.1P- G5 for repainting work
 - .1 Bonding primer: MPI #17 X-Green
 - .2 Where bonding primer is not required, prime as required by DSD level; MPI #101
 - .3 2 coats W.B. light industrial coating; MPI #153
 - .2 INT 5.1N - G5 for new painting work
 - .1 1 coat epoxy primer; MPI #101
 - .2 2 coats W.B. light industrial coating; MPI #153
- .9 Shop Primed Structural Steel and Metal Fabrications (New work):
 - .1 Confirm type of shop primer used with structural steel supplier, and use compatible system listed below.
 - .2 Confirm compatibility of all coatings with manufacturers.
 - .3 Touch up prime coat where damaged, with compatible primer.

SECTION 09 92 00 - PAINTING AND REPAINTING

- .4 Over Q.D. metal primer: High Performance Architectural Latex, semi-gloss finish
 - .1 INT 5.1R - G5, for new painting work
 - .1 1 coat Alkyd metal primer MPI #79; VOC Range E2 or E3
 - .2 2 coats HIPAC Latex; MPI #141; VOC Range E3
- .5 Over epoxy primer: W.B. Light Industrial Coating, semi-gloss finish
 - .1 INT 5.1N - G5, for new painting work
 - .1 1 coat epoxy primer; MPI #101
 - .2 2 coats W.B. light industrial coating #153
- .10 Galvanized Metal: High Performance Architectural Latex, semi-gloss finish
 - .1 RIN 5.3J - G5 (over anti-corrosive alkyd primer) for repainting work
 - .1 Bonding primer: MPI #17 X-Green
 - .2 Where bonding primer is not required, prime as required by DSD level; MPI #134
 - .3 2 coats HIPAC Latex MPI #141; VOC Range E3
 - .2 INT 5.3M for new painting work
 - .1 1 coat water based Galvanized Primer MPI #134
 - .2 2 coats HIPAC Latex MPI #141; VOC Range E3
- .11 Hollow Metal Doors, Frames, and Screens: High Performance Architectural Latex, semi-gloss finish
 - .1 RIN 5.3J - G5 (modified) for repainting work
 - .1 1 coat of bonding primer MPI #17 X-Green
 - .2 2 coats of HIPAC Latex MPI #141; VOC Range E3
 - .2 INT 5.3M - G5 for new painting work
 - .1 1 coat water based Galvanized Primer MPI #134
 - .2 2 coats HIPAC Latex MPI #141; VOC Range E3
- .12 Insulation on Pipes & Ducts (plastic): High Performance Architectural Latex, semi-gloss finish
 - .1 RIN 6.8A - G5, for repainting work
 - .1 1 coat Bonding Primer MPI #17 X-Green
 - .2 2 coats HIPAC Latex MPI #141; VOC Range E3
 - .2 INT 6.8A - G5, for new painting work
 - .1 1 coat Bonding Primer MPI #17 X-Green
 - .2 2 coats HIPAC Latex MPI #141; VOC Range E3
- .13 Mechanical Equipment:
 - .1 High Performance Architectural Latex, semi-gloss finish
 - .2 As specified for metal types.
 - .3 Use heat resistant paint where required.

SECTION 09 92 00 - PAINTING AND REPAINTING

- .14 Piping, Conduit & Ductwork (uncoated): High Performance Architectural Latex, semi-gloss finish
 - .1 RIN 5.3J - G5, for repainting work
 - .1 1 coat of bonding primer MPI #17 X-Green
 - .2 2 coats of HIPAC Latex MPI #141; VOC Range E3
 - .2 INT 5.3M - G5, for new painting work
 - .1 1 coat water based Galvanized Primer MPI #134
 - .2 2 coats HIPAC Latex MPI #141; VOC Range E3
- .15 Surfaces behind grilles, within 30mm of grille: Institutional Low Odour/ Low VOC, flat finish
 - .1 RIN 5.3K - G1, for repainting work
 - .1 Bonding primer: MPI #17 X-Green
 - .2 Where bonding primer is not required, prime as required by DSD level; MPI #134
 - .3 2 Coats Acrylic Flat, Black; MPI #143
 - .2 INT 5.3N - G1, for new painting work
 - .1 1 coat galvanized Primer MPI #134
 - .2 2 Coats Acrylic Flat, Black; MPI #143
- .16 Concrete Floors: Alkyd Floor Enamel, gloss
 - .1 RIN 3.2B for repainting work
 - .1 Bonding primer: MPI #17 X-Green
 - .2 Where bonding primer is not required, prime as required by DSD level; MPI #27
 - .3 2 Coats Alkyd Floor Enamel, MPI #27
 - .2 INT 3.2B for new surfaces
 - .1 3 Coats Alkyd Floor Enamel, MPI #27
- .5 Exterior Work
 - .1 Stucco, cementitious panels: High Performance Architectural Latex (over W.B. alkali-resistant primer), low sheen
 - .1 REX 9.1 K -G3, for repainting work
 - .1 Prime as required by DSD level; Alkali Resistant Acrylic Primer MPI #3
 - .2 2 Coats Latex MPI #315
 - .2 New stucco: not painted (integral colour); refer to Section 09 29 00
 - .2 Galvanized Steel: W.B Light Industrial Coating (over cementitious primer), semi-gloss
 - .1 REX 5.3G for repainting work
 - .1 Over non-compatible coatings, 1 full coat bonding primer
 - .2 or, over compatible epoxy coatings, prime as required by DSD level; MPI #101
 - .3 2 Coats Exterior W.B Light Industrial Coating MPI #163

SECTION 09 92 00 - PAINTING AND REPAINTING

- .2 EXT 5.3G for new painting work
 - .1 Touch-up welds and any repairs
 - .2 1 coat Cementitious Primer MPI #26
 - .3 2 Coats Exterior W.B Light Industrial Coating MPI #163
- .3 Ferrous Metals, Structural Steel: W.B. Light Industrial Coating over rust inhibitive primer, semi gloss
 - .1 REX 5.1K - G5, for repainting work
 - .1 Over non-compatible coatings, 1 full coat bonding primer
 - .2 or, over compatible coatings, prime as required by DSD level; MPI #107
 - .3 2 Coats Water Based Light Industrial Coating MPI #163
 - .2 EXT 5.1M - G5, for new painting work
 - .1 1 coat Rust Inhibitive Primer MPI #107
 - .2 2 Coats Water Based Light Industrial Coating MPI #163
- .4 NOTE: Touch up shop primer and field welds using zinc rich primer.
- .5 Wood: Solid Colour Stain
 - .1 REX 6.2D for repainting
 - .1 Over non-compatible coatings, 1 full coat bonding primer
 - .2 or, over compatible coatings, prime as required by DSD level; MPI #5
 - .3 2 Coats Exterior Solid Colour Stain MPI #14
 - .2 EXT 6.2D for new painting work
 - .1 1 Coat Exterior Alkyd Primer MPI #5
 - .2 2 Coats Exterior Solid Colour Stain MPI #14
- .6 For painted markings on asphalt paving refer to Section 32 17 23.

3.5 APPLICATION

- .1 Apply coatings in accordance with manufacturer's printed instructions.
- .2 Use suitable, clean equipment in good condition.
- .3 Maintain dust-free suitable conditions on the surfaces free from machine, tool or sandpaper marks, insects, grease, or any other condition liable to impair finished work to prevent production or good results.
- .4 Do not commence repainting unless substrates are acceptable and until all environmental conditions (heating, ventilation, lighting and completion of other subtrade work, if applicable) are acceptable for application of products.
- .5 Allow appropriate time between surface cleaning and commencement of painting work to permit surface conditions to be ready for coating work, and to prevent re-contamination of surfaces.
- .6 Apply primers, paints, and stains in accordance with the Premium Grade finish requirements of the MPI Painting and Repainting manuals.

SECTION 09 92 00 - PAINTING AND REPAINTING

- .7 Apply bonding primer over incompatible existing coatings and glossy substrates, as specified above.
- .8 Number of coats specified is to be considered a minimum. Where deep or bright colours are required, apply a minimum of four coats and as required to achieve satisfactory results. This will include at accent walls in kindergarten classrooms and child care rooms.
- .9 Apply evenly, uniform in sheen, colour and texture, free from brush or roller marks, well brushed or rolled in and free of crawls, runs, join marks or other defects.
- .10 Sand and dust between each coat to provide an anchor for next coat and to remove defects in previous coat (runs, sags, etc.) visible from a distance up to 1000 mm.
- .11 Permit paint to dry between coats. Touch up uneven spots after applying first coat. Tint various coats of multiple coat work in light shades of the final colour selected, to distinguish between coats.
- .12 To avoid air entrapment in applied coats, apply materials in strict accordance with manufacturer's spread rates and application requirements.
- .13 Give Consultant due notice and sufficient opportunity (minimum 48 hours) to inspect each coat. Do not proceed with subsequent coat until preceding coat approved. Consultant reserves the right to order complete retreatment if this condition is not observed.
- .14 At concrete block, two coats of block filler are required to achieve smooth and uniform surface on block.
- .15 Painting coats are intended to cover surfaces perfectly; if in painter's opinion, formula specified is inadequate to provide a first class finished surface, report to the Consultant and have formulas rectified before commencing work. Surfaces imperfectly covered shall receive additional coats at no additional cost. Provide additional coat where ever dark colours are used.
- .16 Use paint unadulterated. Use same brand of paint for primer, intermediate and finish coats. Factory mix all paints.
- .17 Paint finish shall be applied by roller except in the case of wood trim, door frames, base board and similar work of small surface area which shall be painted by brush. Do not use roller for applying finish other than paint.
- .18 Spray painting will not be permitted unless specifically approved in writing by the Consultant in each instance. Consultant may withdraw approval at any time and prohibit spray painting for reasons such as carelessness, poor masking or protection measures, drifting paint fog, disturbance to other Trades, or failure to obtain a dense, even, opaque finish. Spray painting shall be full double coat, i.e. at least two passes for each coat. Do not use spray or roller on wood or metal surfaces, brush only unless approved in writing by Consultant.
- .19 Paint entire surfaces, including areas where millwork or other items are to be installed.

SECTION 09 92 00 - PAINTING AND REPAINTING

- .20 Finish edges of doors with paint or stain treatment as required to match face of door. Seal hidden edges of wood doors with one coat of shellac and one coat gloss varnish or two coats paint. Repaint tops and edges of wood doors after fitting.
- .21 Even up stained woodwork in colour as required by nature of wood and as directed by Consultant. Apply same finish on trim, fittings cupboards and other protecting ledges as on surrounding work, disregard sight lines.
- .22 Carefully hand smooth and sandpaper wood between coats (including priming). Apply one coat sealer before applying first coat paint filler to knots or sap blemishes on wood surfaces to receive paint or stain finish.
- .23 After first coat, fill nail holes, splits and scratches, using putty coloured to match finish.
- .24 Remove rust, oil, grease and loose shop paint from metal work by brushing or with wire brushes and make good shop coat before proceeding with final finish. Feather out edges to make touch up patches inconspicuous.
- .25 Clean castings with wire brush before application of first paint coat.
- .26 Do not etch galvanized metal. Use zinc rich primer. This includes metal door frames and the like with wiped zinc coating.
- .27 Note that bonding primer is required on all existing hollow metal doors, frames and screens to be repainted. A full coat of primer is required on all new hollow metal doors, frames and screens. Three coat system is required in all cases. Sand between all coats.
- .28 Remove form oil or parting compounds from concrete surfaces. Use Xylol or approved compound.
- .29 Paint interior of pipe spaces, ducts, etc. visible through grilles or through linear metal ceilings in black matt finish.
- .30 Conform with Consultant's colour schedule and exactly match approved samples.
- .31 Mechanical and Electrical Pipes, Ducts and Conduits:
 - .1 Commence Work when new piping installation is complete in the area concerned.
 - .2 Unless otherwise noted, repainting shall also include exposed to view / previously painted mechanical and electrical equipment and components (panels, conduits, piping, hangers, ductwork, etc.). Leave unfinished exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish.
 - .3 Touch up scratches and marks and repaint such mechanical and electrical equipment and components with colour, and sheen finish to match existing unless otherwise noted or scheduled.
 - .4 Do not paint plated or other prefinished surfaces, unless otherwise noted.
 - .5 Do not paint over name plates or instruction labels.
 - .6 Keep repainted sprinkler heads free of paint.
 - .7 Paint conduit in same colour as background paint.

- .8 Apply formulae specified even with new items surface prime painted at shop prior to delivery. Touch up shop priming where damaged.
- .9 Use heat resistant epoxy paint on pipes and surfaces where operating surface temperature exceeds 65 degrees C.
- .10 Paint exposed pipes and ducts and their supports and related items in colours to suit colour coding included below; confirm with Consultant. Refer to Mechanical Division 23 for further instructions.

- .32 Keep work area free from an unnecessary accumulation of tools, equipment, surplus materials and debris.
- .33 Remove combustible rubbish materials and empty paint cans each day and safely dispose of same in accordance with requirements of authorities having jurisdiction.

3.6 COLOUR CODING OF PIPING

- .1 The following is a general list of typical painting requirements for piping. All repainting of piping shall match colours and pattern of existing. Painting of new piping shall match colours and patterns of existing piping of same type. Confirm colours and patterns with Owner.

FUNCTION	COLOUR	WHERE EXPOSED	WHERE CONCEALED	DIRECTION INDICATION
Natural Gas	Yellow	Solid	Solid	-
Stand Pipe System	Red	Solid	Solid	-
Heating Water Supply	Dark Green	Solid	300mm Band Every 6m	At minimum of every 6m, Direction Arrow 250mm Long, 25mm wide
Heating Water Return	Pale Green	Solid	300mm Band Every 6m	
Chilled Water Supply	Orange	Solid	Solid	
Chilled Water Return	Orange	Solid	Solid	
Cooling Water To Tower	Buff	Solid	Solid	
Cooling Water From Tower	Buff	Solid	Solid	
Domestic Hot Water	Dark Blue	Solid	300mm Band Every 6m	At minimum of every 6m, Direction Arrow 250mm Long, 25mm wide
Domestic Cold Water	Pale Blue	Solid	300mm Band Every 6m	

3.7 CLEAN-UP AND PROTECTION

- .1 Replace and reinstall all items previously removed and stored upon completion of repainting work in each area.
- .2 Protect all newly painted exterior surfaces from rain and snow, condensation, contamination, dust, salt spray and freezing temperatures until paint coatings are completely dry. Curing periods shall exceed the manufacturer's recommended minimum time requirements.

SECTION 09 92 00 - PAINTING AND REPAINTING

- .3 Erect barriers or screens and post signs to warn, limit or direct traffic away or around work area as required.
- .4 Remove all paint where spilled, splashed, splattered or sprayed as work progresses using means and materials that are not detrimental to affected surfaces.
- .5 Clean equipment and dispose of wash water and solvents as well as all other cleaning and protective materials, paints, thinners, paint removers/strippers in accordance with the environmental and safety requirements of authorities having jurisdiction.

3.8 REPAIRS

- .1 Cracks occurring in walls or ceilings requiring patching during the Warranty Period shall be repainted in such a way that the patch is not visible at a distance of 1m.
- .2 If patch painting is not acceptable, repaint entire wall, or ceiling.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED WORK

- | | | |
|----|--|------------------|
| .1 | Demolition | Section 02 40 00 |
| .2 | Building-in and grouting frames in Masonry | Section 04 22 00 |
| .3 | Terrazzo | Section 09 66 13 |
| .4 | Electrical Service | Division 26 |

1.2 REFERENCE STANDARDS

- .1 Do work to CAN/CSA - B355, Lifts for Persons with Physical Disabilities and Canadian Electrical Code, local codes and regulations except where specified otherwise.
- .2 Lifts shall conform to the barrier-free access requirements of the Ontario Building Code.
- .3 All work shall conform to Ontario Regulation 209/01, Elevating Devices, under the Technical Standards and Safety Act, 2000.

1.3 SUBMITTALS

- .1 Submit shop drawings, samples and maintenance data in accordance with Section 01 33 23.
- .2 Shop drawings to include:
 - .1 Fully dimensioned plans, elevations, and sections showing equipment locations and their relationship to surroundings.
 - .2 Load and reaction drawings.
 - .3 Anchorage and clearance requirements.
 - .4 Catalogue illustrations of operating and signal fixtures.
 - .5 Provide storage and handling requirements and installation instructions.
- .3 Submit duplicate samples for each finish requiring selection of colour or finish.
- .4 Submit copies of warranty and maintenance documents for inclusion in Owner's maintenance manual.
- .5 Provide an Owner's Manual detailing the operating, safety, and maintenance procedures of the lift, for inclusion in Owner's maintenance manual for the complete work of this project.
- .6 Provide complete set of all special, proprietary tools required for lift servicing or repair. Deliver to Owner's representative on sited; submit receipt, signed by Owner.

14 42 16 - WHEELCHAIR LIFT

1.4 OWNER'S INSTRUCTION

- .1 Instruct the owner's maintenance staff in the proper use, operation and maintenance requirements of the lift. Instructions to also include emergency procedures and safety rules and precautions.
- .2 Provide TSSA registered design submission in digital format.

1.5 WARRANTY

- .1 Warrant the work of this section for a period of **three (3) years** against defects in the equipment and workmanship. Warranty shall be in effect from date of Substantial Performance of the Contract or the date that the lifts are licenced and ready for service, whichever is the later date.
- .2 Warranty shall include all labour, materials, equipment, and services required to make good defective areas of the work, and in the work, and in the case of factory-fabricated components, to supply and install new components, all at no cost to the Owner. Warranty shall include prompt remedy of all defects upon written notification from the Owner, and at times convenient to the Owner.
- .3 Warranty shall also include making good other building parts and finishes and other Owner's property damaged or disturbed in the course of remedying defects.

1.6 MAINTENANCE

- .1 Provide data for lift maintenance. Incorporate into maintenance manual.
- .2 Include complete maintenance of lift equipment from the date lift is licensed by Authorities Having Jurisdiction, and ready for use, until the expiration of the warranty period. All costs shall be included in the contract and maintenance work shall be undertaken at no additional cost to the Owner. Full maintenance of the lifts must be undertaken at minimum twice per year, and more often where recommended by the manufacturer and/or required by law for the expected usage. Perform a complete maintenance service of the lifts immediately preceding the expiration of the warranty.
- .3 Regularly, examine, clean, adjust and lubricate equipment.
- .4 Repair or replace electrical and mechanical parts of lift equipment as required due to defect and normal wear and tear.
- .5 Include call-back service due to lift stoppage or malfunction at all times during regular working hours.
- .6 Provide non-proprietary software programs/control access codes.
- .7 Provide all proprietary tools required for servicing or repair of lift.

1.7 RELATED WORK

- .1 Contractor to coordinate the work to ensure the following preparatory work is undertaken by other trades, as necessary to receive the lift specified in this section:
 - .1 Provide permanent 120 VAC, 20 amp single phase power to operate lift, from a lockable fused/cartridge type disconnect switch with auxiliary contacts for battery operation.
 - .2 Provide a plumb, square and smooth surfaces at lift hoistway walls.
 - .3 Provide rough openings per lift contractor's shop drawings.
 - .4 Provide pit, with level floor slab, of dimensions indicated on drawings and in accordance with lift subcontractor's shop drawings.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- .1 Basis of design for wheelchair Lift is Savaria model V1504 Vertical Platform Lift by Savaria Lifts Inc.
- .2 Genesis Enclosure model vertical wheelchair lift, as manufactured by Garaventa (Canada) Ltd., conforming to these specifications, is an approved equal. Equivalent lifts by Delta Elevator Co., or Federal Elevator will also be accepted, subject to their conformance with these specifications.

2.2 DESCRIPTION OF LIFT

- .1 Lift shall be a pre-engineered vertical wheelchair lift with oil hydraulic tower and lifting platform.
- .2 Number of Stops: 2 stops
- .3 Configuration: straight-through (Type 2)
- .4 Travel Distance: 1715 mm
- .5 Rated Load: 340 kg with minimum safety factor of 5X
- .6 Rated Speed: 0.1 m/sec with rated load
- .7 Platform Size: 1067 mm x 1524 mm
- .8 Operation: Constant pressure operation
- .9 Main Power Supply: 110 volt, 15 amp, 60 Hz, single phase
- .10 Motor / pump: 110 VAC, 1.5 hp (1.12 kW) gear type hydraulic pump
- .11 Controls: Electronic-free relay logic controller

14 42 16 - WHEELCHAIR LIFT

- .12 Drive: 2:1 roller chain hydraulic drive system
- .13 Tower: Modular 2440mm base guide rail assembly and roller guide support
- .14 Pit depth: 76mm
- .15 Finish: Baked Electrostatic Polyester Gloss Powder
- .16 Colour: Beige
- .17 Car Enclosure
 - .1 Side guards: Steel frame with powder coat finish and steel panel inserts to a minimum height of 1067 mm above upper landing.
 - .2 No platform gate required, to allow for ease of operation.
 - .3 Upper gate: 1067 mm high by 914 mm wide, with Plexiglas inserts; equipped with interlock, spring hinges and kick plate.
 - .4 Lower door: 2032 mm high by 914 mm wide, with Plexiglas inserts; equipped with interlock, hydraulic closer and kick plate on both sides. The inside kick plate shall be made of steel.
 - .5 Doors and gates to be flush mounted inside the hoistway so as to avoid pinch points and shear hazards.
 - .6 Handrail: 38 mm diameter stainless steel handrail and with both ends returned to the side guard, located on the control wall of the carriage.
 - .7 "Altro" non-slip flooring in colour to be selected by Consultant.
 - .8 Emergency Telephone: Platform shall be equipped with ADA compliant autodialer telephone with a stainless-steel faceplate. Telephone shall operate in the event of power failure. A telephone line shall be supplied to the lift from the Communications Room.
- .18 Operating Features:
 - .1 Operating Panel shall consist of constant pressure buttons or rocker switches, emergency stop/alarm button, on/off key switch and emergency light mounted on a removable stainless steel panel; type 304 #4 stainless steel finish.
 - .2 Key shall only be removable when the key is in the OFF position.
 - .3 Grounded electrical system with upper, lower and final limit switches and 24 V operating controls.
 - .4 Provide 10 keys to Owner.
- .19 Emergency Operation:
 - .1 The car shall be equipped with a battery back up system which will provide emergency raising and lowering of the lift, and power an alarm in the event of a main power failure.
 - .2 The battery shall be the rechargeable type with an automatic recharging system.
 - .3 The car shall be equipped with an integral emergency light that will illuminate automatically in the event of a main power failure.
 - .4 A manual lowering device shall be located outside the hoistway in a lockable box positioned at a designated landing
- .20 Pump Unit and Controls
 - .1 Pumping unit and control shall be enclosed in the tower.
 - .2 The controller and pump unit shall be pre-wired and tested prior to shipment.

- .3 The controller is to be electronic-free with relay logic operation for ease of maintenance and service.
- .4 Pump unit shall incorporate the following features :
 - .1 Smooth stops at each landing.
 - .2 Adjustable pressure relief valve.
 - .3 Manually operable down valve to lower lift in the event of an emergency; activated from outside of the hoistway through a keyed box.
 - .4 Pressure gauge isolating valve (shut off valve), manually operable.
 - .5 Gate valve to isolate cylinder from pump unit.
 - .6 Electrical solenoid for down direction control.
 - .7 Emergency raising and lowering by battery power, from the car control.
- .21 Cylinder And Plunger:
 - .1 Cylinder: constructed of steel pipe of sufficient thickness and suitable safety margin; equipped with cylinder head with internal guide ring and self-adjusting packing.
 - .2 Plunger: constructed of a steel shaft of proper diameter machined true and smooth; complete with a stop electrically welded to the bottom to prevent the plunger from leaving the cylinder.
- .22 Roller Chains: Two No.50 roller chains with 16 mm pitch. Minimum breaking strength of 2773 kg each.
- .23 Levelling Device:
 - .1 Provide anti-creep device which will maintain the carriage level within 12 mm of the top landing.
 - .2 Limit switch and levelling device switches shall be located behind the mast wall and be accessible through removable panels, and inaccessible to unauthorized persons.
- .24 Guide Yoke: 2:1 guide yoke/sprocket assembly, with two sprockets, roller guide shoes, bearings and guards.
- .25 Call Stations: Provide key-controlled call stations for upper level and lower level on a stainless steel plate Type 304 #4 stainless steel finish.
- .26 Terminal Stopping Devices: Normal terminal stopping devices, provided at top and bottom of runway to stop the car positively and automatically. Micro switches shall not be used.
- .27 Guide Rails and Brackets:
 - .1 Steel 'C' guide rails and brackets shall be used to guide the platform and sling.
 - .2 Guide rails shall form part of the structural integrity of the unit and be integral to the mast enclosure, ensuring stability and minimum platform deflection when loaded.
- .28 Car Sling:
 - .1 Sling fabricated from steel tubing 1116 mm high with adequate bracing to support the platform and car enclosure.
 - .2 Roller guide shoes shall be mounted on the top and bottom of the car sling to engage the guide rails. Guide shoes shall be roller type with 76 mm diameter wheels.

14 42 16 - WHEELCHAIR LIFT

- .29 Wiring:
 - .1 All wiring and electrical connections shall comply with applicable codes.
 - .2 Insulated wiring shall have flame-retardant and moisture-proof outer covering and shall be run in conduit or electrical wireways if located outside the unit enclosure.
 - .3 Quick disconnect harnesses shall be used when possible.
- .30 Corrosion Resistance: All materials other than drive train will be 409 stainless steel, aluminum or other corrosion resistant material.
- .31 Non-proprietary software programs/control access codes must be provided to meet the future maintenance tender requirements of the Owner.

2.3 SIGNAGE

- .1 Provide all necessary signs, capacity plates, and data signs as per local and national Codes and Standards.
- .2 Provide a capacity plate indicating the rated load in pounds and kilograms and operating instructions, fastened in a conspicuous place at each landing and in the platform. The capacity plate and operating instructions will be engraved on non-glare surface, white letters on a blue background, self-adhesive, flexible plastic material. The letters and figures stating the capacity shall not be less than 6mm in height.

2.4 PROTECTION

- .1 Provide protective coverings for finished surfaces.

PART 3 - EXECUTION

3.1 FIELD QUALITY CONTROL

- .1 Trained employees of the lift contractor shall perform all installation work of this section.
- .2 Perform and meet tests required by CAN/CSA B355.
- .3 Submit test and approval certificates issued by jurisdictional authorities.

3.2 EXAMINATION

- .1 Do not commence installation until hoistway has been properly prepared.
- .2 Take site dimensions to verify that tolerances and clearances have been maintained and conform to local regulations.
- .3 Inspect the construction and confirm that service requirements provided by others are in place.
- .4 Notify Consultant of unsatisfactory conditions before proceeding with the installation. Do not proceed until conditions are acceptable. Commencement of installation work will infer acceptance of existing conditions.

3.3 PREPARATION

- .1 Clean surfaces thoroughly prior to installation.
- .2 Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrates, under the project conditions.
- .3 Coordinate with forces installing gypsum board in lift enclosure.

3.4 INSTALLATION

- .1 Install all the components of the lift system specified above, and all components required by authorities having jurisdiction, as required to license the lift.
- .2 Adjust lift for proper operation and clean unit thoroughly.
- .3 Set entrances in perfect alignment with car openings and true with plumb hoistway lines.
- .4 Arrange for licensing and turn over lift complete, licensed, and ready for use by Owner.

3.5 TOUCH-UP

- .1 Upon completion, touch-up and restore to new condition, damaged or defaced factory finished surfaces.
- .2 Remove protective coverings and clean exposed surfaces after completion and leave in first class condition.

3.6 INSTRUCTION

- .1 Instruct Owner's representatives in operation procedures.
- .2 Instruct Owner's maintenance personnel in trouble-shooting and maintenance procedures.

END OF SECTION