

# **PROJECT SPECIFICATIONS**

## **Portable Classroom Re-Location for the Greater Essex County District School Board**

**Project #20-105**

**Tender #2020-98T**

**jp thomson** architects ltd  
2001 Provincial Rd, Unit 6A  
Windsor, Ontario,  
N8W 5V7





**Project: 20-105**  
**Portable Classroom Re-Location**  
**for the Greater Essex County District School Board**

**Dated** : July 09, 2020

**Issue Date** : July 09, 2020 Issued for Tender & Permit

## **SPECIFICATION**

**OF LABOUR AND MATERIALS REQUIRED FOR THE CONSTRUCTION AND COMPLETION OF THE  
PORTABLE CLASSROOM RE-LOCATION AT VARIOUS SITES, WINDSOR AND ESSEX COUNTY,  
ONTARIO**

For

Greater Essex County District School Board  
451 Park Street West  
Windsor, Ontario  
N9A 5V4

In conformity with the accompanying drawings prepared for this purpose by:

**J.P. Thomson Architects Ltd.**  
**Windsor - Ontario**



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00 21 13-Instructions To Bidders - JPTA

**GENERAL NOTE**

These Instructions to Bidders form part of the Specifications and Contract Documents.

**1.1 DESCRIPTION OF PROJECT AND TENDER NUMBER**

- .1 This Stipulate Price Bid, Tender is for the supply of all labour, materials, equipment and services required for the completion of the **PORTABLE CLASSROOM RE-LOCATION AT VARIOUS SITES, WINDSOR AND ESSEX COUNTY, ONTARIO**, in accordance with the drawings and specifications prepared by J.P. Thomson Architects Ltd., Windsor, Ontario.
- .2 The Greater Essex County District School Board (GECD SB) is herein defined as the 'Owner' as defined in CCDC 2 – 2008.
- .3 The bidder shall refer to Section 01 22 00 Owner Documents and Conditions for specific owner provided information pertinent to the scope of work, BID FORMS, conditions and requirements as they pertain to the policies of the Greater Essex County District School Board (GECD SB).
- .4 The Tender Number for **PORTABLE CLASSROOM RE-LOCATION AT VARIOUS SITES, WINDSOR AND ESSEX COUNTY, ONTARIO** is Tender #2020-98T.

**END OF SECTION**



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**00 21 14-List of Drawings**

**GENERAL NOTE**

Comply with Instructions to Bidders, the General Conditions as amended and with Division 1 requirements.

**1.0 GENERAL**

**1.1 LIST OF DRAWINGS**

**ARCHITECTURAL**

- A-100 ROSELAND PUBLIC SCHOOL EXISTING SITE PLAN, FOUNDATION PLAN AND SECTION**
- A-200 LAKESHORE DISCOVERY SCHOOL EXISTING SITE PLAN**
- A-300 MARGARET D. BENNIE PUBLIC SCHOOL EXISTING SITE PLAN, FOUNDATION PLAN AND SECTION**
- A-400 ANDERDON PUBLIC SCHOOL EXISTING SITE PLAN**
- A-500 TECUMSEH VISTA ACADEMY EXISTING SITE PLAN**

**ELECTRICAL**

- E100 ROSELAND PUBLIC SCHOOL PUBLIC SCHOOL RELOCATED PORTABLE - NEW POWER**
- E200 LAKESHORE DISCOVERY SCHOOL RELOCATED PORTABLE - NEW POWER**
- E300 MARGARET D. BENNIE PUBLIC SCHOOL RELOCATED PORTABLE - NEW POWER**
- E400 ANDERDON PUBLIC SCHOOL PUBLIC SCHOOL RELOCATED PORTABLE - POWER DEMOLITION**
- E500 TECUMSEH VISTA ACADEMY RELOCATED PORTABLE - POWER DEMOLITION**

**END OF SECTION**



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## 00 71 00-Contract Forms & Documentation

### 1.1 CONSTRUCTION AGREEMENT

- .1 A Construction Contract shall be executed and delivered by the Owner to the Contractor on the Canadian Standard Construction Document CCDC 2, 2008. The Construction Contract is amended in accordance with the Instructions to Bidders, Amended General Conditions, Supplementary General Conditions and the other Contract Documents as defined by the Amended General Conditions.

### 1.2 WORKERS' COMPENSATION

- .1 Refer to Article GC 10.4 "Worker's Compensation". At various stages of construction (at a minimum each application for payment) provide documentation of evidence of compliance with Provincial requirements if required, and The Workplace Safety & Insurance Act, 2012 Edition or most recent issue.

### 1.3 APPLICATION FOR PRE-RELEASE OF SUB CONTRACT HOLDBACKS

- .1 No pre-release of subcontract holdbacks will be approved.

### 1.4 INSPECTIONS FOR OCCUPANCY AND SUBSTANTIAL PERFORMANCE

- .1 When the contractor requests consideration of the work to be ready for occupancy and therein after substantially performed, the contractor shall provide a comprehensive list of items to be completed and/or corrected in accordance with "GC 5.4 Substantial Performance of the Work".
- .2 The Consultant shall determine when the project meets the requirements of Substantial Performance as defined in the Construction Lien Act and Article "GC 5.4 Substantial Performance of the Work".
- .3 The contractor shall execute an inspection and provide a list of all incomplete and unsatisfactory work for all trades. The list will be distributed to the consultant and a review will therein occur by an inspection team as follows.
- .4 The inspection team shall consist of:
  - .1 The Contractor and/or representative(s).
  - .2 The Owner and/or representative(s).
  - .3 The Consultant and/or representative(s).
  - .4 Such sub-contractors or their representatives as may be required by the Contractor.
- .5 Upon completion of this inspection a revised list of all incomplete and unsatisfactory work shall be prepared by the contractor and issued to those concerned, including the subtrades, Consultant and the Owner.

- .6 The inspection list (Deficiency List) shall be evaluated and a dollar value shall be agreed upon to be withheld until completion. This value is above and beyond the value of the Holdback.
- .7 The Contractor shall notify the Architect when all deficiencies are completed and provide a signed off list of the deficiencies as being complete. The Architect and/or consultants shall review and confirm the completed Deficiencies are acceptable. Subsequent deficiency reviews as required for outstanding items, unacceptable corrections to the deficiencies and/or requested by the Contractor will be charged back to the contractor at standard rates accepted by the owner.

#### **1.5 OCCUPANCY AND APPLICATION FOR CERTIFICATE OF SUBSTANTIAL PERFORMANCE OF THE CONTRACT**

- .1 The contractor shall request from the Chief Building Official (CBO) permission to occupy the work. Note: That only the Chief Building Official (CBO) can grant occupancy. The architect and consultants will be required to issue documentation to meet the requirements of the Commitment to Review to the Chief Building Official (CBO). The following inspection reports must be issued to the Consultants in order for such documentation to be issued as follows:
  - .1 The following test reports and inspection certificates must be submitted by and independent testing company approved by the Architect and Owner or the Inspection Officer as authorized by the appropriate governing agency:

1.	Proctor Tests	Section 32 11 23
2.	Concrete Tests	Section 03 30 00
3.	Structural Steel	Section 05 41 00
4.	Roof & Building Envelope Inspection	Section 07 54 19
5.	Plumbing Inspection Certificate (Permit)	Division 22
6.	Heating Inspection Certificate (Permit)	Division 23
7.	Air and Hydronic Balance Reports	Division 23
8.	Sprinkler Verification	Division 21
9.	Hydro Inspection Certificate	Division 26
10.	Fire Alarm Inspection Certificate	Division 28
11.	Additional testing requirements as specified in individual specification sections.	
  - .2 The consultants shall issue instructions to insure the all health and safety requirements are maintained to permit the completion of the work. The general contractor shall comply at no additional cost to the owner.
- .2 When the General Contractor has carried out the steps listed under Inspection for Substantial Performance and meet the requirements of Article "GC 5.4 Substantial Performance of the Work" as amended, he shall submit his application for Certificate of Substantial Performance of the Contract under Section 32 of The Construction Lien Act . This application shall be accompanied by the following documentation:
  - .1 Contractor's Statutory Declaration.

- .2 Certificate from The workers' Compensation Board certifying that the Contractor has paid all sums that the Contractor is liable to contribute to the Accident Fund and for which the Owner is responsible pursuant to Section 115 of The Workers' Compensation Act and that the Owner is released from all liability.

.3 Extended Warranties

In Addition to the standard construction warranty as listed under General Conditions GC 12.3, all additional written extended warranties specified within the various specifications sections shall be submitted to the Owner.

All written warranties shall be dated the same date as the General Contractor's standard one year guarantee.

.4 Test Reports

Inspection and testing must be executed in accordance with the specifications. The General Contractor is responsible for advising the appointed companies timely when their services are required so that all work under their control may be approved prior to being concealed.

The following test reports and inspection certificates must be submitted by an independent testing company approved by the Architect and Owner or the Inspection Officer as authorized by the appropriate governing agency:

- |     |  |                  |
|-----|--|------------------|
| 1.  | Proctor Tests  | Section 32 11 23 |
| 2.  | Concrete Tests   | Section 03 30 00 |
| 3.  | Structural Steel   | Section 05 41 00 |
| 4.  | Roof & Building Envelope Inspection  | Section 07 54 19 |
| 5.  | Plumbing Inspection Certificate (Permit)   | Division 22      |
| 6.  | Heating Inspection Certificate (Permit)  | Division 23      |
| 7.  | Air and Hydronic Balance Reports   | Division 23      |
| 8.  | Sprinkler Verification   | Division 21      |
| 9.  | Hydro Inspection Certificate   | Division 26      |
| 10. | Fire Alarm Inspection Certificate  | Division 28      |
| 11. | Additional testing requirements as specified in individual specification sections. |                  |

- .5 Maintenance Manuals: The Contractor shall provide and turn over to the Architect three (3) copies of a complete operating and maintenance manuals and one (1) digital PDF version on jump drive or CD. Manuals to describe completely all equipment provided under this contract. Architectural, Mechanical and Electrical manuals are required. Refer to Mechanical and Electrical Divisions for additional manual requirements. Manuals shall be 8 1/2" x 11" with hard covers securely bound, provided with the following data:

- .1 Tables of Contents: provide title of project; names, addresses and telephone numbers of Contractor with name of responsible parties;

- schedule of products and systems, indexed to content of the volume.
- .2 For each Product or System: list names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
  - .3 Product Data: mark each sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information.
  - .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
  - .5 Each item of Equipment and Each System: include description of unit or system, and component parts. Give function, normal operation characteristics and limiting conditions. Include curves with engineering data and tests and complete nomenclature and commercial number of replaceable parts.
  - .6 Panel board Circuit Directories: provide electrical service characteristics, controls and communications.
  - .7 Include installed colour coded wiring diagrams.
  - .8 Operating Procedures: include start-up, break-in and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down and emergency instructions. Include summer, winter and any special operating instructions.
  - .9 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair and reassembly instructions and alignment, adjusting, balancing and checking instructions.
  - .10 Provide servicing and lubrication schedule and list of lubricants required.
  - .11 Include manufacturer's printed operation and maintenance instructions.
  - .12 Include the sequence of operations by the controls manufacturer.
  - .13 Provide original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.
  - .14 Provide installed control diagrams by controls manufacturer.
  - .15 Provide Contractor's co-ordination drawings with installed colour coded piping diagrams.



- .16 Provide charts of valve tag numbers with location and function of each valve keyed to flow and control diagrams.
- .17 Provide list of original manufacturer's spare parts, current prices and recommended quantities to be maintained in storage.
- .18 Include test and balancing reports as specified in Division 15.
- .19 Additional Requirements: as specified in individual specification sections.
- .6 Receipts for Equipment Marked "Paid in Full"
  - .1 The Contractor shall provide a list of "Conditional Sales Contracts" incurred by himself and all sub-trades on this project.
  - .2 The Contractor shall furnish to the Architect receipts marked, "Paid in Full" by the suppliers of same for articles incorporated into the building which the law does not classify as "building materials" including furnaces, boilers, air conditioning equipment and elevators.
- .7 As-Built Drawings
  - .1 The Contractor shall turn over to the Architect one set of complete marked prints showing alterations accepted by the Architect for as-built drawings. Drawings to include the following information which varies from the contract documents:
    - .2 Record all information concurrently with the construction progress. Do not conceal work until required information is recorded.
    - .3 Mark each item to record actual construction including:
      - .1 Measure the depths of elements of foundation in relation to finish first floor datum.
      - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
      - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
      - .4 The field changes of all dimensions and details.
      - .5 Changes made by Change Orders.
      - .6 Details not on original Contract Drawings.

.7 References to related shop drawings and modifications.

.8 Forms

- .1 Letter from The Workplace Safety & Insurance Board certifying that the Contractor has paid all sums that the Contractor is liable to contribute to the accident fund and for which the Owner is responsible pursuant to Section 15 of The Workplace Safety & Insurance Act, 2012 Edition and that the Owner is released from all liability.
- .2 Upon the successful submission of forms for Substantial Performance of the Contract, the Architect will issue Government Form 6 and the General Contractor shall be responsible for publication under the terms of the Construction Lien Act.
- .3 The Contractor shall publish a copy of the Certificate of Substantial Performance once in a national construction trade newspaper, in accordance with the Construction Lien Act 1983 and all current amendments.

**END OF SECTION**

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**01 21 10-Allowances**

**1.1 GENERAL**

- .1 Comply with GC 4.1 Cash Allowances and the Amended General Conditions.
- .2 Comply with GC 4.2 Contingency Allowance and the Amended General Conditions.
- .3 The Contingency Allowance is designated for additional work and services deemed to be necessary by Owner, from time to time, throughout the execution of the Work. Where a Contingency Allowance refers to an item or category of work already included in Contract Documents, it shall be assumed to cover work or services in addition to that indicated, unless specifically indicated otherwise.
- .4 The Contractor may be required from time to time to assist in tendering of certain items of work covered by Allowance, as directed by Consultant.

**1.2 AUTHORIZATION**

- .1 Expenditures from Cash Allowances included in the contract must be authorized in writing by the Consultant issued as a Cash Allowance Disbursement Authorization (CADA).
- .2 Expenditures from Contingency Allowances included in the contract must be authorized in writing by the Consultant issued as a Contingency Allowance Payment Authorization (CAPA).
- .3 Work covered by allowances shall be performed for such amounts and by such persons as directed by the Consultant.

**1.3 CASH ALLOWANCES**

- .1 Cash Allowances include Municipality fees and Testing and Inspection services unless specifically indicated otherwise.
- .2 Include in the Contract the following Total Cash Allowance of Twenty Thousand Dollars (\$ 20,000.00) for the following:
  - .1 Building Permit and Municipal Fees
  - .2 Testing and Inspection

**1.4 CONTINGENCY ALLOWANCES**

- .1 Contingency Allowances include supply and installation unless specifically indicated otherwise.
- .2 Supply only Allowances shall include:
  - .1 Net cost of products
  - .2 Delivery to site

- .3 Applicable taxes and duties (excluding HST)
- .3 Supply and install Allowances shall include:
  - .1 Net cost of products
  - .2 Delivery to site
  - .3 Unloading, storing, handling of products on site
  - .4 Installation, finishing and commissioning of products
  - .5 Applicable taxes and duties (excluding HST)
- .4 Include in the Contract the following Total Contingency Allowance of Thirty Thousand Dollars (\$ 30,000.00) for the following:
  - .1 Co-ordinations

**END OF SECTION**

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**01 22 00-Owner's Documents & Conditions - GECD SB**

**GENERAL NOTE**

- .1 Division 0 and 1 requirements apply to all Sections of Work.
- .2 This section is an accounting of supplied information, reports, documents, instructions, specifications etc. provided by the owner and/or authored by the owner.

**1.0 OWNER'S DOCUMENTS**

**1.1 DEFINITIONS**

**Architect/Consultant** refers to JP Thomson Architects Ltd.

**Owner** shall be defined as the Greater Essex County District School Board.

**Control of Work** is a formal documented process used to control construction, maintenance, demolition, remediation, operating tasks and similar work activities such that risks are identified, assessed and controlled in a methodical way so that work can be carried out safely.

**Construction Contractor** shall be the person or entity having a direct contract with the Owner to perform the work.

**Owner's Representative** shall be an Owner's Inspector, or an Inspection Agency Contractor contracted by the Owner. In the case where the Owner's Representative performs an inspection, this inspection supplements the Contractor's Inspection but does not relieve the contractor from internal inspection responsibilities.

**1.2 DOCUMENTATION & INFORMATION**

**.1 HEALTH and SAFETY**

**.1 GOALS AND COMMITMENT**

The Greater Essex County District School Board is committed to an incident free workplace for everyone who works for or on their behalf. All incidents are preventable and a commitment to Health & Safety by all personnel is required to meet GECD SB expectations.

Additionally, refer to further information within Owner's Documents & Conditions.

**.2 GECD SB - REQUEST FOR TENDERS – INSTRUCTIONS TO BIDDERS**

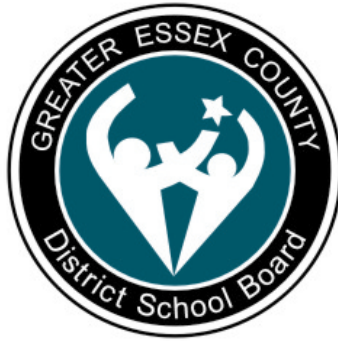
- .1 Refer to the attached.

**.3 GECD SB – PRICE BID FORM**

- .1 Refer to the attached.

- .4 GECDSB – OWNER DOCUMENTS AND CONDITIONS
  - .1 Refer to the attached.
- .5 GECDSB – CCDC SUPPLEMENTARY CONDITIONS
  - .1 Refer to the attached.
- .6 GECDSB – PAINTING AND FINISHING REQUIREMENTS
  - .1 Refer to the attached.

**END OF SECTION**



## **REQUEST FOR TENDER**

Tender # **2020-98T**

### **PORTABLE CLASSROOM RE-LOCATION**

**Move One Portable from Anderdon Public School to M.D. Bennie Public School**  
**Move One Portable from Anderdon Public School to Roseland Public School**  
**Move One Portable from Tecumseh Vista Academy to Lakeshore Discovery School**





## 1.0 DEFINITIONS

- .1 The following definitions shall apply to all tender / *Contract Documents*:
- a) “Bid” means the Tender submission by a *Bidder*.
  - b) “Bid Form” means the Greater Essex County District School Board’s Price Bid Form as issued by **J.P. Thomson Architects Ltd.**
  - c) “Bidder” means the organization / contractor submitting a *Bid* for **General Contractor Services**, in response to this Request for Tender. *Bidder* is the term mainly used in the Instructions to Bidders, Owners Documents and Conditions and Price Bid Form.
  - d) “Board” means the Greater Essex County District School Board. *Board* is the term mainly used in the Instructions to Bidders, Owners Documents and Conditions and Price Bid Form.
  - e) “Changes in the Work” means additions, deletions, or other revisions to the *Work* approved in advance in writing by the *Consultant* or the *Board* and relate to the general scope of the Contract as determined by the *Board*.
  - f) “Closing Date” means the deadline for Tender submissions, being the date indicated in this Request for Tender.
  - g) “Consultant” means the person or entity engaged by the *Owner* and identified as such in the Contract. The *Consultant* is the Architect, the Engineer or entity licensed to practice in the province or territory of the *Place of Work*. The term *Consultant* means the *Consultant* or the *Consultant*’s authorized representative. The *Consultant* for this Tender is **J.P. Thomson Architects**.
  - h) “Contract” The *Contract* is the undertaking by the parties to perform their respective duties, responsibilities and obligations as prescribed in the *Contract Documents* and represents the entire agreement between the parties. The *Contract* is the executed CCDC 2 – 2008, as amended by the CCDC Supplementary Conditions attached herein.
  - i) “Contract Documents” The *Contract Documents* consist of the executed *Contract* and The General Conditions of the *Contract*, the *Bid Form*, the Instructions to Bidders, the Owners Documents and Conditions, the CCDC Supplementary Conditions, Supplementary General Conditions, Specifications, Drawings and such other documents as are listed in Article A-3 of the Agreement including all amendments thereto made pursuant to the provisions of the *Contract* or agreed upon between the parties.
  - j) “Contractor” The *Contractor* is the person or entity identified as such in the *Contract*. The term *Contractor* means the *Contractor* or the *Contractor*’s authorized representative as designated to the *Owner* in writing. The term *Contractor* is used mainly in the CCDC 2 2008 Contract and the CCDC Supplementary Conditions.
  - k) “Owner” The *Owner* is the person or entity identified as such in the *Contract*. The term *Owner* means the *Owner* or the *Owner*’s authorized agent or representative as designated to the *Contractor* in writing, but does not include the *Consultant*. The *Owner* is the term mainly used in the CCDC Supplementary Conditions and CCDC 2-2008 Contract to describe the Greater Essex County District School Board.
  - l) “Place of Work” The *Place of the Work* is the designated site or location of the Work identified in the *Contract Documents*.

- m) "Products" *Product or Products* mean material, machinery, equipment and fixtures forming the *Work*, but does not include Construction Equipment.
- n) "Project" means the total construction contemplated of which the *Work* may be the whole or a part.
- o) "Subcontractor" means a person or entity having a direct contract with the *Contractor* to perform a part or parts of the *Work* at the *Place of Work*.
- p) "Substantial Performance of the Work" is as defined in the lien legislation applicable to the Place of the Work. If such legislation is not in force or does not contain such definition, *Substantial Performance of the Work* shall have been reached when the *Work* is ready for use or is being used for the purpose intended and is so certified by the *Consultant*.
- q) "Successful Bidder" means the *Bidder* with the lowest compliant *Bid* who is awarded the *Contract* by the *Board* and accepts the *Contract* within the required timelines as indicated in the *Contract Documents*. The term *Successful Bidder* is used mainly in the Instructions to Bidders, Owners Documents and Conditions and Price Bid Form.
- r) "Stipulated Price Bid" means the pricing provided to the *Board* by a *Bidder* as part of their *Bid*.
- s) "Total Performance of the Work/Completion of the *Contract*" means when the entire *Work*, except those items arising from the provisions of GC 24 - WARRANTY, has been performed to the requirements of the *Contract Documents* and is so certified by the *Consultant* by issuance of a "Statement of Completion of the Contract".
- t) "Work" means the total construction and related services required by the *Contract Documents*.
- u) "Working Day" means a day other than Saturdays, Sundays and holidays which are observed by the construction industry in the area of the *Place of the Work*.

## 1.1 DESCRIPTION OF PROJECT AND TENDER NUMBER

- .1 The *Board* invites Pre-qualified Vendors of Record for **General Contractor Services** to *Bid* for the supply of all labour, materials, equipment and services required for the completion of **Portable Classroom Re-Location** in accordance with the drawings and specifications prepared by **J.P. Thomson Architects Ltd.**
- .2 The Tender Number for this *Project* is **Tender Number # 2020-98T**.

## 1.2 TENDER FOR STIPULATED PRICE BID INSTRUCTIONS

- .1 Bids for "Stipulated Price Bid" for Tender Number # 2020-28T, will be received by the Supervisor of Purchasing & Supply for the Greater Essex County District School Board, **via e-mail at [tenders@publicboard.ca](mailto:tenders@publicboard.ca), on July 24, 2020 on or before 2:00 p.m. local time; 2:01 p.m. will be considered late.** The official time will be the Board's e-mail server. E-mails will be opened and a bid summary sheet will be shared with Bidders, via e-mail. Tenders will not be publicly opened.
- .2 Prior to the submission of the *Stipulated Price Bid*, all *Bidders* shall carefully examine the *Bid Form*, the *Contract Documents* and fully inform themselves of the existing conditions and limitations of the *Work*.
- .3 If there exists doubt in the *Bidders* mind as to the intent of any information shown on the *Bid Form* or *Contract Documents*, **the Bidder must request clarification from the Consultant prior to submission of the Bid.**

- .4 Submitted *Stipulated Price Bid* shall cover the cost of all items contemplated by the *Contract* and no allowance shall be made subsequently in this regard on behalf of the *Bidder* for any error or negligence on the *Bidder's* part, unless otherwise expressly set out herein.
- .5 The *Bidder*, by submitting a *Stipulated Price Bid*, acknowledges and accepts the terms set out herein and in any other documents included in this Request for Tender.
- .6 *Bids* submitted must be completed in full and must be legible and written in ink or by mechanical device. The *Bid* must not be restricted by any conditions, or qualifications added to the *Bid* in the form of a covering letter or alterations to the *Bid Form* provided; any such conditions or qualifications will render the *Bid* non-compliant and ineligible for acceptance.
- .7 Adjustments by telephone to a *Bid* already submitted will not be considered. A *Bidder* desiring to make adjustments to a *Bid* must withdraw the *Bid* and/or supersede it with a later *Bid* prior to the specified closing deadline. This may be accomplished by a subsequent e-mail, with the following statement in the body of the e-mail: "The attached *Bid Form* supersedes and replaces the previous *Bid* submission(s).
- .8 Each instance of erasures, overwriting, strike-outs or white-outs must be initialled by an authorized company representative of the bidding firm.
- .9 Any costs incurred in the preparation and submission of a *Bid Form* are solely the responsibility of the *Bidder*.
- .10 **No** Oral, Electronic, Facsimile or Telegraphic *Bids* will be accepted.
- .11 Failure to comply with the requirements of these Instructions to Bidders may cause a *Bid* to be declared invalid and such *Bid* may be rejected, in the sole and unfettered discretion of the *Board*.

### 1.3 GENERAL BID SUBMISSIONS

- .1 **BID SUBMISSION**
  - .1 Submit one original signed copy of the *Bid Form*, as a .pdf attached to the e-mail, as furnished by the Consultant, fully filled out in ink or typewritten with signature in longhand. Signatures shall be those of the authorized officers of the *Bidder*. Incorporated companies shall affix their corporate seal under the hands of their authorized officers. For further clarity, a hard copy is not required.
  - .2 **Attach a .pdf copy of the completed *Bid Form*, to your e-mail and label the title of the e-mail, "TP100-2020-98T - *Stipulated Price Bid* Tender for Portable Classroom Re-Location". Please ensure your Company Name and Address are clearly marked in the body of the e-mail.**
  - .3 **Bidders are strongly advised to submit their bids well in advance of the closing times, in consideration of the time it may take for emails with attachments to be received. Automatically system generated e-mails will be sent to confirm receipt, provided Bidders use "TP100" in the subject line of their e-mail, as instructed. Bidders must use tenders@publicboard.ca, do not use or cc any other e-mail address. It is the *Bidder's* responsibility to ensure their *Bid* is received by the *Board* on or before the *Closing Date* and time.**
  - .4 **For further clarity, it is the responsibility of the *Bidder* to ensure emails are received and the *Board* takes no responsibility for blocked or not delivered emails. We will only be able to track emails that are received by our systems. Bidders should receive an automatically system**

generated e-mail within 30 minutes of e-mailing their bid, if not, the e-mail may have been blocked or not delivered.

#### 1.4 BID SECURITY - BONDS

- .1 The Board does not require a bid bond for this project. Bidders shall understand that if they are the lowest compliant bid and they refuse to accept an award from the Board, this may result in a temporary or permanent removal of their firm from the pre-qualified vendor of record list.
- .2 As per Article GC 11.2 Sub-sections 11.2.1 and 11.2.2 of the General Conditions and 11.2.3 of the CCDC Supplementary Conditions and as hereinafter setout:
  - i) AGREEMENT TO BOND
    - a) Submit an Agreement to Bond from an insurer licensed under the *Insurance Act* to write surety and fidelity insurance and approved by the Board.
    - b) **Attach a .pdf copy of the signed and sealed** Agreement to Bond to your e-mail and label the title of the e-mail “**TP100-2020-98T - AGREEMENT TO BOND FOR PORTABLE CLASSROOM RE-LOCATION**”. Please ensure your Company Name and Address are clearly marked **in the body of the e-mail**.
    - c) The Agreement to Bond e-mail is **not** to be submitted **with the Bid Form e-mail**. The Agreement to Bond envelope shall be **submitted in a separate e-mail**.
    - d) The *Board* will open the Agreement to Bond **e-mail** first and if the contents meet the specifications, then the actual separate *Bid Form e-mail* will be opened.
    - e) The Agreement to Bond shall remain in force for the complete tender acceptance noted above.
  - ii) PERFORMANCE BOND
    - a) Furnish a Performance Bond as approved by the Canadian Construction Association from an insurer licensed under the *Insurance Act* to write surety and fidelity insurance and approved by the Board in the amount of not less than **Fifty percent (50%)** of the Contract Price, according to the Terms and Conditions acceptable to the *Board* and the *Consultant*.
    - b) The *Bidder* shall include the cost of such Bond in the Bid Submission.
    - c) The *Successful Bidder* shall provide to the *Board* such Bond with the submission of the signed *Contract*.
  - iii) LABOUR AND MATERIAL PAYMENT BOND
    - a) Furnish a Labour and Material Payment Bond from an insurer licensed under the *Insurance Act* to write surety and fidelity insurance and approved by the Board in the amount of not less than **Fifty percent (50%)** of the Contract Price, which extends its protection to any Subcontractors supplying labour and materials to the Work, and stating that the *Board* will not be held responsible if payment to *Subcontractors*, as certified due by the *Consultant*, is not made by the Prime Contractor when due.
    - b) The *Bidder* shall include the cost of such Bond in the Bid Submission.

- c) The *Successful Bidder* shall provide to the *Board* such Bond with the submission of the signed *Contract*.

## 1.5 INDEMINITY AND INSURANCE

- .1 As per the CCDC 2 2008 and CCDC Supplementary Conditions.

## 1.6 MANDATORY REQUIREMENTS

- .1 *Bids* will automatically be rejected under the following circumstances:
  - i) *Bid* is late (by any amount of time).
  - ii) Bid security:
    - a) Agreement to bond is missing one of the following: corporate seal to bind the bonding company or signature of bonding company.
    - b) Security is in form other than specified.
  - iii) *Bid* is not signed.
  - iv) *Stipulated Price Bid* is illegible or not entered.

## 1.7 SALES TAX

- .1 The *Bid* and separate prices submitted for this *Contract* shall exclude the Harmonized Sales Tax (HST).
- .2 For purposes of calculating costs of extra *Work* performed, any HST paid by the *Successful Bidder* to Suppliers or *Subcontractors* shall be deducted prior to any mark-up, profit or overhead by the *Successful Bidder*.
- .3 The *Successful Bidder* will not be permitted to add any mark-up for overhead or profit to the HST amount or to claim for any time involved in processing or collecting the HST and for its remittance to Canada Revenue Agency.

## 1.8 ACCEPTANCE OR REJECTION

- .1 *Bids* shall remain open to acceptance for a period of ninety (90) calendar days commencing on and including the date set for receipt of *Bids*, and the *Board* may at any time within this period accept any of the *Bids* received.
- .2 The *Board* reserves the right to accept or reject any and all *Bids* and to accept any part of any one *Bid*. The *Board* may request further clarification of a *Bid* from the *Bidder*. While the *Board* is not obligated to consider *Bids* which do not strictly comply with its requirements, it nevertheless reserves the right to do so, and specifically reserves the right to waive formalities and accept *Bids* that the *Board* deems to be substantially compliant.
- .3 Notwithstanding anything herein to the contrary, if any *Bid* contains technical errors or omissions which the *Board*, in its sole and unfettered discretion deems to be minor, the said *Bidder* may be asked by the *Board* to acknowledge and/or clarify those minor technical errors or omissions prior to the award of the *Contract*. For greater certainty, the *Board* may afford an opportunity to a *Bidder* to correct unintentional errors of form between the opening of *Bids* and the awarding of the *Contract*, and if it does so, the *Board* shall afford the same opportunity to all *Bidders*.

- .4 The *Board* and the *Consultant* shall not be responsible for any liabilities, costs, expenses, loss or damage incurred, sustained or suffered by any *Bidder* prior or subsequent to or by reason of the acceptance or the non-acceptance by the *Board* of any *Bid* or by reason of any delay in the acceptance of a *Bid*. *Bids* are subject to a formal *Contract* being prepared and executed.
- .5 The *Board* will award the *Contract* based on the total value of the base *Bid* plus accepted separate prices.

## 1.9 TENDER DOCUMENT AVAILABILITY

1. Bid Documents may be obtained at:
  - a. Curry Reprographics
  - b. Windsor Construction Association
2. One set of Bid Documents may be obtained by the Prime Contractor *Bidders*. Only one (1) set will be allowed per *Bidder*.
3. Bid Documents for *Subcontractors* are made available only for the purpose of obtaining offers for this *Project*. Their use does not confer a license or grant for other purposes. Printing costs are at the *Bidders'* and/or *Subcontractors* own expense.

## 1.10 QUERIES/ADDENDA

- .1 Upon receipt of Bid Documents verify that documents are complete; notify the *Consultant* should the documents be incomplete.
- .2 Should a *Bidder* find discrepancies in, or omissions from the Drawings, Specifications or other Documents, or should there be doubt as to their meaning, the *Bidder* shall notify the *Consultant* before Tender *Closing Date*.
- .3 Direct all inquiries in writing to the *Consultant*, **J.P. Thomson Architects Ltd., Li Ling Bae** at e-mail: **lbae@jpthomson.com** by **July 15, 2020**.
- .4 The *Consultant*, in consultation with the *Board* will review all questions and issue written instructions in the form of an Addendum, which will become part of the *Contract Documents*.
- .5 The *Closing Date* of the Request for Tender may be extended as deemed appropriate by the *Board*. Include costs of any changes in the *Bid* and separate prices.
- .6 Replies to questions will be made in the form of written addenda, a copy of which will be forwarded to all *Bidders*.
- .7 *Bidders* shall ask all required questions prior to submitting their *Bid*.

## 1.11 ALTERNATES - PRODUCT/SYSTEM OPTIONS

- .1 Where the Bid Documents stipulate a particular *Product* and/or service, the Bid Sum will be based upon the specified *Product/service*. *Bidders* must quote as specified.
- .2 If a *Bidder* has an alternate product and/or service that they wish to propose for the *Board's* consideration, *Bidders* must submit their suggested alternate(s) in writing to the *Consultant* by the deadline for Questions. If the *Board* approves any alternates, it will be noted on the addenda. Otherwise, *Bidders* shall quote only as specified.

- .3 *Bidders* who suggest alternates by written request to the *Consultant* on or before the deadline must include complete details about the alternates including specifications, modifications, revisions to other work for each alternative to enable the *Consultant* and the *Board* to determine the acceptability of such alternates.
- .4 If alternates are approved, they will be identified as approved by way of written addendum.
- .5 Only approved alternates may be quoted as part of the Bidder's Stipulated Price Bid.
- .6 The *Board* in its sole and unfettered discretion reserves the right to accept or reject alternates.

#### 1.12 SITE VISIT

- .1 ***Bidders are strongly encouraged to attend a site visit July 13, 2020 at 10:00 a.m. at Roseland Public School, 620 Cabana Road E., Windsor, ON N9G 1A4.*** All participants must physical distance at least two metres apart, for the duration of the site visit which is expected to last approximately 1 (one) hour.
- .2 By visiting the site, *Bidders* will have an opportunity to ask site specific questions.
- .3 All questions will be responded to formally by way of written addendum to all *Bidders*.
- .4 If the site visit is mandatory, *Bidders* must sign in and visit all required site(s) in order to be eligible to bid.
- .5 *Bidders* shall visit the *Project* site and surrounding area before submitting a *Bid*.
- .6 *Bidders* shall ensure their *Bid* incorporates all existing site and building conditions, limitations and municipal requirements under which the *Work* is to be performed.
- .7 By submitting a Tender, the *Bidder* agrees that they have carefully examined all Contract Drawings and Specifications and are familiar with all *Work* required and examined and is satisfied as to the nature of:
  - 1. The Site;
  - 2. The *Work*, materials to be removed, materials to be supplied, means of access, condition, nature and position of existing buildings, sidewalks, obstructions, sewers, gas, water, telephone and electrical services, and every other condition which may affect tendering or execution of *Work*, both within site and adjoining areas, lanes and streets or any other matter which may enter into the carrying out of the *Contract* to a satisfactory conclusion.
  - 3. Provisions of the *Contract*.
  - 4. No extra payment will be allowed for additional *Work* arising from conditions which could have been determined, had a proper examination been made or where the *Bidder* claims to be uninformed as to any provisions or conditions intended to be covered by the *Contract*.

#### 1.13 FAIR WAGES AND HOURS

- .1 All persons in the employment of the *Successful Bidder* or any *Subcontractor*, or other person doing or contracting to do the whole or any part of the *Work* contemplated by the *Contract*, should be paid in accordance with the "**Fair Wage Schedule**" as established by **The Employment Standards Branch of the Ministry of Labour** and any regulations under such Act that relates to wages, hours of work or other labour conditions, unless otherwise noted.

**1.14 PROJECT SCHEDULE**

- .1 Outline of *Project* Schedule
  - .1 Request for Tenders Available to *Bidders* ..... **July 09, 2020**
  - .2 Pre-bid Site Meeting ..... **July 13, 2020**
  - .3 Date of Last Questions to *Consultant* ..... **July 16, 2020**
  - .4 Addendum Issued (if required) ..... **July 17, 2020**
  - .5 Bids Due ..... **July 24, 2020**
  - .6 Date of P.O. issuance / execution of CCDC 2–2008 Contract... **July 27, 2020**
  - .7 *Contractor* Kick-Off Meeting ..... **July 27, 2020**
  - .8 Date of Site Availability..... **July 27, 2020**
  - .9 *Substantial Performance of the Work* ..... **August 28, 2020**
  - .10 Deficiency List Walk Through ..... **August 28, 2020**
  - .11 *Total Performance of the Work* ..... **September 2, 2020**
  - .12 Full Completion of the Project ..... **February 28, 2021**

**1.15 TIME OF COMPLETION**

- .1 *Successful Bidder* shall meet the *Board's* substantial completion date as stated in the Price Bid Form. In addition, full completion of the project must occur no later than six months from the date of *Substantial Performance of the Work*. Full completion of the Project includes but is not limited to final payment, deficiencies, O & M Manuals, As Builts and permits.

**1.16 CONSTRUCTION DRAWINGS**

- .1 The *Board* will provide the *Successful Bidder* up to ten (10) sets of drawings for construction and as-built purposes. If the *Contractor* requires additional sets, the Contractor shall obtain the prints at their own expense.

**1.17 EXECUTION OF A CONTRACT AND BOARD'S PURCHASE ORDER**

- .1 The *Successful Bidder* shall execute a CCDC 2 2008 Stipulated Price Contract, together with the *Board's* Supplementary Conditions, in writing with the *Board* within ten (10) days after being notified in writing by the *Board* of the acceptance of the *Bid*. In the event that the *Successful Bidder* fails to execute a *Contract* within the said period, the Board in its sole and unfettered discretion may rescind the selection of that *Bidder*, and make an offer to next lowest compliant *Bidder* or reject all Tenders. Bidders are reminded that if they are the lowest compliant bid and they refuse to accept an award from the Board, this may result in a temporary or permanent removal of their firm from the pre-qualified vendor of record list.
- .2 A purchase order accepting a *Bid* will be issued by the *Board* to the *Successful Bidder* following the execution of the *Contract*.

**END OF SECTION**



Submit Stipulated Price *Bid* and price breakdowns where applicable, on this official form.

All blank items indicated must be filled out and delivered on or before the official *Bid* closing time as stated in the Instructions to *Bidders*.

**FROM: LEGAL NAME OF BIDDER:** \_\_\_\_\_

**BUSINESS ADDRESS FOR THE CONTRACT:** \_\_\_\_\_

**TO:** Supervisor of Purchasing and Supply  
Greater Essex County District School Board  
Via e-mail to [tenders@publicboard.ca](mailto:tenders@publicboard.ca)  
**Bidders must use the above e-mail address only. Do not e-mail to any other e-mail address.**

**RE:** *Portable Classroom Re-Location - Move One Portable from Anderdon Public School to M.D. Bennie Public School*  
*Move One Portable from Anderdon Public School to Roseland Public School*  
*Move One Portable from Tecumseh Vista Academy to Lakeshore Discovery School*

## 1.0 BASIS OF TENDER

### .1 DOCUMENTS

- .1 We have examined all the official Contract Documents issued by the Consultant, including specifications and or drawings as applicable.

### .2 SITE CONDITIONS

- .1 We have inspected and visited the site of the proposed Work and fully familiarized ourselves of the existing conditions and limitations of the Work.

### .3 UNDERSTANDING

- .1 **NO ORAL, FAX, ELECTRONIC, TELEPHONE OR TELEGRAPHIC PROPOSALS WILL BE CONSIDERED.**
- .2 The requirements of these Official Request for Tender documents govern all phases of the Work and the tender proposal stipulated sum shall include all costs that arise from compliance with such documents. It must be clearly understood that the *Board* cannot accept any price variation in the supply or installation of products or labour or materials from those submitted and carried by the *Bidder* hereunder. During the *Contract* period, the *Board* will not be responsible for, or entertain any price increase in the cost of materials or labour carried in the *Bid* amount for any reason, including acts of war or world events. .
- .3 *Bidders* are responsible for acquainting all *Subcontractors* or supply *Bidders* with the requirements of the Instructions to Bidders Price Bid Form and the Owner's Documents and Conditions.
- .4 **No allowance will be made after award of *Contract* for errors or omissions due to *Subcontractors* or suppliers not being familiar with such requirements.**
- .5 The award of this *Contract* is subject to budget allotment and availability, and Trustee approval for the

*Board.*

## 2.0 COST PROPOSAL

### .1 BASE *BID* SUM (*Which includes all allowances*)

- .1 We, the undersigned, hereby offer to furnish all materials, installation, labour and equipment necessary to complete the entire work (project) in strict accordance with all the requirements of the official *Contract Documents*,

For the Stipulated Price *Bid* of \$ \_\_\_\_\_

NOTWITHSTANDING THE AMOUNT OF THE TOTAL STIPULATED PRICE BID SET OUT ABOVE, IT IS SPECIFICALLY ACKNOWLEDGED AND AGREED THAT THE BOARD INTENDS TO AWARD TO THE LOWEST COMPLIANT BIDDER ON THE BASIS OF THE LOWEST OVERALL PRICING SUBMITTED, BEING THE AGGREGATE VALUE OF THE TOTAL STIPULATED PRICE BID PLUS OR MINUS THOSE SEPARATE PRICES WHICH MAY BE ACCEPTED BY THE BOARD IN ITS SOLE AND UNFETTERED DISCRETION WITH A VIEW TO ATTAINING BUDGET LIMIT FOR THE PROJECT WITHOUT EXCEEDING SAME AND OBTAINING THE HIGHEST VALUE AS A RESULT THEREOF.

### .2 Harmonized Sales Tax (HST)

- .1 The Stipulated Price *Bid* and price breakdowns where applicable submitted for this contract shall exclude the HST.
- .2 For purposes of calculating costs of extra work performed, any HST paid by the *Contractor* to Suppliers or *Subcontractors* shall be deducted prior to any mark-up, profit or overhead by the *Contractor*.
- .3 The *Contractor* will not be permitted to add any mark-up for overhead or profit to the HST amount or to claim for any time involved in processing or collecting the HST and for its remittance to Canada Revenue Agency.
- .3 We confirm that the Stipulated Price *Bid* indicated in Subsection 2.0.1.1, Base *Bid* Sum includes the cost of all labour, materials, equipment, freight, mileage, fuel surcharges, any and all allowances, all other applicable taxes (if any), royalties, custom duties, overhead and profit, insurance premiums, and all other charges at the date of this tender, and not subject to revisions due to changes in cost of labour, materials or other items. No allowance shall be made subsequently in this connection on behalf of the *Contractor* for any error or negligence on their part.

### .2 SUB-CONTRACTS

- .1 Listed hereunder are the names of *Subcontractors* whose *Bids* have been used in this tender and to whom we intend to award sub-contracts if we are awarded the *Contract*. It is acknowledged that no changes to the list will be made without the advanced written approval of the *Board's* Representative.

#### Trade

#### Name of Subcontractor

Site Work

\_\_\_\_\_.

Electrical

\_\_\_\_\_.

**.3 PRICE BREAKDOWNS****.1 LIST OF UNIT PRICES**

- .1 The following are our Unit Prices for the units of work listed hereunder. The Unit Prices listed apply to performing the units of work only during the time scheduled for such work in the project schedule. **These prices do not include HST:**

N/A

**.2 SEPARATE PRICES**

- .1 The following are our separate prices for the Work listed hereunder. In the case of an add, we confirm that all work identified in the Separate Price is **NOT INCLUDED** in our Base *Bid*. In the case of a deduct, we confirm that all work identified in the Separate Price **IS INCLUDED** in the Base *Bid*. These separate prices do not include HST:

N/A

**3.0 ADDENDA**

- .1 We acknowledge the receipt of the following addenda issued during the Request for Tender period.

ADDENDUM NO. \_\_\_\_\_ ADDENDUM NO. \_\_\_\_\_

ADDENDUM NO. \_\_\_\_\_ ADDENDUM NO. \_\_\_\_\_

**4.0 COMPLETION OF THE WORK**

- .1 It is the intention of the Owner to award the *Contract* on July 27, 2020 and Work is to commence on July 27, 2020 and be completed no later than August 28, 2020.
- .2 DATED AT \_\_\_\_\_, THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 2020.  
(City) (Day) (Month)
- .3 The undersigned Bidder, understands the circumstances and requirements applicable to this *Contract* as specified in these official Request for Tender documents and will complete the entire Work (project) on or before the completion deadline date as specified in **Subsection 4.1, Completion of the Work**.

\_\_\_\_\_  
**LEGAL NAME OF FIRM**\_\_\_\_\_  
**Phone**

: \_\_\_\_\_

\_\_\_\_\_  
**Fax**

: \_\_\_\_\_

**ADDRESS OF FIRM**\_\_\_\_\_  
**E-Mail**\_\_\_\_\_  
**AUTHORIZED SIGNATURE OF PROPONENT**\_\_\_\_\_  
**PRINT NAME & TITLE****I have the authority to bind the corporation.****PRICE BID FORM - END**

**1.1 GENERAL REQUIREMENTS**

- .1 The Prime Contractor for this project is a General Contractor.
- .2 This is a Category *A* General Contractor Project.

**1.2 OWNER DOCUMENTS**

- .1 CCDC Supplementary Conditions
- .2 Painting and Coating Requirements

**1.3 PRE-QUALIFIED ELECTRICAL CONTRACTORS ARE AS FOLLOWS:**

Category A ≥\$10,000 & <\$4 million				
COMPANY NAME	CONTACT	PHONE	FAX	E-MAIL
Honey Electric Limited	Matt Hoekstra	519-351-0484	519-351-8710	<a href="mailto:corporate@honeyelectric.com">corporate@honeyelectric.com</a>
Mid South Contractors ULC	John Salvatore	519-966-6163	519-966-1019	<a href="mailto:jsalvatore@mceco.com">jsalvatore@mceco.com</a>
Poirier Electric	Justin Poirier	519-945-1000	519-974-7438	<a href="mailto:jpoirier@poirierelectric.com">jpoirier@poirierelectric.com</a>
PowerServe Inc.	Clinton Attard	519-945-3558	519-737-0296	<a href="mailto:bids@nemail.ca">bids@nemail.ca</a>
Rorison Electric Limited	Mike Hope	519-969-5270	519-969-5000	<a href="mailto:mike@rorison.com">mike@rorison.com</a>
Tucker Electric Ltd.	Whitman Tucker	519-737-0216	519-737-0217	<a href="mailto:tuckerelectric@bellnet.ca">tuckerelectric@bellnet.ca</a>
Turn Key Group Ltd.	Luc Pignal	519-969-6336	519-969-7516	<a href="mailto:luc@tkgltd.com">luc@tkgltd.com</a>
Vollmer Inc.	Brad Vollmer	519-966-6100	519-966-0934	<a href="mailto:vollmer@vollmer.ca">vollmer@vollmer.ca</a>

**1.4 PRE-QUALIFIED GENERAL CONTRACTORS ARE AS FOLLOWS:**

CATEGORY A > \$10,000 & < \$500,000				
COMPANY NAME	CONTACT	PHONE	FAX	E-MAIL
Adine Builders Limited	Greg Chiarcos	519-966-1823		greg@adine.ca
Agri-Urban Buildings Incorporated	Mark Timmermans	519-683-4415	519-683-4654	<a href="mailto:info@aubidesignbuild.com">info@aubidesignbuild.com</a>
Alliance General Contracting of Windsor Inc.	Chris Weller	519-251-1111	519-251-8888	<a href="mailto:alliance5@bellnet.ca">alliance5@bellnet.ca</a>
Aveiro Constructors Limited	Victor Aveiro	519-268-8231	519-268-7354	<a href="mailto:estimating@aveiroconstructors.com">estimating@aveiroconstructors.com</a>
Fortis Construction Group Inc. and Affiliates	Max De Angelis	519-419-7828	519-419-7830	<a href="mailto:christian@fortisgroup.ca">christian@fortisgroup.ca</a>
Front Construction Industries Inc.	Paul Merritt	519-250-8229	519-250-8507	pmerritt@frontconstruction.com
Intrepid General Limited	Anthony Mandarino	519-727-5811	519-727-3242	<a href="mailto:anthony.mandarino@intrepidgeneral.ca">anthony.mandarino@intrepidgeneral.ca</a>
M.J. Dixon Construction Limited	Paul Chiang	905-270-7770	905-270-4244	<a href="mailto:estimating@mjdixon.ca">estimating@mjdixon.ca</a>
Pupatello & Sons Ltd.	Anthony Pupatello	519-944-7878	519-944-7879	<a href="mailto:pupatello@bellnet.ca">pupatello@bellnet.ca</a>
Sterling Ridge General Contracting Inc.	J. Randall Koop	519-734-9000	519-734-9020	<a href="mailto:srgc_estimating@sterlingridgegroup.com">srgc_estimating@sterlingridgegroup.com</a>
TCI Titan Contracting Inc.	Art Ussolletti	519-977-1125	519-977-0352	art@tciwindsor.com
Trillium Contracting Inc.	Chris Mannina	519-972-0862	519-972-6248	<a href="mailto:chris@trilliumcontractinginc.com">chris@trilliumcontractinginc.com</a>
W.D. Lester Construction Services Inc.	Bill Lester	519-977-1160	519-977-0436	<a href="mailto:mail@lesterconstruction.ca">mail@lesterconstruction.ca</a>
Westhoek Construction Limited	David Thorpe	519-351-4221	519-351-7750	<a href="mailto:dave@westhoek.on.ca">dave@westhoek.on.ca</a>

**1.5 PRE-QUALIFIED MECHANICAL CONTRACTORS ARE AS FOLLOWS:**

Category A ≥\$10,000 & <\$4 million				
COMPANY NAME	CONTACT	PHONE	FAX	E-MAIL
Anvi Services Ltd.	Amit Bamba	905-997-3895	905-997-3896	<a href="mailto:office@anviservices.com">office@anviservices.com</a>
CEC Mechanical Ltd.	Tom Sullivan	905-713-3711	905-713-0736	<a href="mailto:tsullivan@beswickgroup.com">tsullivan@beswickgroup.com</a>
Eagle Mechanical Group Inc.	Osvaldo Rizzo	519-737-7778	519-737-1124	<a href="mailto:office@eaglehc.net">office@eaglehc.net</a>
Haller Mechanical Contractors Inc.	Virg Costa	519-254-4635	519-254-3385	<a href="mailto:vcosta@hallergroup.ca">vcosta@hallergroup.ca</a>
Keith's Plumbing & Heating Inc.	Morgan Pickles	905-544-8118	905-544-6815	<a href="mailto:info@keithsph.com">info@keithsph.com</a>
Lekter Industrial Services Inc.	David Holek	519-727-3713	519-727-6176	<a href="mailto:dholek@lekter.net">dholek@lekter.net</a>
St. Clair Mechanical Inc.	John Dawson	519-864-0927	519-864-0801	<a href="mailto:dawson@stclairmechanical.ca">dawson@stclairmechanical.ca</a>
Swift Mechanical Services Inc.	Farooq Malik	905-265-8777	416-352-6119	<a href="mailto:estimate@swiftmech.com">estimate@swiftmech.com</a>
Vollmer Inc.	Brad Vollmer	519-966-6100	519-966-0934	<a href="mailto:vollmer@vollmer.ca">vollmer@vollmer.ca</a>

**1.6 PRE-QUALIFIED ROOFING CONTRACTORS ARE AS FOLLOWS:**

COMPANY NAME	CONTACT	PHONE	FAX	E-MAIL
Accent Roofing & Siding	Wayne Laliberte	519-974-9942	519-419-1299	<a href="mailto:accent.roofing@yahoo.ca">accent.roofing@yahoo.ca</a>
Atlas-Apex Roofing Inc.	Brett Beetles	416-421-6244	416-421-1661	<a href="mailto:bbeetles@atlas-apex.com">bbeetles@atlas-apex.com</a>
Gillett Roofing Inc.	Wayne Gillett	519-326-6301	519-326-7561	<a href="mailto:gillett@mnsi.net">gillett@mnsi.net</a>
H & N Roofing & Sheet Metal Limited	Manuel Goncalves	519-453-1720	519-453-8817	<a href="mailto:hnroofing@hnroofing.com">hnroofing@hnroofing.com</a>
Kingsville Roofing (2011)	John Spevak	519-839-5130	519-839-5334	<a href="mailto:kingsvilleroofing@gosfieldtel.com">kingsvilleroofing@gosfieldtel.com</a>
LaFleche Roofing (1992) Limited	Chris LaFleche	519-681-7610	519-668-7853	<a href="mailto:chris@laflecheroofing.com">chris@laflecheroofing.com</a>
Pollard Enterprises Ltd.	Jamie Pedra	905-332-6660	905-332-6662	<a href="mailto:jamiepedra@pollardroofing.ca">jamiepedra@pollardroofing.ca</a>
Rauth Roofing Limited	Richard Rauth	519-945-6301	519-945-6311	<a href="mailto:office@rauthroofing.com">office@rauthroofing.com</a>
Semple Gooder Roofing Corporation	Mike Witt	416-743-5370	416-743-4257	<a href="mailto:mwitt@semplegooder.com">mwitt@semplegooder.com</a>
Smith-Peat Roofing and Sheet Metal Ltd.	Robert Watson	519-235-2802	519-235-1532	<a href="mailto:speat@hay.net">speat@hay.net</a>
Thomas Roofing London Ltd.	Peter Thomas	519-457-2650	519-457-3156	<a href="mailto:peter@thomasroofing.ca">peter@thomasroofing.ca</a>

**1.7 OWNER CONDITIONS TO BE REFERRED TO IN CONJUNCTION WITH INSTRUCTIONS TO  
BIDDERS SECTION 1.2**

- .1 *Bidders* who do not respond after 2 successive invitations to *Bid* will be removed from the Owner's approved Bidder's list for this category of goods or services.

In addition and provided there is supporting evidence, GECDSB may exclude a *Bidder* from participating in a *Bid* on grounds such as:

- bankruptcy or insolvency;
  - false declarations;
  - significant or persistent deficiencies in performance of any substantive requirement or obligation under a prior contract or contracts;
  - final judgments in respect of serious crimes or other serious offences;
  - professional misconduct or acts or omissions that adversely reflect on the commercial integrity of the *Bidder*; or
  - failure to pay taxes.
- .2 Where feasible and applicable, all new equipment will have an appropriate energy efficiency rating and all service providers shall ensure energy and water savings measures are undertaken.
- .3 Please note that vendors are required to comply with all applicable laws, including CASL, in providing goods or services to the GECDSB. This also extends to communications sent on the Board's behalf. By responding to this Tender, Bidders agrees to accept commercial electronic messages from the GECDSB, including receiving future bid documents. Should Bidders no longer wish to receive future bid documents, they shall notify the Board at once. Bidders will be required to indemnify the GECDSB for any failure by Bidders to comply with CASL, to the extent that Bidders' action, or inaction, could expose the GECDSB to liability.

**1.8 SITE VISIT PROTOCOL TO BE REFERRED TO IN CONJUNCTION WITH INSTRUCTIONS TO  
BIDDERS SECTION 1.12****.1 Questions**

Please try to hold all questions until after the site visit is concluded. If any errors or omissions are evident in relation to the tender package or you have anything that you need clarified, written questions shall be sent to the Consultant. While not ideal, we understand that verbal questions may arise. If verbal inquiries are made during the site visit and responded to verbally, Contractors shall understand that the verbal responses are not binding.

It is preferable that contractors direct questions in writing to the Consultant prior to the deadline for questions.

The Consultant, in consultation with the Board will review all questions and issue written responses in the form of Addenda, which will become part of the Contract Documents.

**.2 Re-visiting a site after this site meeting – prior to tender submission**

If Contractors want to make additional visit(s) to the site(s), they may do so provided they receive prior written approval from the Board's authorized representative and the School Principal. Contractors must sign in at the school main office in the Contractor Red Log Book. Contractors shall avoid asking questions to any school staff and any verbal answers that may be given are not binding.

Questions that may arise from additional site visits shall be documented and sent to the Consultant in writing prior to the deadline for questions.



The Consultant, in consultation with the Board will review all questions and issue written responses in the form of Addenda, which will become part of the Contract Documents.

## 1.9 TERMINATION

- .1 As per CCDC 2 2008 and CCDC Supplementary Conditions.

## 1.10 DISPUTE RESOLUTION

- .1 As per CCDC 2 2008 and CCDC Supplementary Conditions.

## 1.11 SAFE SCHOOLS PROCEDURES

- .1 Motorized Vehicles on School Property: While on the property of the Board, the driver of the vehicle and their assistant(s) must comply with the following:
  - .1 Prior to entering onto the property of the Board, the vehicle, driver and any assistant(s) must have valid insurance coverage for any accidents that may occur on GECDSB property;
  - .2 **Drivers must NOT enter, leave or operate their vehicles while children are present on school grounds.**
  - .3 Bidders' Representatives, Carriers and Sub-Contractors shall recognize that it is strictly prohibited for motorized vehicles to enter School playgrounds without authorization from School authorities.
  - .4 Adequate surveillance/guidance must be maintained at all times. If playground area or access road is occupied by students, vehicle access is prohibited until area is clear.
  - .5 Motorized vehicles shall be operated with due caution at all times while on School property. Speed limit must not exceed eight (8) kilometers {five (5) miles} per hour at any time.
  - .6 All vehicles must be equipped with operational back-up warning signals.
  - .7 Drivers of motor vehicles shall not operate their vehicles beyond the parking area.
  - .8 No vehicle shall be backed up unless there is a person on foot to guide the driver;
  - .9 No vehicle shall be left running while parked on the property of the Board;
  - .10 When returning to an unattended vehicle, the driver must circle the vehicle to ensure that no child is hiding behind or under the vehicle before it is driven;
  - .11 All vehicle accidents, which occur on school property, must be immediately reported to the School Principal or designate.
- .2 Under no circumstances are school doors to be propped open. If a door needs to be held open, it must be monitored by an employee of the Successful Bidder.
- .3 The Successful Bidder is responsible for ensuring their employees and/or delivery drivers report to the site office or to the main office of every school during regular school hours and notify the school office staff of the purpose of the visit. Successful Proponent employees and/or delivery drivers are required to adhere to all school specific procedures, as applicable.
- .4 It is the responsibility of the Successful Bidder to ensure their employees sign in and sign out at the Main Office of the Schools. Use the "Red Facility Services Log Book" which exists in all elementary and secondary office areas, while performing their duties.
- .5 The following information must be recorded in a legible manner:
  - .1 Date
  - .2 Company Name
  - .3 Employee Name
  - .4 Employee Signature
  - .5 Work Order Number (if applicable)
  - .6 Reason for Visit

- .7 Time Entering Building
- .8 Time Leaving Building

## 1.12 HEALTH AND SAFETY

- .1 **General** - The Occupational Health and Safety Act describes the responsibilities of employers, supervisors, workers, contractors, owners and operators. The Board requires suppliers maintain procedures, training, and enforcement so that the responsibilities of all parties are carried out accordingly in the workplace. The Successful Bidder shall abide by and strictly adhere to the requirements as promulgated under the Occupational Health and Safety Act and all of its applicable regulations and assume full responsibility for contraventions of same. They also must adhere to all the Board's Health & Safety Policies and Management Programs as may be deemed applicable.
- .2 The Successful Bidder shall comply with all applicable health and safety legislation, and all other laws, regulations, bylaws, codes and policies of any competent government authority relating to their operation and their Employees. The Successful Bidder shall provide written proof of such compliance upon request by the Board and the Board reserves the right to inspect the premises at any time.
- .3 The Successful Bidder must submit any and all applicable Health & Safety related Policies, Procedures, Management Programs, Safety Data Sheets, Training Records, Inspection Records, Logs, Documentation, Meeting Minutes, Correspondence, Etc., upon request from the Board.
- .4 The Successful Bidder must report any and all concerns regarding potential Health & Safety hazards, issues, damages, etc. immediately to the Board representative.
- .5 The Successful Bidder will ensure that their workers are trained in the Contractor's programs prior to commencing work. The Board has a Contractor Safety Program which can be made available for review and training purposes as may be applicable.
- .6 Successful Bidder employees must be clearly identifiable by wearing Board approved company logoed uniform t-shirts at all times when working on Board property.
- .7 **Policies & Programs** - Bidders will submit proof of their current and maintained Health and Safety Policy, Workplace Violence Policy and Workplace Harassment Policy upon request by the Board.
- .8 Bidders will submit proof of their current and maintained Health & Safety Management Program, Workplace Violence Management Program and Workplace Harassment Management Program upon request by the Board.
- .9 **WHMIS Management Program** - The Successful Bidder must have a WHMIS 2015 Compliant Management Program submit, which includes Safety Data Sheets (SDS) for each and every chemical product that they intend to utilize during their work. In addition, the Successful Bidder must have WHMIS 2015 Compliant SDS available at the job-site for any chemical product. This is expanded to include any product which is known to create, or suspected of creating, a health hazard or discomfort when the work is being performed or upon commissioning of the project including, but not limited to, the following:
  - .1 adhesives;
  - .2 solvents and cleaning products;
  - .3 sealants, (caulking, vapour seals, etc.);
  - .4 paint, varnish or other coatings;
  - .5 other products whose particles or vapours may become air borne after installation.

Additional Information on the Board's chemical inventory can be referenced under the WHMIS Management Program located in the main office of every school building (red binder).

- .10 **Designated Substances Management Program** - The Successful Bidder should have a Designated Substances Management Program (as may be applicable), and at a minimum, have a basic knowledge of Designated Substances (Asbestos, Lead, Mercury, Silica). Additional Information on the Board's Designated Substances Management Program and its site based Management Plan (specific contents to each site) is located in the main office of every school building (blue binder).

The Successful Bidder is responsible for all asbestos removal on the project by a qualified contractor and all associated costs. The Contractor must consult with and notify the Board prior to any asbestos removal as the Board is obligated to notify the site Joint Health and Safety Committee and to maintain its inventory. The Contractor shall submit, at the end of the project, documentation indicating what asbestos was removed, quantity and location of removal. Workers are to be provided instructions by the Successful Bidder regarding the management of any known or suspected asbestos that they are working in and around or discover (stop work immediately and notify the Board representative). The Board representative is to be notified of all unforeseen discoveries of asbestos.

The Board confirms that all painted surfaces in any Board owned facility constructed prior to 1990 contain lead. It is the responsibility of the Successful Bidder to comply with the Ministry of Labour's Guidelines entitled "Lead in Construction Projects" when disturbing any surface containing lead. All associated costs are the responsibility of the Successful Bidder.

- .11 **Lockout - Tag Out** - The Successful Bidder must ensure appropriate lockout - tag out procedures are followed during the work. All equipment that is locked out by the Contractor must be tagged with the employee name and date as a minimum. This applies to all sub-contractors as well. The Successful Bidder to submit a copy of any sub-contractor Lockout – Tag Out procedures to the Board.
- .12 **Hot Work Procedure** - The Successful Bidder and all sub-contractors must have a Hot Work Procedure and this must be submitted to the Board prior to the start of construction. The Board requires a fire watch to be conducted by the Contractor 1 hour after completion of hot work activities. The fire watch must be witnessed by Paladin Security and documented by the Successful Bidder. All costs are the responsibility of the Successful Bidder.

Welding shields shall be used when any welding is occurring in the areas where staff, students or the general public may view the welding flash. This applies to both internal and external locations. Care must be taken during welding to ensure existing building finishes are not damaged.

Torching is prohibited for any kind of roof repair or replacement including overlay cap work. This prohibition applies to the melting of snow or ice that is covering existing roof membranes. Roofers who practice torching on any school site will be asked to leave the premises.

- .13 **Working at Heights** – The Successful Bidder and all sub-contractors must have a working at heights procedure and this must be submitted to the Board prior to the start of construction. The Board requires all such persons whom work at heights, including on roofs to be trained in working at heights by the Ministry of Labour approved training / certification and to utilize / maintain certified and inspected lifting devices, fall arrest personal protective equipment.
- .14 **Indoor Air Quality / Environmental Sensitivities** - The Successful Bidder must ensure all painting activities occur outside of the regular school year (i.e. July and August, March Break or Christmas Break). The successful Bidder may request painting to be done during the school year however, the Board reserves the right to deny that request if it creates an issue with occupants in the building due to environmental sensitivities. If painting is approved to be completed during the school year, the painting will only be completed at the beginning of a weekend and end by midnight Saturday night to allow for one day aeration of the building prior to the start of school on Monday. The contractor is responsible for ensuring all ventilation systems are running for that time period.

All school occupants and property will be protected by the Contractor from the generation of dust and dirt. The Contractor will ensure best efforts to keep all construction areas free of dust and debris and that dust and dirt does not migrate outside of the construction area. Special consideration will be given to any activities involving dry cutting to ensure that all precautionary measures are implemented prior to conducting dry cutting to ensure no migration of dust or dirt. Any additional cleaning required inside and outside of the construction area due to dust or dirt creation will be the sole responsibility of the Contractor. The Contractor will be responsible to ensure that, at the end of Total Completion, the project area is turned over to the Operations Department free of dust and dirt.

- .15 **Noise** - The Successful Bidder will work with the Principal of the school to ensure any noisy activities and activities that cause excessive vibrations are planned properly to minimize any disruption to classroom activities.

- .16 **Reps & Committees** – The Successful Bidder will submit proof of having either a Health & Safety Representative (if under 19 workers) or an Occupational Joint Health & Safety Committee (if greater than 20 workers) as prescribed under the Occupational Health & Safety Act upon the request by the Board.

- .17 **Accidents & Injuries** - All Contractor / subcontractor workplace injuries or accidents on Board property must be reported to the Successful Bidder and to Board Representative within 24 hours.

Any Contractor / subcontractor workplace injury that is defined under the Occupational Health and Safety Act as a “Critical Injury” shall be reported to the Successful Bidder IMMEDIATELY. The successful Bidder shall inform the Board representative IMMEDIATELY thereafter.

- .18 **Postings & Signage** - The Successful Bidder will provide and affix appropriate postings and signage identifying the work area as a construction zone as required by the Ministry of Labour. This includes all postings as prescribed such as Notice of Project, Form 1000s, construction / hazard signs, etc. The construction zone hoarding and signage shall be erected in consultation with the Board representative and the Principal.

- .19 **Access / Egress / Security** - All efforts must be made to maintain all building exits. Should a school exit need to be disabled for a period of time, the Successful Bidder will be responsible for working with the Principal to alter the school's fire plan and obtain the approval of the local fire inspector prior to disabling the school exit.

The Board will supply the Contractor with appropriate building keys and security access code for the building. The Successful Bidder will sign for the keys and return the keys at the end of the project. If the successful Bidder is working outside of stated custodial hours, the Contractor will be responsible to ensure the entire building is secure and the security system is armed at the end of each work day. If this process is not followed and the building is left unsecured, any damages incurred will be the responsibility of the Contractor.

The use of school property will NOT be permitted including, phones, faxes, custodial equipment or supplies, televisions, computers or electronic devices. The Contractor will provide all temporary facilities as per the general requirements at each site. The Contractor will be responsible for the replacement of any missing or damaged school property.

- .20 **Utility Interruptions** – The Successful Bidder will be coordinated with the Board representative and the school Principal. A continuous fire monitoring/watch will be implemented by the Successful Bidder for the duration of the outage at their cost.

- .21 **Confined Spaces / Service Ways** - The successful Bidder and all sub-contractors must have a confined space / service ways safe work procedure and this must be submitted to the Board prior to the start of construction. The Board requires all such persons whom work in confined spaces / service ways to be trained and have a compliant program, which includes all items as prescribed.

**1.13 WORKPLACE SAFETY & INSURANCE BOARD "WSIB"**

- .1 The *Successful Bidder* must provide a copy of their Workplace Safety and Insurance Board Clearance Certificate of good standing, "Section 748" of the Workplace Safety and Insurance Act to the *Board* prior to commencing *Work* and in any event within ten (10) *Working Days* of acceptance of the *Bid* by the *Board*. Further the *Successful Bidder* shall maintain their Workplace Safety and Insurance Board Clearance Certificate of good standing at all times during the life of the agreement. The Board reserves the right to request a copy at any time.

**1.14 EXISTING BUILDING SERVICES**

- .1 The *Successful Bidder* shall assess the existing building services and determine that they are in proper working order prior to construction. Existing building services shall include but not be limited to, fire alarm system, security system, PA System, Telephone and Data systems. If the *Successful Bidder* has any concerns they must be reported in writing to the *Consultant* and the *Board* prior to commencement of *Work*.
- .2 On or before the completion of the *Project*, if the existing building services are not operating as they were prior to the *Successful Bidder* commencing *Work*, the *Successful Bidder* shall repair the existing services to the satisfaction of the *Board*. Upon the *Successful Bidder* being aware that an existing building service is not operation, they shall immediately notify the *Board* and take the necessary actions to repair the system.

**1.15 GECDSB NETWORK REQUIREMENTS**

- .1 In an effort to enhance *Board* network security and align better with accepted industry standards, additional steps are being implemented for *Contractors* requiring access to network devices, cabinet access or when connecting to the *Board* network.
- .2 Only *Board* Information Technology (IT) staff will be permitted access to the network closets, therefore it is imperative that when *Contractors* require network and cabinet access to install or resolve an issue they must contact the *Board's* Network team (IT staff) prior to going on site (occasional exceptions may be approved in emergency situations).
- .3 During the request (via email or phone call or IT work order) the *Contractor* must stipulate:
  - Applicable eBase ticket number, (if known or if a new request one will be assigned).
  - The school and closet they require access.
  - The date and time they expect to be on-site
  - And a brief description of the task prompting the request.
- .4 The *Board* Network team from the IT department will:
  - Log the call into the eBase system updating the ticket (provided above or create a new ticket) with the request details.
  - Approve the required access or elevate the request as required.
  - Schedule an IT staff member to be on-site during the time frame identified above.
- .5 This process will allow the *Board* to have a written record of any access.
- .6 The names and contact information of the *Board's* Network team (IT staff) as well as updated procedures, if any, will be provided to the *Successful Bidder*.

**1.16 NO SMOKING, NO VAPING POLICY AND NO SUBSTANCE ABUSE**

- .1 All *Bidders* are advised that there is no smoking or vaping permitted within the school or on *Board* property, and this must be strictly adhered to by all parties. The *Successful Bidder* shall be responsible for advising their employees or any other person doing or contracting to do the whole or any part of the *Work* contemplated by the *Contract*, of the foregoing.
- .2 All *Bidders* are advised that contractors are prohibited from using any form of Alcohol or Drug, including Recreational Cannabis, before and/or during work hours, and this must be strictly adhered to by all parties. The *Successful Bidder* shall be responsible for advising their employees or any other person doing or contracting to do the whole or any part of the *Work* contemplated by the *Contract*, of the foregoing.

**1.17 SUB CONTRACTS AND ASSIGNMENT**

- .1 Only sub-contractors that are allowed for in the Price Bid Form and approved in advance by the Board's authorized representative may be used for this work. No other sub-contractors shall be used for this work unless prior written authorization is obtained from the Board's authorized representative.

Prior to the award of the Contract to a Bidder, should objection be raised by either the Board or Consultant to any proposed Subcontractor, the names of other Subcontractors shall be obtained by that said Bidder until same are approved. Once final approval of Subcontractors is obtained no change will be permitted by the Successful Bidder without prior written approval by the Board and Consultant.

It is mutually agreed and understood that the Successful Bidder shall not assign, transfer, convey, sublet or otherwise dispose of the contract or the right, title or interest therein, or the Bidder's power to execute such a contract, to any other person, firm, company or corporation without the express written consent of the Board. Any unauthorized, assignment shall be void and have no force or effect against the Board. If assignment is authorized, any work undertaken by sub-contractor shall, in no way, relieve the Successful Bidder of its responsibilities to the Board.

**1.18 CONFIDENTIALITY**

- .1 Any information or documentation provided by a *Bidder* in connection with a Request for Tender is subject to the provisions of the Municipal Freedom of Information and Protection of Privacy Act, R.S.O., 1990, C.m.56. As a consequence, the Greater Essex County District School Board cannot guarantee the confidentiality of documentation and information provided during the course of the Request for Tender.
- .2 Subject to the provisions of the Municipal Freedom of Information and Protection of Privacy Act, the Owner will make reasonable efforts to protect the confidentiality of information and documentation submitted by a supplier as part of the *Bidder's Bid*. All *Bidders* are encouraged to designate and identify to the Owner all information and/or documentation it regards as being confidential in nature. Please note: neither the entire *Bid*, nor the identity of the *Bidder* can be designated as confidential.

**1.19 ACKNOWLEDGEMENT, REPRESENTATION AND WARRANTY**

- .1 The *Bidder* acknowledges that a policy (BA-01 Procurement) has been implemented by Owner which provides generally that the Owner will not enter into any agreement for the provisions of materials and/or services with a *Bidder*, where such *Bidder* is directly or indirectly a party to any actual pending or threatened suits, actions, litigation proceedings, arbitrations, alternative dispute resolutions, investigations or claims (the "**Claim**" or "**Claims**") by or against or otherwise involving the Owner and the *Bidder*.
- .2 In the event that the *Bid* of the *Bidder* should be successful, the award of such Contract will not be issued by the Owner to the *Bidder* unless, at the request of the Owner, the *Bidder* executes a further document (**Acknowledgement, Representation and Warranty**) which provides that at the time of the awarding of

the *Bid* to the *Bidder*, that the *Bidder* is not at that time directly or indirectly a party to any Claims by or against or otherwise involving the Owner and the *Bidder*.

- .3 If at any time it is found that the Acknowledgement, Representation and Warranty delivered by the *Bidder* to the Owner was inaccurate at the time of the award and that the *Bidder* was, at that time, directly or indirectly a party to a **Claim** by or against or otherwise involving the Owner and the *Bidder*; the Owner shall have the option to terminate the Contract upon the Owner giving written notice of such termination to the *Bidder*.
- .4 If at any time after the awarding of the Tender to the *Bidder* and prior to the completion of requirements of the Request For Tender, the *Bidder* becomes, directly or indirectly a party to any **Claim** by or against or otherwise involving the Owner and the *Bidder*; the Owner shall have the option to terminate the Contract upon the Owner giving written notice of such termination to the *Bidder*, and in such instance the *Bidder* shall be responsible to the Owner for any additional costs incurred by the Owner with respect to the completion of requirements of the Request For Tender.
- .5 The *Successful Bidder* shall execute Appendix A: Acknowledgment, Representation and Warranty and Appendix B: Conflict of Interest Acknowledgement and Declaration prior to commencing Work.

## 1.20 IDENTICAL BIDS

- .1 If more than one substantially compliant *Bid* is received where the stipulated price *Bids* are identical, the *Bidder* with the lowest overall separate prices that are accepted by the Owner will be selected. If no separate prices exist or are accepted, the Owner, in the presence of two witnesses will flip a coin to determine the award.

## 1.21 CONFIDENTIAL INFORMATION OF THE BOARD

- .1 All information provided by or obtained from the *Board* in any form in connection with this Request for Tender either before or after the issuance of this Request For Tender:
  - (a) is the sole property of the *Board* and must be treated as confidential;
  - (b) is not to be used for any purpose other than replying to this Request For Tender and the performance of the Contract;
  - (c) must not be disclosed without prior written authorization from the *Board*; and
  - (d) shall be returned by the *Bidders* to the *Board* immediately upon the request of the *Board*.

## 1.22 RESERVED RIGHTS OF THE BOARD — GENERAL

- .1 In addition to any other express rights or any other rights which may be implied in the circumstances, the *Board* reserves the right to:
  - (a) exercise any of the rights set out in the *Bid*;
  - (b) make public the names of any or all *Bidders*;
  - (c) request written clarification or the submission of supplementary written information from any *Bidder* and incorporate such clarification or supplementary written information into the *Bidder's Bid*, at the *Board's* discretion, provided that clarification or submission of supplementary written information shall not be an opportunity for the *Bidder* to correct errors in its *Bid* or to change or enhance the *Bidder's Bid* in any material manner, except as may otherwise be expressly set out herein;
  - (d) waive formalities and accept *Bids* that substantially comply with the requirements of this Request For Tender, in the *Board's* sole discretion;
  - (e) afford an opportunity to a *Bidder* to correct unintentional errors of form between the opening of *Bids* and the awarding of the Contract and, if it does so, the *Board* shall afford the same opportunity to all *Bidders*;
  - (f) verify with any *Bidder* or with a third party any information set out in a *Bid*;
  - (g) verify with a *Bidder* that it satisfies the conditions for participation and is capable of fulfilling the

- terms of the Contract, where in the sole discretion of the *Board*, it receives a *Bid* from a *Bidder* that is abnormally lower than prices in other *Bids*;
- (h) check references other than those provided by any *Bidder*;
  - (i) disqualify any *Bidder* whose *Bid* contains misrepresentations or any other inaccurate or misleading information, or whose *Bid* is determined to be non-compliant with the requirements of the Request For Tender;
  - (j) disqualify a *Bid* where the *Bidder* has or the principals of a *Bidder* have previously breached a contract with the *Board*, or has otherwise failed to perform such contract to the reasonable satisfaction of the *Board*, the *Bidder* has been charged or convicted of an offence in respect of a contract with the *Board*, or the *Bidder* reveals a Conflict of Interest or Unfair Advantage in its *Bid* or a Conflict of Interest or evidence of any Unfair Advantage is brought to the attention of the *Board*;
  - (k) disqualify any *Bid* of any *Bidder* who has breached any Applicable Laws or who has engaged in conduct prohibited by this Request For Tender, including where there is any evidence that the *Bidder* or any of its employees or agents colluded with any other *Bidder*, its employees or agents in the preparation of the *Bid*;
  - (l) make changes, including substantial changes, to this Request For Tender provided that those changes are issued by way of addenda in the manner set out in this Request For Tender;
  - (m) accept or reject a *Bid* if only one *Bid* is submitted;
  - (n) reject a subcontractor proposed by a *Bidder*;
  - (o) select any *Bidder* other than the *Bidder* whose *Bid* reflects the lowest cost to the *Board*;
  - (p) cancel this Request For Tender process at any stage and issue a new Request For Tender for the same or similar requirements, including where:
    - (i) the *Board* determines it would be in the best interest of the *Board* not to award a Contract;
    - (ii) the *Bid* prices exceed the *Bid* prices received by the *Board* for previously supplied similar Work;
    - (iii) the *Bid* prices exceed the funds available for the Work; or
    - (iv) the funding for Work has been revoked, modified, or has not been approved;
 and where the *Board* cancels this Tender, the *Board* may do so without providing reasons, and the *Board* may thereafter issue a new Request For Tender, request for qualifications, sole source or do nothing;
  - (q) negotiate;
  - (r) terminate negotiations of the Contract with any Preferred *Bidder* at any time and for any reason without liability to such *Bidder*; and
  - (s) reject any or all *Bids* in its absolute discretion, including where a *Bidder* has launched legal proceedings against the *Board* or is otherwise engaged in a dispute with the *Board*.

These reserved rights are in addition to any rights which may be implied in the circumstances, and the *Board* shall not be liable for any expenses, costs, losses or any direct or indirect damages incurred or suffered by any *Bidder* or any party resulting from the *Board* exercising any of its express or implied rights under this *Bid*.

- .2 By submitting a *Bid*, the *Bidder* authorizes the collection by the *Board* of the information identified in this Request For Tender, which the *Board* may request from any third party.

## 1.23 ENTITLEMENT TO A DE-BRIEFING

- .1 In accordance with the Broader Public Sector Procurement Directive unsuccessful *Bidders* are entitled to a debriefing, during which they will be provided with feedback regarding their submission. In order to be debriefed, unsuccessful *Bidders* must contact the Supervisor of Purchasing and Supply or her designate to request a debriefing within sixty (60) days from the date of the notification of award.



**1.24 INVOICING AND STATUTORY DECLARATIONS**

- .1 The Successful Bidder shall submit a draft invoice, a Statutory Declaration and WSIB Certificate of Clearance to the Consultant by the 8th of the month and a proper invoice by the 15th of the month, for each progress draw. The Consultant will issue a Certificate of Payment, which is subject to notice of non-payment of a disputed portion of the invoice, if any.
- .2 The invoice, issued by the 15th of the month, must be a "Proper Invoice" as defined in the Construction Act (Ontario).

**1.25 PROJECT SCHEDULE AND COVID-19**

- .1 The Board acknowledges that the Ontario government has made the health and safety of workers is a top concern amid the global COVID-19 pandemic and that specific procedures must be followed with an increased focus on health and safety in order to keep job sites open.
- .2 Bidders shall bid this project, based on the project schedule in this Instructions to Bidders or as revised by a further addendum.
- .3 Upon receipt of the Purchase Order from the Board, the Successful Bidder shall provide an Infection Control Plan to the Board for approval, which includes all measures that will be taken by the Successful Bidder and Sub-Contractors to prevent the spread of COVID-19 and written in compliance with the requirements under the Occupational Health and Safety Act, its associated regulations and public health directives issued by the Chief Medical Officer of Health.
- .4 Once the Board has approves the COVID-19 Infection Control plan, the Successful Bidder must provide written acknowledgement that all employees and sub-contractors on site have read and understood the plan prior to access to the site.
- .5 If at any time during the project, non-critical construction is deemed a non-essential service, due to COVID-19, the Successful Bidder is still expected to continue with work that may be done remotely, such as shop drawings, ordering materials and equipment, etc.
- .6 If the commencement of work on site is delayed, due to COVID-19 and it impacts the schedule, the Board will revise the schedule accordingly.

**END OF SECTION**

APPENDIX AACKNOWLEDGMENT, REPRESENTATION AND WARRANTY

**TO: GREATER ESSEX COUNTY DISTRICT SCHOOL BOARD  
(THE "SCHOOL BOARD")**  
451 Park Street West  
Windsor, ON N9A 5V4

**FROM:** \_\_\_\_\_  
(THE "*BIDDER*")

**RE: REQUEST FOR TENDER # 2020-98T**  
**Portable Classroom Re-Location**

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The *Bidder* acknowledges that a policy has been implemented by School Board which provides generally that the School Board will not enter into any agreement for the provision of materials and/or services with a *Bidder*, where such *Bidder* is directly or indirectly a party to any actual pending or threatened suits, actions, litigation proceedings, arbitrations, alternative dispute resolutions, investigations or claims (the "**Claim**" or "**Claims**") by or against or otherwise involving the School Board and the *Bidder*.

The *Bidder* further acknowledges that as a pre-condition to being awarded the contract, the *Bidder* is required to execute this acknowledgment, representation and warranty and to deliver an executed copy of this acknowledgment, representation and warranty to the Supervisor of Purchasing & Supply, Greater Essex County District School Board, 451 Park Street West, Windsor, ON N9A 5V4.

In that regard, the *Bidder* does hereby acknowledge, warrant and agree as follows:

1. At the date of the execution of this Acknowledgment, Representation and Warranty and the submission of a Tender by the *Bidder* to the School Board with respect to the above Tender, the *Bidder* is not, directly or indirectly, a party to any actual, pending or threatened suits, actions, litigation proceedings, arbitrations, alternative dispute resolutions, investigations or claims by or against or otherwise involving the School Board and the *Bidder*.
2. In the event that the Tender of the *Bidder* in the above Tender should be successful, that the award of such Tender will not be issued by the School Board to the *Bidder* unless, at the request of the School Board, the *Bidder* executes a further document (the "**Subsequent Acknowledgment, Representation and Warranty**") which provides that at the time of the awarding of the Tender to the *Bidder*, that the *Bidder* is not at that time directly or indirectly a party to any actual, pending or threatened suits, actions, litigation proceedings, arbitrations, alternative dispute resolutions, investigations or claims by or against or otherwise involving the School Board and the *Bidder*.
3. The School Board may, in its sole and unfettered discretion, reject the Tender of the *Bidder*, if the *Bidder* shall be in breach of any of the terms of this Acknowledgment, Representation and Warranty at the time of the submission of the Tender by the *Bidder*, or at the time of the award by the School Board to the *Bidder* of the above Tender. Alternatively, the School Board may at its sole and absolute discretion terminate any agreement which may result from the acceptance by the School Board of the Tender submitted by the *Bidder* with respect to the above Tender in the event that it should be determined that the *Bidder* was directly or indirectly a party to any actual pending or threatened suits, actions, litigation proceedings, arbitrations, alternative dispute resolutions, investigations, or claims by or against or otherwise involving the School Board and the *Bidder* at the date of the signing of this Acknowledgment, Representation and Warranty or at the time of the signing of any Subsequent Acknowledgment, Representation and Warranty with respect to the above Tender.

for the Greater Essex County  
District School Board

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Tender # 2020-98T

4. At the request of the School Board, the *Bidder* may be required from time to time to execute a further Subsequent Acknowledgment, Representation and Warranty encompassing the terms of this Acknowledgment, Representation and Warranty and in the event that as a result of the signing of a Subsequent Acknowledgment, Representation and Warranty by the *Bidder* it should be determined that the *Bidder* is in breach of the terms of this Acknowledgment, Representation and Warranty or any Subsequent Acknowledgment, Representation and Warranty, then the School Board shall, at its option, be entitled to terminate the agreement entered into between the School Board and the *Bidder*, in which instance, the agreement entered into between the School Board and the *Bidder* shall cease and be of no further force and effect, except to the extent of any monies that may be owing by one party to the other at the date of such termination, and except as to any damages incurred by the School Board as a result of such default or breach, as the case may be, for which the *Bidder* may be found to be liable in the manner provided by the construction agreement to be entered into between the School Board and the *Bidder*.
5. The *Bidder* acknowledges and agrees that the execution of this document by the *Bidder* and the submission of this document in executed form by the *Bidder* to the School Board by facsimile or by electronic mail shall have the same effect as if an original executed copy of this documented had been delivered by the *Bidder* to School Board.

DATED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

Legal Company Name of Bidder:

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Authorized Signature:

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Print Name & Title of Authorized Signing Officer:

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**I have the authority to bind the above Corporation.**

**APPENDIX B**  
**CONFLICT OF INTEREST**  
**ACKNOWLEDGEMENT AND DECLARATION**

THE UNDERSIGNED DECLARES that this Bid Submission is made in good faith and without any connection, knowledge, comparison of figures, or arrangements with any other company, firm or corporation making a Bid for the same *Work* and is, in all respects, fair and without collusion with any other *Bidder* for the Contract, and without fraud. The undersigned also represent and warrants that to the best of the undersigned’s knowledge and belief, no actual or potential conflict of interest exists with respect to the submission of this *Bid* or performance of the *Work*, services or contractual obligations that may be requested, other than those disclosed hereunder. The undersigned confirms that, where the *Board* discovers that the undersigned has failed to disclose all actual or potential conflicts of interest, the *Board* may disqualify the undersigned or terminate any *Contract* awarded to the undersigned pursuant to this *Bid* process. The undersigned understands that, for the purposes hereof, “conflict of interest” also includes:

- (a) in relation to the procurement process, the undersigned has an unfair advantage or engages in conduct, directly or indirectly, that may give the undersigned an unfair advantage, including:

(i) having or having access to information in the preparation of the undersigned’s *Bid* that is confidential to the *Board* and not available to other *Bidders*;

(ii) communicating with any person with a view to influencing preferred treatment in the procurement process; or

(iii) engaging in conduct that compromises or could be seen to compromise the integrity of the open and competitive process and render that process non-competitive and unfair; or
- (b) in relation to the performance of the *Work*, services or contractual obligations, the undersigned’s other commitments, relationships or financial interests:

(i) could or could be perceived to exercise an improper influence over the objective, unbiased and impartial exercise of the undersigned’s independent judgment, or

(ii) could or could be perceived to compromise, or impair or be incompatible with the effective performance of the undersigned’s *Work*, services or contractual obligations.

THE UNDERSIGNED DECLARES that, having read and understood the above provisions, the undersigned hereby confirm, to the best of the undersigned’s knowledge and belief:

<input type="checkbox"/>	there are no actual or potential conflicts of interest with respect to the submission of this response or the <i>Work</i> , services or contractual obligations which may be performed by the undersigned; or	
<input type="checkbox"/>	the following are details of actual or potential conflicts of interest of which the undersigned is aware:	
	→	..... .....
	→	..... .....
	→	..... .....

The undersigned further understands that if, subsequent to the signing of this Acknowledgement and Declaration, a potential or actual, direct or indirect conflict of interest arises, the undersigned must disclose this to the *Board*.

Signature of Authorized Signing Officer \_\_\_\_\_

Printed Name of Authorized Signing Officer \_\_\_\_\_

Position \_\_\_\_\_

Name of Firm \_\_\_\_\_

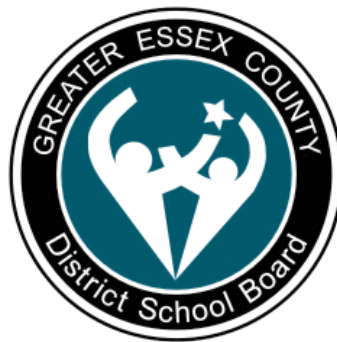
Date \_\_\_\_\_



**CCDC 2- 2008**

**Stipulated Price Contract**

**Supplementary Conditions**



Last revised by GECDSD December 18, 2016

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The Standard Construction Document CCDC 2 2008 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 12 inclusive, governing same is hereby made part of these *Contract Documents*, with the following amendments, additions and modifications:

## AGREEMENT BETWEEN OWNER AND CONTRACTOR

### ARTICLE A-3 – CONTRACT DOCUMENTS

3.1 Add the following to the list of *Contract Documents* in paragraph 3.1:

- Amendments to CCDC 2 – 2008
- *Drawings*
- *Specifications*
- Performance Bond
- Labour and Material Payment Bond

### ARTICLE A-5 – PAYMENT

5.1.3 Amend paragraph 5.1.3, in the first line, by deleting the words “...the issuance of the...” and replacing them with “...receipt of the *Consultant's*...”

5.3.1 Delete paragraph 5.3.1 in its entirety and replace it with the following:

#### Interest

.1 Should either party fail to make payments as they become due under the terms of the Contract or in an award by arbitration or court, interest shall also become due and payable on such unpaid amounts at 0% above the prime rate. Such interest shall be compounded on a monthly basis. The prime rate shall be the rate of interest quoted by the Royal Bank of Canada for prime business loans, as it may change from time to time.

### ARTICLE A-9 – CONFLICT OF INTEREST

Add new Article A-9 – Conflict of Interest:

- 9.1 The *Contractor*, all of the *Subcontractors* and *Suppliers* 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 *Owner*) with the provision of the *Work* pursuant to the *Contract*. The *Contractor* acknowledges and agrees that a conflict of interest, as described in this Article A-9, includes, but is not limited to, the use of *Confidential Information* where the *Owner* has not specifically authorized such use.
- 9.2 The *Contractor* shall disclose to the *Owner*, 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 *Subcontractor* or *Supplier* that is directly or indirectly affiliated with or related to the *Contractor*.
- 9.3 The *Contractor* covenants and agrees that it will not hire or retain the services of any employee or previous employee of the *Owner* where to do so constitutes a breach by such employee or previous employee of the *Owner's* conflict of interest policy, as it may be amended from time to time, until after completion of the *Work* under the *Contract*.
- 9.4 It is of the essence of the *Contract* that the *Owner* shall not have direct or indirect liability to any *Subcontractor* or *Supplier*, and that the *Owner* relies on the maintenance of an arm's-length relationship between the *Contractor*

and its *Subcontractors* and *Suppliers*. Consistent with this fundamental term of the *Contract*, the *Contractor* will not enter into any agreement or understanding with any *Subcontractor* or *Supplier*, 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 *Owner*, directly or through the *Contractor*, where such claim is, in whole or in part, in respect of a disputed claim by the *Subcontractor* or *Supplier* against the *Contractor*, where the payment to the *Subcontractor* or *Supplier* by the *Contractor* is agreed to be conditional or contingent on the ability to recover those amounts or a portion thereof from the *Owner*, failing which the *Contractor* shall be saved harmless from all or a portion of those claims. The *Contractor* acknowledges that any such agreement would undermine the required arm's-length relationship and constitute a conflict of interest. For greater certainty, the *Contractor* shall only be entitled to advance claims against the *Owner* for amounts pertaining to *Subcontractor* or *Supplier* claims where the *Contractor* has actually paid or unconditionally acknowledged liability for those claims or where those claims are the subject of litigation or binding arbitration between the *Subcontractor* or *Supplier* and the *Contractor* has been found liable for those claims.

- 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, SUSPEND THE WORK OR TERMINATE THE CONTRACT, a breach of this Article by the *Contractor*, any of the *Subcontractors*, or any of their respective advisors, partners, directors, officers, employees, agents, and volunteers shall entitle the *Owner* to terminate the *Contract*, in addition to any other rights and remedies that the *Owner* has in the *Contract*, in law, or in equity.

## DEFINITIONS

Add the following new definitions:

16. Amend Definition 16 by adding the following to the end of the Definition:

Provide has this meaning whether or not the first letter is capitalized.

27. **Confidential Information**

*Confidential Information* means all the information or material of the *Owner* 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 *Contractor* at any time, but *Confidential Information* shall not include information that:

- 1) is or becomes generally available to the public without fault or breach on the part of the *Contractor*, including without limitation breach of any duty of confidentiality owed by the *Contractor* to the *Owner* or to any third party, but only after that information becomes generally available to the public;
- 2) the *Contractor* can demonstrate to have been rightfully obtained by the *Contractor* from a third party who had the right to transfer or disclose it to the *Contractor* free of any obligation of confidence;
- 3) the *Contractor* can demonstrate to have been rightfully known to or in the possession of the *Contractor* at the time of disclosure, free of any obligation of confidence; or
- 4) is independently developed by the *Contractor* without use of any *Confidential Information*.

28. **Construction Schedule**

*Construction Schedule* means the schedule for the performance of the *Work* provided by the *Contractor* pursuant to GC 3.5, including any amendments to the *Construction Schedule* made pursuant to the *Contract Documents*.



**29. Force Majeure**

*Force Majeure* means any cause, beyond the *Contractor's* control, other than bankruptcy or insolvency, which prevents the performance by the *Contractor* of any of its obligations under the *Contract* and the event of *Force Majeure* was not caused by the *Contractor's* default or active commission or omission and could not be avoided or mitigated by the exercise of reasonable effort or foresight by the *Contractor*. *Force Majeure* includes *Labour Disputes*, fire, unusual delay by common carriers or unavoidable casualties, pandemics, epidemics, quarantines or civil disturbances caused by severe medical emergencies or diseases, government declared emergencies, 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, or acts of God.

**30. Install**

*Install* means the following:

- Install and connect.
- Position and adjust *Products* in final placement,
- Affix and anchor *Products* in final placement, in accordance with manufacturers' instructions and *Contract Documents*,
- Commission and adjust *Products* for proper operation.

*Install* has this meaning whether or not the first letter is capitalized.

**31. Labour Dispute**

*Labour Dispute* 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 *Work*.

**32. Overhead**

*Overhead* 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 *Place of the Work*; 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.

**33. Request for Information/RFI**

*Request for Information* or *RFI* means written documentation sent by the *Contractor* to the *Owner* or to the *Owner's* representative or the *Consultant* requesting written clarification(s) and/or interpretation(s) of the *Drawings* and/or *Specifications*, *Contract* requirements and/or other pertinent information required to complete the *Work* of the *Contract* without applying for a change or changes to the *Work*.

**34. Make Good**

*Make Good* means to restore to at least the quality of, and leave in no worse condition than, the original.

**35. Proposed Change**

A *Proposed Change* or *Contemplated Change Order* is a written instruction by the *Consultant* directing the *Contractor* to provide the following:

- A change to the scope of the *Work*.

- Amount of an adjustment in the *Contract Price* or *Cash Allowance*.
- The extent of the adjustment in the *Contract Time* if any.

### 36. Proper Invoice

A Proper Invoice shall include the following:

1. Contractor invoices;
2. The period in which services were supplied;
3. How the Work was authorized;
4. Description of services or materials supplied;
5. The amount payable;
6. The contact information of the payment administrator;
7. Any other prescribed information required by applicable lien legislation.

## GENERAL CONDITIONS OF THE STIPULATED PRICE CONTRACT

- 1.0 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.

### GC 1.1 CONTRACT DOCUMENTS

- 1.1.6 Add the following to the end of paragraph 1.1.6:

The *Specifications* are divided into divisions and sections for convenience but shall be read as a whole and neither such division nor anything else contained in the *Contract Documents* will be construed to place responsibility on the *Owner* or the *Consultant* to settle disputes among the *Subcontractors* and *Suppliers* with respect to such divisions. The *Drawings* are, in part, diagrammatic and are intended to convey the scope of the *Work* and indicate general and appropriate locations, arrangements and sizes of fixtures, equipment and outlets. The *Contractor* shall obtain more accurate information about the locations, arrangements and sizes from study and coordination of the *Drawings*, including *Shop Drawings* and shall become familiar with conditions and spaces affecting those matters before proceedings with the *Work*. Where site conditions require reasonable minor changes where the change requires only the additional labour of one half hour or less, the *Contractor* shall make such changes at no additional cost to the *Owner*. Similarly, where known conditions or existing conditions interfere with new installation and require relocation, the *Contractor* shall include such relocation in the *Work*. The *Contractor* 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 *Contact Documents*, wherever located and whenever issued, which compile information of similar content and may consist of drawings, tables and/or lists.

- 1.1.6.1 Add Paragraph 1.1.6.1 as follows:

"The *Contractor* is the sole arbiter and coordinator of the *Contract* and neither the organization of the specifications into divisions, sections and parts, nor the arrangement of the drawings shall oblige the *Consultant*, or the *Owner* to act as arbiter to establish limits of responsibility between the *Contractor* and its *Subcontractors*."

- 1.1.7 Amend paragraph 1.1.7.1 by adding "Amendments to CCDC 2 – 2008" before "the Agreement between the Owner and the Contractor" and deleting the reference to "Supplementary Conditions".

Add new paragraphs 1.1.7.5, 1.1.7.6, 1.1.7.7, 1.1.7.8, 1.1.7.9 and 1.1.7.10 as follows:

- .5 noted materials and annotations on the *Drawings* shall govern over the graphic representation of the *Drawings*.
- .6 finishes in the room finish schedules shall govern over those shown on the *Drawings*.
- .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 *Consultant* or its sub-*Consultants* are to remain with each of the applicable drawing disciplines.
- .8 should reference standards contained in the *Specifications* conflict with the *Specifications*, the *Specifications* shall govern. Should reference standards and *Specifications* conflict with each other or if certain requirements of the *Specifications* conflict with other requirements of the *Specifications*, the more stringent requirements shall govern.

1.1.8 Delete paragraph 1.1.8 in its entirety and substitute as follows:

The *Consultant*, on behalf of the *Owner* shall provide the *Contractor* without charge, twelve ( 12 ) copies of the *Contract Documents*, exclusive of those required by jurisdictional authorities and the executed *Contract Documents*. Additional copies can be purchased by the *Contractor* at the *Consultant's* cost of reproduction, handling and sales tax.

1.1.11 Add 1.1.11 as follows:

Syntax

.1 Where the words ‘accepted’, ‘reviewed’, ‘designated’, ‘directed’, ‘inspected’, ‘instructed’, ‘permitted’, ‘required’, and ‘selected’ are used in the *Contract Documents*, they are deemed to be followed by the words ‘by the *Consultant*’, unless the context provides otherwise.

2 Where the words ‘acceptable’, ‘submit’ and ‘satisfactory’ are used in the *Contract Documents*, they are deemed to be followed by the words ‘to the *Consultant*’, unless the context provides otherwise.

1.1.12 Add 1.1.12 as follows:

In the event of any conflict or discrepancy between the provisions of: (1) the Agreement between *Owner* and *Contractor*, Definitions, and The General Conditions of the Stipulated Price Contract with the Supplementary Conditions; and (2) the *Consultant's* document(s), the Agreement between *Owner* and *Contractor*, Definitions, and The General Conditions of the Stipulated Price Contract with the Supplementary Conditions shall take precedence over any of the *Consultant's* document(s) and govern the relationship between the *Owner* and the *Consultant*.

### GC 1.3 RIGHTS AND REMEDIES

1.3.2 Delete the word “No” from the beginning of paragraph 1.3.2 and substitute the words:

“Except with respect to the requirements set out in paragraphs 2.2.13, 6.4.1, 6.5.4, 6.6.1 and 8.2.2, no...”

## GC 1.4 ASSIGNMENT

Delete paragraph 1.4.1 in its entirety and replace with the following:

- 1.4.1 The *Contractor* shall not assign the *Contract*, or any portion thereof, without the prior written consent of the *Owner*. The *Owner* shall be entitled to assign the *Contract* to a corporation, partnership or other entity (the “Assignee”). Upon the assumption by the Assignee of the *Owner’s* obligations under the *Contract*, the *Owner* shall be released from its obligations under the *Contract*.

## GC 1.5 EXAMINATION OF DOCUMENTS AND SITE

Add new GC 1.5 – EXAMINATION OF DOCUMENTS AND SITE as follows:

- 1.5.1 The *Contractor* declares and represents that in tendering for the *Work*, and in entering into a *Contract* with the *Owner* for the performance of the *Work*, it has investigated for itself the character of the *Work* to be done, based on information generally available from a site visit. The *Contractor* has assumed and does hereby assume all risk of conditions now existing or arising in the course of the *Work* which might or could make the *Work*, or any items thereof more expensive in character, or more onerous to fulfil, than was contemplated or known when the tender was made or the *Contract* signed.
- 1.5.2 The *Contractor* also declares that in tendering for the *Work* and in entering into this *Contract*, the *Contractor* did not and does not rely upon information furnished by the *Owner* or any of its agents or servants respecting the nature or confirmation of the ground at the site of the *Work*, or the location, character, quality or quantity of the materials to be removed or to be employed in the construction of *Work*, or the character of the construction machinery and equipment or facilities needed to perform the *Work*, or the general and local performance of the work under the *Contract* and expressly waives and releases the *Owner* from all claims with respect to the said information with respect to the *Work*.

## GC 1.6 TIME IS OF THE ESSENCE OF THE CONTRACT

Add new GC 1.6 - TIME IS OF THE ESSENCE OF THE CONTRACT as follows:

- 1.6.1 All time limits stated in the *Contract Documents* are of the essence of the *Contract*.

## GC 2.1 AUTHORITY OF THE CONSULTANT

- 2.1.3 Delete from line 2, "against whom the *Contractor* makes no reasonable objection and".

## GC 2.2 ROLE OF THE CONSULTANT

- 2.2.7 Delete the words “Except with respect to GC 5.1 – FINANCING INFORMATION REQUIRED OF THE OWNER”.

- 2.2.8 Amend paragraph 2.2.8 by the addition of the following at the end of the paragraph:

Questions shall be submitted by the *Contractor* in the form of a “*Request for Information*”.

- 2.2.13 Amend paragraph 2.2.13 by the addition of the following to the end of that paragraph:

If, in the opinion of the *Contractor*, the *Supplemental Instruction* involves an adjustment in the *Contract Price* or in the *Contract Time*, it shall, within ten (10) *Working Days* of receipt of a *Supplemental Instruction*, provide the *Consultant* with a notice in writing to that effect. Failure to provide written notification within the time stipulated

in this paragraph 2.2.13 shall be deemed an acceptance of the *Supplemental Instruction* by the *Contractor*, without any adjustment in the *Contract Price* or *Contract Time*.

2.2.19 Add new paragraph 2.2.1.9 as follows:

The *Consultant* or the *Owner*, acting reasonably, may from time to time require the *Contractor* to remove from the *Project* any personnel of the *Contractor*, including project managers, superintendents or *Subcontractors*. Such persons shall be replaced by the *Contractor* in a timely fashion to the satisfaction of the *Consultant* or the *Owner*, as the case may be, at no cost to the *Owner*.

## GC 2.3 REVIEW AND INSPECTION OF THE WORK

2.3.2 Amend paragraph 2.3.2 by adding the words “and *Owner*” after the words “*Consultant*” in the second and third lines.

2.3.3 Delete paragraph 2.3.3 in its entirety and replace it with the following:

The *Contractor* shall furnish promptly two copies to the *Consultant* and one copy to the *Owner* of all certificates and inspection reports relating to the *Work*.

2.3.4 Insert the word “review” after the word “inspections” in the first line of paragraph 2.3.4.

2.3.5 In the first line after “*Consultant*”, add “or the *Owner*”.

2.3.8 Add a new paragraph 2.3.8 as follows:

The *Consultant* will conduct periodic reviews of the *Work* in progress, to determine general conformance with the requirements of the *Contract Documents*. Such reviews, or lack thereof, shall not give rise to any claims by the *Contractor* in connection with construction means, methods, techniques, sequences and procedures, nor in connection with construction safety at the *Place of Work*, responsibility for which belongs exclusively to the *Contractor*.

## GC 2.4 DEFECTIVE WORK

2.4.1 Amend GC 2.4.1 by inserting “, the *Owner* and/or its agent” in the first sentence following “rejected by the *Consultant*”.

Add new paragraphs 2.4.1.1 and 2.4.1.2:

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

2.4.1.2 The *Contractor* shall prioritize the correction of any defective work, which, in the sole discretion of the *Owner through the Consultant*, adversely affects the day to day operations of the *Owner* or which, in the sole discretion of the *Consultant*, adversely affects the progress of the *Work*.

2.4.2 Delete paragraph 2.4.2 in its entirety and replace it with the following:

The *Contractor* shall promptly pay the *Owner* for costs incurred by the *Owner*, the *Owner's* own forces or the *Owner's* other contractors, for work destroyed or damaged or any alterations necessitated by the *Contractor's* removal, replacement or re-execution of defective work.

Add new paragraph 2.4.4 as follows:

- 2.4.4 Neither acceptance of the *Work* by the *Consultant* or the *Owner*, nor any failure by the *Consultant* or the *Owner* to identify, observe or warn of defective *Work* or any deficiency in the *Work* shall relieve the *Contractor* from the sole responsibility for rectifying such defect or deficiency at the *Contractor's* sole cost, even where such failure to identify, observe or warn is negligent.

### GC 3.1 CONTROL OF THE WORK

- 3.1.3 Add a new paragraph 3.1.3 as follows:

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

- 3.1.4 Add a new paragraph 3.1.4 as follows:

Notwithstanding the provisions of paragraphs 3.1.1 and 3.1.2, the *Owner* 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 *Contractor* to fulfill its contractual obligations.

### GC 3.2 CONSTRUCTION BY OWNER OR OTHER CONTRACTORS

- 3.2.2.1 Delete paragraph 3.2.2.1 in its entirety.

- 3.2.2.2 Delete paragraph 3.2.2.2 in its entirety.

- 3.2.2.3 Delete paragraph 3.2.2.3 in its entirety.

- 3.2.2.4 Delete paragraph 3.2.2.4 in its entirety.

- 3.2.3.2 Delete paragraph 3.2.3.2 and replace it with the following:

Co-ordinate and schedule the activities and work of other contractors and *Owner's* own forces with the *Work* of the *Contractor* and connect as specified or shown in the *Contract Documents*.

- 3.2.3.4 Add new paragraph 3.2.3.4 as follows:

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

- 3.2.7 Add new paragraph 3.2.7:

Placing, installing, connecting of the *Work* by the *Owner's* own forces or by other contractors, on and to the *Contractor's Work* will not relieve the *Contractor's* responsibility to provide and maintain the specified warranties.

### GC 3.3 TEMPORARY WORK

- 3.3.2 In paragraph 3.3.2, in the second line after the words “where required by law”, insert “or the *Consultant*”.

### GC 3.4 DOCUMENT REVIEW

- 3.4.1 Delete paragraph 3.4.1 in its entirety and substitute new paragraph 3.4.1:

The *Contractor* shall review the *Contract Documents* and shall report promptly to the *Consultant* any error, inconsistency, or omission the *Contractor* may discover. Such review by the *Contractor* shall be undertaken with the standard of care described in paragraph 3.14.1 of the *Contract*. Except for its obligation to make such review and report the result, the *Contractor* does not assume any responsibility to the *Owner* or to the *Consultant* for the accuracy of the *Contract Documents*. Provided it has exercised the degree of care and skill described in this paragraph 3.4.1, the *Contractor* shall not be liable for damage or costs resulting from such errors, inconsistencies, or omissions in the *Contract Documents*, which the *Contractor* could not reasonably have discovered through the exercise of the required standard of care.

- 3.4.2 Add new paragraph 3.4.2. as follows:

If, at any time, the *Contractor* finds errors, inconsistencies, or omissions in the *Contract Documents* or has any doubt as to the meaning or intent of any part thereof, including laying out of the Work, the *Contractor* shall immediately notify the *Consultant*, and request instructions, a *Supplemental Instruction*, *Change Order*, or *Change Directive*, as the case may require, and the *Contractor* shall not proceed with the work affected until the *Contractor* has received such instructions, a *Supplemental Instruction*, *Change Order* or *Change Directive*. Neither the *Owner* nor the *Consultant* will be responsible for the consequences of any action of the *Contractor* based on oral instructions.

- 3.4.3 Add new paragraphs 3.4.3 as follows:

Errors, inconsistencies and/or omissions in the *Drawings* and/or *Specifications* which do not allow completion of the *Work* of the *Contract* shall be brought to the *Consultant's* attention prior to the execution of the *Contract* by means of an *RFI*.

### GC 3.5 CONSTRUCTION SCHEDULE

- 3.5.1 Delete paragraph 3.5.1 in its entirety and replace with the following:

The *Contractor* shall:

- .1 within five (5) calendar days of receiving written confirmation of the award of the Contract, prepare and submit to the *Owner* and the *Consultant* for their review and acceptance, a construction schedule in the format indicated below that indicates the timing of the activities of the *Work* and provides sufficient detail of the critical events and their inter-relationship to demonstrate the *Work* will be performed in conformity with the *Contract Time* and in accordance with the *Contract Documents*. Such schedule is to include a delivery schedule for *Products* whose delivery is critical to the schedule for the *Work* or are required by the *Contract* to be included in a *Products* delivery schedule. The *Contractor* shall employ construction scheduling software, being the latest version of “Microsoft Project” that permits the progress of the *Work* to be monitored in relation to the critical path established in the schedule. The *Contractor* shall provide the schedule and any successor or revised schedules in both electronic format and hard copy. Once accepted by the *Owner* and the *Consultant*, the construction schedule submitted by the *Contractor* shall become the baseline construction schedule; and,

- .2 provide the expertise and resources, such resources including manpower and equipment, as are necessary to maintain progress under the accepted baseline construction schedule or revised schedule accepted by the *Owner* pursuant to GC 3.5 CONSTRUCTION SCHEDULE; and,
- .3 monitor the progress of the *Work* on a weekly basis relative to the baseline construction schedule, or any revised schedule accepted by the *Owner* pursuant to GC 3.5 CONSTRUCTION SCHEDULE, update and submit to the *Consultant* and *Owner* the electronic and hard copy schedule on a monthly basis, at a minimum, or as required by the *Consultant* and advise the *Consultant* and the *Owner* weekly in writing of any variation from the baseline or slippage in the schedule; and,
- .4 provide overtime work without change to the *Contract Price* if such work is deemed necessary to meet the schedule; and,
- .5 ensure that the *Contract Price* shall include all costs required to phase or stage the *Work*.

3.5.2 Add new paragraph 3.5.2 as follows:

If, at any time, it should appear to the *Owner* or the *Consultant* that the actual progress of the *Work* is behind schedule or is likely to become behind schedule, or if the *Contractor* has given notice of such to the *Owner* or the *Consultant* pursuant to subparagraph 3.5.1.3, the *Contractor* shall, either at the request of the *Owner* or the *Consultant*, or following giving notice pursuant to subparagraph 3.5.1.3, take appropriate steps to cause the actual progress of the *Work* to conform to the schedule or minimize the resulting delay. Within five (5) calendar days of the request by the *Owner* or the *Consultant* or the notice being given pursuant to subparagraph 3.5.1.3, the *Contractor* shall produce and present to the *Owner* and the *Consultant* a plan demonstrating how the *Contractor* will achieve the recovery of the last accepted schedule.

3.5.3 The *Contractor* is responsible for performing the *Work* within the *Contract Time*. Any schedule submissions revised from the accepted baseline construction schedule or revised schedule accepted by the *Owner* pursuant to GC 3.5 CONSTRUCTION SCHEDULE, during construction are not deemed to be approved extensions to the *Contract Time*. All extensions to the *Contract Time* must be made in accordance with the *Contract Documents*.

## GC 3.6 SUPERVISION

Delete paragraph 3.6.1 in its entirety and replace with the following:

- 3.6.1 The *Contractor* shall employ a competent full-time superintendent, acceptable to the *Owner* and *Consultant*, who shall be in full time attendance at the *Place of Work* while the *Work* is being performed. The superintendent shall not be changed by the *Contractor* without valid reason which shall be provided in writing and shall not be changed without prior consultation with an agreement by the *Owner* and the *Consultant*. The *Contractor* shall replace the superintendent within 7 *Working Days* of the *Owner's* written notification, if the superintendent's performance is not acceptable to the *Owner*. The *Contractor* shall provide the *Owner* and the *Consultant* with the names, addresses and telephone numbers of the superintendent referred to in this paragraph 3.6.1 and other responsible persons who may be contacted for emergency and other reasons during non-working hours.

Delete paragraph 3.6.2 in its entirety and replace with the following:

- 3.6.2 The superintendent, and any project manager appointed by the *Contractor*, shall represent the *Contractor* at the *Place of Work* and shall have full authority to act on written instructions given by the *Consultant* and/or the *Owner*. Instructions given to the superintendent or the project manager shall be deemed to have been given to the *Contractor* and both the superintendent and any project manager shall have full authority to act on behalf of the *Contractor* and bind the *Contractor* in matters related to the *Contract*.



3.6.3 Add new paragraph 3.6.3, 3.6.4, 3.6.5 and 3.6.6 as follows:

The *Owner* may, at any time during the course of the *Work*, request the replacement of the appointed representative(s). Immediately upon receipt of the request, the *Contractor* shall make arrangements to appoint an acceptable replacement, which is approved by the *Owner*.

3.6.4 The supervisory staff assigned to the *Project* shall also be fully competent to implement efficiently all requirements for scheduling, coordination, field engineering, reviews, inspections and submittals defined in the *Specifications*, and have minimum 5 years documented “Superintendent/Project Management” experience.

3.6.5 The *Consultant and Owner* shall reserve the right to review the record of experience and credentials of supervisory staff assigned to the *Project* prior to commencement of the *Work*.

3.6.6 A superintendent assigned to the *Work* 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 *Project* to the sole satisfaction of the *Owner*.

### GC 3.7 SUBCONTRACTORS AND SUPPLIERS

3.7.1.1 In paragraph 3.7.1.1 add to the end of the second line “including any warranties and service agreements which extend beyond the term of the *Contract*.”

3.7.1.2 In subparagraph 3.7.1.2 after the words “the *Contract Documents*” insert the words “including any required surety bonding”.

Delete paragraph 3.7.2. in its entirety and replace with the following:

3.7.2 Substitution of any *Subcontractor* and/or *Suppliers* after submission of the *Contractor’s* bid will not be accepted unless a valid reason is given in writing to and approved by the *Owner*, whose approval may be arbitrarily withheld. The reason for substitution must be provided to the *Owner* and to the original *Subcontractor* and/or *Supplier* and the *Subcontractor* and/or *Supplier* shall be given the opportunity to reply to the *Contractor* and *Owner*. The *Contractor* shall be fully aware of the capability of each *Subcontractor* and/or *Supplier* included in its bid, including but not limited to technical ability, financial stability and ability to maintain the proposed construction schedule.

Add new paragraphs 3.7.7 and 3.7.8 as follows:

3.7.7 Where provided in the *Contract*, the *Owner* may assign to the *Contractor*, and the *Contractor* agrees to accept, any contract procured by the *Owner* for *Work* or services required on the *Project* that has been pre-tendered or pre-negotiated by the *Owner*, and upon such assignment, the *Owner* shall have no further liability to any party for such contract.

3.7.8 The *Contractor* covenants that each subcontract or supply contract which the *Contractor* enters into for the purpose of performing the *Work* shall expressly provide for the assignment thereof to the *Owner* (at the option of the *Owner*) and the assumption by the *Owner* of the obligations of the *Contractor* thereunder, upon the termination of the *Contract* and upon written notice by the *Owner* to the other parties to such subcontracts or supply contracts, without the imposition of further terms or conditions; provided, however, that until the *Owner* has given such notice, nothing herein contained shall be deemed to create any contractual or other liability upon the *Owner* for the performance of obligations under such subcontracts or supply contracts and the *Contractor* shall be fully responsible for all of its obligations and liabilities (if any) under such subcontracts and supply contracts.

## GC 3.8 LABOUR AND PRODUCTS

- 3.8.2 Delete paragraph 3.8.2 and substitute with the following:

*Products* 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 *Place of the Work*, unless otherwise specified. *Products* which are not specified shall be of a quality consistent with those specified and their use acceptable to the *Consultant*. *Products* brought on to the *Place of the Work* by the *Contractor* shall be deemed to be the property of the *Owner*, but the *Owner* shall be under no liability for loss thereof or damage thereto arising from any cause whatsoever. The said *Products* shall be at the sole risk of the *Contractor*. Workmanship shall be, in every respect, first class and the *Work* shall be performed in accordance with the best modern industry practice.

- 3.8.3 Amend paragraph 3.8.3 by adding the words, “..., agents, *Subcontractors* and *Suppliers*...” after the word “employees” in the first line.

Add new paragraphs 3.8.4, 3.8.5, 3.8.6, 3.8.7, 3.8.8 and 3.8.9 as follows:

- 3.8.4 Upon receipt of a written notice from the *Owner*, the *Contractor* shall immediately remove from the *Place of the Work*, tradesmen and labourers whose conduct jeopardizes the safety of the *Owner*’s operations. Immediately upon receipt of the request, the *Contractor* shall make arrangements to appoint an acceptable replacement.
- 3.8.5 Upon receipt of written notice from the *Consultant*, the *Contractor* shall remove from the *Place of Work*, tradesmen and labourers whose *Work* is unsatisfactory to the *Consultant* or who are considered by the *Consultant* to be unskilled or otherwise objectionable.
- 3.8.6 The *Contractor* shall cooperate with the *Owner* and its representatives and shall take all reasonable and necessary actions to maintain stable and harmonious labour relations with respect to the *Work* at the *Place of the Work*, including cooperation to attempt to avoid *Work* stoppages, trade union jurisdictional disputes and other *Labour Disputes*. Any costs arising from labour disputes shall be at the sole expense of the *Contractor*.
- 3.8.7 The cost for overtime required beyond the normal *Working Day* to complete individual construction operations of a continuous nature, such as pouring or finishing of concrete or similar work, or *Work* that the *Contractor* elects to perform at overtime rates without the *Owner* requesting it, shall not be chargeable to the *Owner*.
- 3.8.8 All manufactured *Products* which are identified by their proprietary names or by part or catalogue number in the *Specifications* shall be used by the *Contractor*. No substitutes for such specified *Products* shall be used without the written approval of the *Owner* and the *Consultant*. Substitutes will only be considered by the *Consultant* when submitted in sufficient time to permit proper review and investigation. When requesting approval for the use of substitutes, the *Contractor* shall include in its submission any proposed change in the *Contract Price*. The *Contractor* shall use all proprietary *Products* in strict accordance with the manufacturer’s directions. Where there is a choice of proprietary *Products* specified for one use, the *Contractor* may select any one of the *Products* so specified for this use.
- 3.8.9 Materials, appliances, equipment and other *Products* are sometimes specified by reference to brand names, proprietary names, trademarks or symbols. In such cases, the name of a manufacturer, distributor, *Supplier* or dealer is sometimes given to assist the *Contractor* to find a source *Supplier*. This shall not relieve the *Contractor* from its responsibility from finding its own source of supply even if the source names no longer supplies the *Product* specified. If the *Contractor* is unable to obtain the specified *Product*, the *Contractor* shall supply a substitute product equal to or better than the specified *Product*, as approved by the *Consultant* with no extra compensation. Should the *Contractor* be unable to obtain a substitute *Product* equal to or superior to the specified *Product* and the *Owner* accepts a different *Product*, the *Contract Price* shall be adjusted accordingly, as approved by the *Consultant*.

### GC 3.9 DOCUMENTS AT THE SITE

- 3.9.1 Delete paragraph 3.9.1 in its entirety and substitute the following:

The *Contractor* shall keep one copy of the current *Contract Documents*, *Supplemental Instructions*, contemplated *Change Orders*, *Change Orders*, *Change Directives*, cash allowance disbursement authorizations, reviewed *Shop Drawings*, submittals, reports and records of meeting at the *Place of the Work*, in good order and available to the *Owner* and *Consultant*.

- 3.9.2 Add new paragraph 3.9.2:

The *Contractor* shall note on the *Contract Documents* all deviations in construction complete with revised dimensions to clearly identify the as-built conditions for all construction trades.

### GC 3.10 SHOP DRAWINGS

- 3.10.1 Delete paragraph 3.10.1 in its entirety and replace with the following:

The *Contractor* shall provide shop drawings as described in the *Contract Documents* and as the *Consultant* may reasonably request.

- 3.10.9 Delete paragraph 3.10.9 in its entirety and substitute the following:

At the time of providing *Shop Drawings*, the *Contractor* shall advise the *Consultant* in writing of any deviations in *Shop Drawings* from the requirements of the *Contract Documents*. The *Consultant* shall indicate the acceptance of such deviation expressly in writing. Where manufacturers' literature is submitted in lieu of scaled drawings, it shall be clearly marked in ink, to indicate the specific items for which review is requested.

Add new paragraphs 3.10.13, 3.10.14, 3.10.15, 3.10.16, 3.10.17 and 3.10.18 as follows:

- 3.10.12 Delete paragraph 3.10.12 and replace with the following:

The *Consultant* will review and return *Shop Drawings* and submittals in accordance with the schedule agreed upon in paragraph 3.10.3, The *Contractor* shall allow the *Consultant* a minimum of 10 Working Days to review *Shop Drawings* from the date of receipt. If resubmission of *Shop Drawings* is required, a further 10 Working Day period is required for the *Consultant's* review.

- 3.10.13 Reviewed *Shop Drawings* shall not authorize a change in the *Contract Price* and/or the *Contract Time*.

- 3.10.14 The *Contractor* shall prepare a *Shop Drawings* schedule acceptable to the *Owner* and the *Consultant* prior to the first application for payment. A draft of the proposed *Shop Drawings* schedule shall be submitted by the *Contractor* to the *Consultant* and the *Owner* for approval. The draft *Shop Drawings* schedule shall clearly indicate the phasing of *Shop Drawings* submissions. The *Contractor* shall periodically re-submit the *Shop Drawings* schedule to correspond to changes in the construction schedule.

- 3.10.15 Except where the parties have agreed to a different *Shop Drawings* schedule pursuant to paragraph 3.10.3, the *Contractor* shall comply with the requirements for *Shop Drawings* submissions stated in the *Specifications*.

- 3.10.16 The *Contractor* shall not use the term "by others" on *Shop Drawings* or other submittals. The related trade, *Subcontractor* or *Supplier* shall be stated.

- 3.10.17 Certain *Specifications* sections require the *Shop Drawings* to bear the seal and signature of a professional engineer. Such professional engineer must be registered in the jurisdiction of the *Place of the Work* and shall have expertise in the area of practice reflected in the *Shop Drawings*.

### GC 3.11 USE OF THE WORK

- 3.11.1 In the second line between the words “permits” and “or” add, “by direction of the *Owner* or *Consultant*.”
- 3.11.3 Add new paragraph 3.11.3 as follows:

The *Owner* shall have the right to enter or occupy the *Work* in whole or in part for the purpose of placing fittings and equipment, or for other use before *Substantial Performance of the Work*, if, in the opinion of the *Consultant*, such entry and occupation does not prevent or substantially interfere with the *Contractor* in the performance of the *Contract* within the *Contract Time*. Such entry or occupation shall neither be considered as acceptance of the *Work*, nor in any way relieve the *Contractor* from its responsibility to complete the *Contract*.

### GC 3.12 CUTTING AND REMEDIAL WORK

Add new paragraphs 3.12.5 and 3.12.6 as follows:

- 3.12.5 Unless specifically stated otherwise in the *Specifications*, the *Contractor* shall do all cutting and making good necessary for the proper installation and performance of the *Work*.
- 3.12.6 To avoid unnecessary cutting, the *Contractor* shall lay out its work and advise the *Subcontractors*, when necessary, where to leave holes for installation of pipes and other work.

### GC 3.13 CLEAN UP

- 3.13.1 At the end of the paragraph 3.13.1, add the following:

The *Contractor* shall remove accumulated waste and debris at least once a week as a minimum or as required by the nature of the *Work*.

- 3.13.2 In paragraph 3.13.2, in the fourth line add the word “materials” between the word “tools” and the words “*Construction Equipment*”.
- 3.13.3 In paragraph 3.13.3, in the first and second lines add the word “materials” between the word “tools” and the words “*Construction Equipment*”.

Add new paragraphs 3.13.4, 3.13.5, 3.13.6 and 3.13.7 as follows:

- 3.13.5 The *Contractor* shall clean up garbage during and after construction, and maintain the site in a neat and orderly condition on a daily basis. Prior to leaving the site at the end of construction, the *Contractor* shall make good all damage to the building and its components caused by the performance of the *Work* or by any *Subcontractor* or *Supplier*. The *Contractor* shall leave the site in a clean and finished state; remove all equipment and materials; remove all paint, stains, labels, dirt, etc. from the *Work*; and touch up all damaged painted areas.
- 3.13.6 Without limitation to or waiver of the *Owner’s* other rights and remedies, the *Owner* shall have the right to back charge to the *Contractor* the cost of damage to the site caused by transportation in and out of the site by the *Contractor*, *Subcontractors* or *Suppliers*, if not repaired before final payment.
- 3.13.7 The *Contractor* shall dispose of debris at location and in a manner acceptable to the *Owner*, and authorities having jurisdiction in the area of the *Work* and the disposal area, and cover containers with tarpaulins tied in place to prevent scattering of debris on site and during transport.

## GC 3.14 CONTRACTOR STANDARD OF CARE

Add a new General Condition 3.14 – CONTRACTOR STANDARD OF CARE as follows:

- 3.14.1 In performing its services and obligations under the *Contract*, the *Contractor* 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 *Contractor* acknowledges and agrees that throughout the *Contract*, the performance of the *Contractor*'s obligations, duties and responsibilities shall be judged against this standard. The *Contractor* shall exercise the same standard of care, skill and diligence in respect of any *Products*, personnel or procedures which it may recommend to the *Owner*.
- 3.14.2 The *Contractor* further represents, covenants and warrants to the *Owner* that:
- .1 the personnel it assigns to the *Project* are appropriately experienced;
  - .2 it has a sufficient staff of qualified and competent personnel to replace any of its appointed representatives, subject to the *Owner*'s 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 *Contractor* to perform its work under the *Contract*.

## GC 3.15 OCCUPANCY OF THE WORK

- 3.15.1 The *Owner* reserves the right to take possession of and use for any intended purpose any portion or all of the undelivered portion of the *Project* even though the *Work* may not be substantially performed, provided that such taking possession and use will not interfere, in any material way, with the progress of the *Work*. The taking of possession or use of any such portion of the *Project* shall not be deemed to be the *Owner*'s acknowledgement or acceptance of the *Work* or the *Project*, nor shall it relieve the *Contractor* of any of its obligations under the *Contract*.
- 3.15.2 Whether the *Project* contemplates *Work* by way of renovations in buildings which will be in use or be occupied during the course of the *Work* or where the *Project* involves *Work* that is adjacent to a structure which is in use or is occupied, the *Contractor*, without in any way limiting its responsibilities under the *Contract*, 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.

## GC 3.16 RIGHT OF ENTRY

Add a new General Condition 3.16 – RIGHT OF ENTRY as follows:

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

## GC 4.1 CASH ALLOWANCES

- 4.1.1 Delete the second sentence in paragraph 4.1.1
- 4.1.3 Amend paragraph 4.1.3 by adding the following after the word "*Consultant*":

in the form of a Cash Allowance Disbursement Authorization (CADA) signed by the *Owner* and the *Consultant*.

4.1.4 Delete paragraph 4.1.4 in its entirety and substitute the following:

Where the actual cost of the *Work* under any cash allowance exceeds the amount of the allowance, any unexpended amounts from other cash allowances shall be reallocated, at the *Consultant's* direction, to cover the shortfall, and, in that case, there shall be no additional amount added to the *Contract Price* for overhead and profit. Only where the actual cost of the *Work* under all cash allowances exceeds the total amount of all cash allowances shall the *Contractor* be compensated for the excess incurred and substantiated, plus an amount for overhead and profit on the excess only, as set out in the *Contract Documents*.

4.1.5 Delete paragraph 4.1.5 in its entirety and substitute the following:

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 *Contract Price* by *Change Order* without any adjustment for the *Contractor's* overhead and profit on such amount.

Add new paragraphs 4.1.8 and 4.1.9 as follows:

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

4.1.9 Cash allowances cover the net cost to the *Contractor* of services, *Products*, *Construction Equipment*, freight, unloading, handling, storage, installation, provincial sales tax, and other authorized expenses incurred in performing any *Work* stipulated under the cash allowances but does not include any *Value Added Taxes* payable by the *Owner* and the *Contractor*.

## **GC 4.2 CONTINGENCY ALLOWANCE**

4.2.3 Add new paragraph 4.2.3.1 as follows:

Contingency Allowance Payment Authorization (CAPA), signed by the *Owner* and the *Consultant* shall be used to authorize expenditures under the contingency allowance.

## **GC 5.1 FINANCING INFORMATION REQUIRED OF THE OWNER**

5.1.1 Delete paragraph 5.1.1 in its entirety.

5.1.2 Delete paragraph 5.1.2 in its entirety.

## **GC 5.2 APPLICATIONS FOR PROGRESS PAYMENT**

Delete paragraph 5.2.2 in its entirety and substitute the following:

5.2.2 Applications for payment shall be dated the last day of each payment period, which is the last day of the month or an alternative day of the month agreed in writing by the parties. The amount claimed shall be for the value, proportionate to the amount of the *Contract*, or work performed and *Products* delivered and incorporated into the *Work* at that date. 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.

Each application for payment, except the first, shall include a statutory declaration, in the current CCDC 9A form, up to the date of the application for payment. Each application for payment (including the first the holdback upon Substantial Performance, and final payments), shall also include:

- .1 A certificate, issued by an agency or firm providing workers' compensation insurance to the *Contractor*, verifying that coverage is in force at the time of making the application for payment, and that coverage will remain in force for at least sixty (60) days thereafter.
- .2 A declaration by the *Contractor* verifying that the performance of the *Work* is in compliance with all applicable regulatory requirements respecting environmental protection, first safety, public safety and occupational health and safety.
- .3 A pre-approved schedule of values, supplied by the *Contractor*, for Divisions 1 through 14 of the *Work*, aggregating the total amount of the *Contract Price*.
- .4 A separate pre-approved schedule of values, supplied by each *Subcontractor*, for each of Division 15, 16, and 17 of the *Work*, aggregating the total amount of the *Contract Price*.
- .5 A Proper Invoice, and invoices to support all claims against the cash allowance.
- .6 An acceptable construction schedule pursuant to GC 3.5.

5.2.3 Amend paragraph 5.2.3 by adding the following to the end of that paragraph:

No amount claimed shall include *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.

5.2.7 Delete existing paragraph 5.2.7 and add new paragraphs 5.2.7, and 5.2.8 as follows:

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

5.2.8 Prior to each application for payment, the *Contractor* and the *Consultant* shall jointly review the progress of the *Work*.

### **GC 5.3 PROGRESS PAYMENT**

5.3.1.2 In the first sentence amend as follows: After the words "issue to the *Owner*" delete "and copy to the *Contractor*". After the words "after the receipt of the" add "complete". Delete the word 10 and replace it with the word 5.

5.3.1.3 Delete subparagraph 5.3.1.3 in its entirety and substitute as follows:

the *Owner* shall make payment to the *Contractor* on account as provided in Article A-5 of the Agreement – PAYMENT no later than 20 calendar days after the date of a complete certificate of payment is issued by the *Consultant*, unless, within 7 calendar days of the receipt of the certificate for payment issued by the *Consultant* it provides notice to the *Contractor* in the prescribed form that it refuses to pay all or a portion of the amount requested in the application for payment.

Add new paragraphs 5.3.2 and 5.3.3 as follows:

5.3.2 If the *Contractor* fails to provide all documentation as required by GC 5.2 – APPLICATIONS FOR PROGRESS PAYMENT, the *Contractor* or *Owner* shall be entitled to return the application for progress payment to the *Contractor* for completion. The 5 day review period by the *Consultant* and 20 day payment period by the *Owner* will commence upon receipt of a complete application for progress payment.

- 5.3.3 Payment will be mailed to the *Contractor*. The payment date shall be the date the cheque is mailed. Delay resulting from mail shall not be used in calculating payment date.

#### GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK

- 5.4.1 Add to the end of the paragraph 5.4.1 the following:

Where a portion of the *Work* is ready for use or is being used for the purposes intended and the *Owner* and the *Contractor* agree not to complete the *Work* expeditiously, the price of the services or materials remaining to be supplied and required to complete the *Work* shall be deducted from the *Contract Price* in determining *Substantial Performance of the Work*.

- 5.4.2 Delete paragraph 5.4.2 in its entirety and substitute the following:

The *Consultant* will review the *Work* to verify the validity of the application and shall promptly, and in any event, no later than 30 calendar days after receipt of the *Contractor's* complete deficiency list and application, the *Consultant* shall:

- .1 prepare a final deficiency list incorporating all items to be completed or corrected. Each item is to have an indicated value for correction or completion. Determination of the value is defined in GC 5.10 – DEFICIENCY HOLDBACK. The final deficiency list complete with values is to be included with the *Consultant's* draft verification and shall be reviewed with the *Owner* prior to 5.4.2.2.
- .2 having completed 5.4.2.1, the *Consultant* shall:
  - .1 advise the *Contractor* in writing that the *Work* or the designated portion of the *Work* is not substantially performed and give reasons why, or
  - .2 state the date of *Substantial Performance of the Work* in a certificate and issue a copy of that certificate to each the *Owner* and the *Contractor* containing the information required by the applicable lien legislation.

- 5.4.3 Delete paragraph 5.4.3 in its entirety and substitute the following:

Following the issuance of the certificate of *Substantial Performance of the Work*, the following shall apply to completing the *Work*:

- .1 *Contractor* is to complete the *Work* within sixty (60) calendar days.
- .2 No payments will be processed between *Substantial Performance of the Work* and the completion of the *Work*.
- .3 The *Owner* reserves the right to contract out any or all unfinished *Work* if it has not been completed within sixty (60) days of *Substantial Performance of the Work* without prejudice to any other right or remedy and without affecting the warranty period. The cost of completing the *Work* shall be deducted from the *Contract Price*.

Add new paragraphs 5.4.4, 5.4.5, 5.4.6 and 5.4.7 as follows:

- 5.4.4 Within the time prescribed by the construction/builder's lien legislation in force at the *Place of the Work*, or where there is no legislation or no time prescribed, within a reasonable time of receiving a copy of the certificate of *Substantial Performance of the Work* signed by the *Consultant*, the *Contractor* shall take whatever steps are required to publish or post a signed copy of the certificate, as is required by such legislation. If the *Contractor* fails to comply with this provision, the *Owner* may take the required steps pursuant to the legislation and charge the *Contractor* for any costs so incurred.



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

- .1 guarantees;
- .2 warranties;
- .3 certificates;
- .4 final testing and balancing reports;
- .5 distribution system diagrams;
- .6 spare parts;
- .7 maintenance manuals;
- .8 samples;
- .9 reports and correspondence from authorities having jurisdiction in the *Place of the Work*;
- .10 shop drawings;
- .11 inspection certificates;
- .12 red-lined record drawings from the construction trailer in two copies.

and other materials or documentation required to be submitted under the *Contract*, together with written proof acceptable to the *Owner* and the *Consultant* that the *Work* has been substantially performed in conformance with the requirements of municipal, governmental, and utility authorities having jurisdiction in the *Place of the Work*. The *Consultant* shall refuse to certify *Substantial Performance of the Work* if the submittals referred to in this paragraph 5.4.5 are not provided by the *Contractor*.

5.4.6 The *Owner* shall withhold, from amounts otherwise payable to the *Contractor*, an amount not to exceed one (1) percent of the *Contract Price* as security for the obligation of the *Contractor* to deliver two copies of the red-lined record drawings.

5.4.7 The publication by the *Contractor* of the Certificate of Substantial Performance of the Work shall constitute a waiver by the *Contractor* of all claims whatsoever against the *Owner* under this *Contract* whether, for a change in the *Contract Price*, extension of *Contract Time* or otherwise, except those made in writing, prior to the *Contractor's* application for payment upon *Substantial Performance of the Work*, and still unsettled.

## **GC 5.5 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF THE WORK**

Add new subparagraph 5.5.1.3 as follows

5.5.1.3 submit a statement that no written notices of liens have been received by it

5.5.2 Amend paragraph 5.5.2 by adding the following sentence to the end of that paragraph:

A reserve fund may be retained by the *Owner* to secure the correction of deficiencies and/or warranty claims. Included in the reserve fund would be all *Consultant* and *Owner* costs related to the correction of deficiencies and/or warranty claims.

5.5.3 Delete paragraph 5.5.3 in its entirety.

5.5.5 Delete paragraph 5.5.5 in its entirety.

## **GC 5.6 PROGRESSIVE RELEASE OF HOLDBACK**

Delete GC 5.6 in its entirety.

## GC 5.7 FINAL PAYMENT

- 5.7.1 Delete paragraph 5.7.1 in its entirety and substitute as follows:

When the *Contractor* considers that the *Work* is completed, as defined in the lien legislation applicable to the *Place of the Work* or if such definition does not exist, in accordance with other applicable legislation, industry practice or provisions which may be agreed to between the parties, the *Contractor* shall submit an application for final payment. The *Contractor's* application for final payment shall be accompanied by any documents or materials not yet delivered pursuant to paragraph 5.4.5, together with complete and final as-built drawings and:

- .1 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;
- .2 a Statutory Declaration CCDC 9A-2001.

The *Work* shall be deemed not to be completed until all of the aforementioned documents have been delivered, and the *Owner* may withhold payment in respect of the delivery of any documents in an amount determined by the *Consultant* in accordance with the provisions of GC 5.8 - WITHHOLDING OF PAYMENT.

- 5.7.2 Delete from the first line of paragraph 5.7.2 the word 10 and replace it with the word 5.

- 5.7.4 Delete from the second line of paragraph 5.7.4 the words, "5 calendar days after the issuance" and substitute the words "20 calendar days after receipt of".

## GC 5.8 WITHHOLDING OF PAYMENT

Delete paragraph 5.8.1 and replace with the following:

- 5.8.1 If because of conditions reasonably beyond the control of the *Contractor*, there are items of work that cannot be performed, payment in full for that portion of the *Work* which has been performed as certified by the *Consultant* shall not be withheld or delayed by the *Owner* on account thereof, but the *Owner* may withhold, until the remaining portion of the *Work* is finished, only such an amount that the *Consultant* determines is sufficient and reasonable to cover the cost of performing such remaining work.

## GC 5.10 DEFICIENCY HOLDBACK

Add a new General Condition 5.10 as follows:

- 5.10.1 Notwithstanding any provisions contained in the *Contract Documents* concerning certification and release of monies to the *Contractor*, the *Owner* reserves the right to establish a deficiency holdback, at the time of the review for *Substantial Performance*, based on a 200% dollar value of the deficiencies listed by the *Consultant*. The value of work outstanding for the calculation of *Substantial Performance of the Work* under the *Construction Lien Act* (Ontario) shall utilize the 100% dollar value. No individual deficiency will be valued at less than two hundred dollars (\$200.00). The *Owner* shall retain the entire deficiency holdback amount until completion of all of the deficiencies listed by the *Consultant* to the satisfaction of the *Consultant*.

## GC 6.1 OWNER'S RIGHT TO MAKE CHANGES

Add new paragraphs 6.1.3, 6.1.4, 6.1.5, 6.1.6, 6.1.7 and 6.1.8 as follows:

- 6.1.3 The *Contractor* agrees that changes resulting from construction coordination, including but not limited to, site surface conditions, site coordination, and *Subcontractor and Supplier* coordination are included in the *Contract Price* and the *Contractor* shall be precluded from making any claim for a change in the *Contract Price* as a result of such changes.

- 6.1.4 Labour costs shall be actual, prevailing rates at the *Place of the Work* paid to workers, plus statutory charges on labour including WSIB, unemployment insurance, Canada pension, vacation pay, hospitalization and medical insurance. The *Contractor* shall provide these rates, when requested by the *Consultant*, for review and/or agreement.
- 6.1.5 Quotations for changes to the *Work* shall be accompanied by itemized breakdowns together with detailed, substantiating quotations or cost vouchers from *Subcontractors* and *Suppliers*, submitted in a format acceptable to the *Consultant* and including any costs associated with extensions in *Contract Time*.
- 6.1.6 When both additions and deletions covering related *Work* or substitutions are involved in a change to the *Work*, payment, including *Overhead* and profit, shall be calculated on the basis of the net difference, if any, with respect to that change in the *Work*.
- 6.1.7 No extension to the *Contract Time* shall be granted for changes in the *Work* unless the *Contractor* can clearly demonstrate that such changes significantly alter the overall construction schedule submitted at the commencement of the *Work*. Extensions of *Contract Time* and all associated costs, if approved pursuant to GC 3.4.2, are to be included in the relevant *Change Order*.
- 6.1.8 When a change in the *Work* is proposed or required, the *Contractor* shall within 10 calendar days submit to the *Consultant* for review a claim for a change in *Contract Price* and/or *Contract Time*. Should 10 calendar days be insufficient to prepare the submission, the *Contractor* shall within 5 calendar days, advise the *Consultant* in writing of the proposed date of submission of the claim. Claims submitted after the dates prescribed herein will not be considered.

## GC 6.2 CHANGE ORDER

- 6.2.1 Add after the last sentence in the paragraph:

The adjustment in the *Contract Time* and the *Contract Price* shall include an adjustment, if any, for delay or for the impact that the change in the *Work* has on the *Work* of the *Contractor*, and once such adjustment is made, the *Contractor* shall be precluded from making any further claims for delay or impact with respect to the change in the *Work*.

Add new paragraph 6.2.3 as follows:

- 6.2.3 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 *Contractor's* mark-up on its own work:
      - .1 Overhead and Profit: 10%
    - .2 *Contractor's* mark-up on Subcontractor's work:
      - .1 Overhead and Profit: 5%
    - .3 *Subcontractor's* mark-up on its own work:
      - .1 Overhead and Profit: 10%

- .4 *Subcontractor's* mark-up on Subcontractors work:
  - .1 Overhead and Profit: 5%

Add new paragraph 6.2.4 as follows:

6.2.4 All quotations will be submitted in a complete manner listing:

- .1 quantity of each material,
- .2 unit cost of each material,
- .3 man hours involved,
- .4 cost per hour,
- .5 *Subcontractor* quotations submitted listing items 1 to 4 above and item 6 below.
- .6 mark-up

Add new paragraph 6.2.5 as follows:

6.2.5 The *Owner* and the *Consultant* will not be responsible for delays to the *Work* resulting from late, incomplete or inadequately broken down valuations submitted by the *Contractor*.

### GC 6.3 CHANGE DIRECTIVE

6.3.2 Delete in its entirety.

6.3.3 Delete in its entirety.

6.3.6.1 Amend paragraph 6.3.6.1 by deleting the final period and adding as follows:

- .1 *Contractor's* mark-up on its own work:
  - .1 Overhead and Profit: 10%
- .2 *Contractor's* mark-up on Subcontractor's work:
  - .1 Overhead and Profit: 5%
- .3 *Subcontractor's* mark-up on its own work:
  - .1 Overhead and Profit: 10%
- .4 *Subcontractor's* mark-up on Subcontractors work:
  - .1 Overhead and Profit: 5%

6.3.7.1 In subparagraph 6.3.7.1 insert "while directly engaged in the work attributable to the change" after the words "in the direct employ of the *Contractor*".

6.3.7 At the end of paragraph 6.3.7 add the following:

All other costs attributable to the change in the *Work* including the costs of all administrative or supervisory personnel are included in *Overhead* and profit calculated in accordance with the provisions of paragraph 6.1.5 of GC6.1 – OWNER'S RIGHT TO MAKE CHANGES.

6.3.11 Delete in its entirety.

## GC 6.4 CONCEALED OR UNKNOWN CONDITIONS

6.4.1 Delete paragraph 6.4.1 and replace with the following:

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* and carried out such tests as it deemed appropriate and, in doing so, applied to that investigation the degree of care and skill required by paragraph 3.14.1.

6.4.1.2 No claim by the *Contractor* will be considered by the *Owner* or the *Consultant* in connection with conditions which could reasonably have been ascertained by such investigation or other due diligence undertaken prior to the execution of the *Contract*.

6.4.2 Amend paragraph 6.4.2 by adding a new first sentence as follows:

Having regard to paragraph 6.4.1, if the *Contractor* believes that the conditions of the *Place of the Work* differ materially from those reasonably anticipated, differ materially from those indicated in the *Contract Documents* or were concealed from discovery notwithstanding the conduct of the investigation described in paragraph 6.4.1, it shall provide the *Owner* and the *Consultant* with *Notice in Writing* no later than five (5) *Working Days* after the first observation of such conditions.

Amend the existing second sentence of paragraph 6.4.2 in the second line, following the word “materially” by adding the words “or were concealed from discovery notwithstanding the conduct of the investigation described in paragraph 6.4.1,”

6.4.3 Delete paragraph 6.4.3 in its entirety and substitute the following:

If the *Consultant* makes a finding pursuant to paragraph 6.4.2 that no change in the *Contract Price* or the *Contract Time* is justified, the *Consultant* shall report in writing the reasons for this finding to the *Owner* and the *Contractor*.

Add new paragraph 6.4.5 as follows:

6.4.5 No claims for additional compensation or for an extension of *Contract Time* shall be allowed if the *Contractor* fails to give *Notice in Writing* to the *Owner* or *Consultant*, as required by paragraph 6.4.2.

## GC 6.5 DELAYS

6.5.1 Delete the words after the word “for” in the fourth line of paragraph 6.5.1, and add the words “...reasonable direct costs 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).”

6.5.2 Add after the words “public authority” in the first line of paragraph 6.5.2. “...which is not a Force Majeure event...”. Delete the words after the word “for” in the fourth line of paragraph 6.5.2, and add the words “...reasonable direct costs 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).”

6.5.3 Delete paragraph 6.5.3 in its entirety and replace with the following:

If the *Contractor* is delayed in the performance of the *Work* by *Force Majeure*, then the *Contract Time* shall be extended for such reasonable time as the *Consultant* may recommend in consultation with the *Contractor*. The extension of time shall not be less than the time lost as a result of the event causing the delay, unless the *Contractor* agrees to a shorter extension. The *Contractor* shall not be entitled to payment for costs incurred by such delays unless such delays result from the actions of the *Owner*.

Delete paragraph 6.5.4 in its entirety and replace with the following:

- 6.5.4 No extension or compensation shall be made for delay or impact on the *Work* unless notice in writing of a claim is given to the *Consultant* not later than ten (10) *Working Days* after the commencement of the delays or impact on the *Work*, provided however, that, in the case of a continuing cause of delay or impact on the *Work*, only one notice of claim shall be necessary.

Add new paragraphs 6.5.6, 6.5.7 and 6.5.8 as follows:

- 6.5.6 If the *Contractor* is delayed in the performance of the *Work* by an act or omission of the *Contractor* or anyone directly or indirectly employed or engaged by the *Contractor*, or by any cause within the *Contractor's* control, then the *Contract Time* may be extended for such reasonable time as the *Owner* may decide in consultation with the *Consultant* and the *Contractor*. The *Owner* shall be reimbursed by the *Contractor* for all reasonable costs incurred by the *Owner* as the result of such delay, including, but not limited to, the cost of all additional services required by the *Owner* from the *Consultant* or any sub-consultants, project managers, or others employed or engaged by the *Owner*, and in particular, the costs of the *Consultant's* services during the period between the date of *Substantial Performance of the Work* stated in Article A-1 herein, as the same may be extended through the provision of these General Conditions, and any later or actual date of *Substantial Performance of the Work* achieved by the *Contractor*.
- 6.5.7 Without limiting the obligations of the *Contractor* described in GC 3.2 – CONSTRUCTION BY OWNER OR OTHER CONTRACTORS or GC 9.4 – CONSTRUCTION SAFETY, the *Owner* or *Consultant* may, by notice in writing, direct the *Contractor* to stop the *Work* where the *Owner* or *Consultant* determines that there is an imminent risk to the safety of persons or property at the *Place of the Work*. In the event that the *Contractor* receives such notice, it shall immediately stop the *Work* and secure the site. The *Contractor* shall not be entitled to an extension of the *Contract Time* or to an increase in the *Contract Price* unless the resulting delay, if any, would entitle the *Contractor* to an extension of the *Contact Time* or the reimbursement of the *Contractor's* costs as provided in paragraphs 6.5.1, 6.5.2 or 6.5.3.
- 6.5.8 No claim for delay shall be made and the *Contract Time* shall not be extended due to climatic conditions or arising from the *Contractor's* efforts to maintain the *Contract* schedule.

## **GC 6.6 CLAIMS FOR A CHANGE IN THE CONTRACT PRICE**

Delete GC 6.6 in its entirety.

## **GC 7.1 OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK OR TERMINATE THE CONTRACT**

Revise the heading to read **“OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK, SUSPEND THE WORK OR TERMINATE THE CONTRACT”**

- 7.1.2 Add the following after substantial degree: “, or the Contractor fails to conform to any relevant federal, provincial, or municipal law, regulation, by-law or other requirement, including, without limitation, any applicable health and safety act or regulation,

Add a new subparagraph 7.1.3.4 as follows:

- 7.1.3.4 An “acceptable schedule” as referred to in subparagraph 7.1.3.2. means a schedule approved by the *Consultant* and the *Owner* wherein the default can be corrected within the balance of the *Contract Time* and shall not cause delay to any other aspect of the *Work* or the work of other contractors, and in no event shall it be deemed to give a right to extend the *Contract Time*.

7.1.4.1 Delete sentence and replace with the following:

Correct such default and deduct the cost, including *Owner's* expenses, thereof from any payment then or thereafter due the *Contractor*.

7.1.5.3 In subparagraph 7.1.5.3 delete the words: “however, if such cost of finishing the *Work* is less than the unpaid balance of the *Contract Price*, the *Owner* shall pay the *Contractor* the difference;”

Delete paragraph 7.1.6 in its entirety and add 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 Contract set out herein, the *Owner* may terminate this *Contract* at any time for any other reason and without cause upon giving the *Contractor* fifteen (15) *Working Days' Notice in Writing* to that effect. In such event, the *Contractor* shall be entitled to be paid for all *Work* performed including reasonable profit, for loss sustained upon *Products* and *Construction Equipment*, and such other damages as the *Contractor* may have sustained as a result of the termination of the *Contract*, but in no event shall the *Contractor* be entitled to be compensated for any loss of profit on unperformed portions of the *Work*, or indirect, special, or consequential damages incurred.

7.1.7 The *Owner* may suspend *Work* under this *Contract* at any time for any reason and without cause upon giving the *Contractor Notice in Writing* to that effect. In such event, the *Contractor* shall be entitled to be paid for all *Work* 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 *Products* and *Construction Equipment*, and such other damages as the *Contractor* may have sustained as a result of the suspension of the *Work*, but in no event shall the *Contractor* 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 *Contract* shall be deemed to be terminated and the provisions of paragraph 7.1.6 shall apply.

7.1.8 In the case of either a termination of the *Contract* or a suspension of the *Work* under GC 7.1 - OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK, SUSPEND THE WORK, OR TERMINATE THE CONTRACT or GC 7.2 - CONTRACTOR'S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT, the *Contractor* shall use its best commercial efforts to mitigate the financial consequences to the *Owner* arising out of the termination or suspension, as the case may be.

7.1.9 Upon the resumption of the *Work* following a suspension under GC 7.1 - OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK, SUSPEND THE WORK OR TERMINATE THE CONTRACT or GC 7.2 - CONTRACTOR'S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT, the *Contractor* will endeavour to minimize the delay and financial consequences arising out of the suspension.

7.1.10 The *Contractor's* obligations under the *Contract* as to quality, correction, and warranty of the *Work* performed by the *Contractor* up to the time of termination or suspension shall continue after such termination of the *Contract* or suspension of the *Work*.

**GC 7.2 CONTRACTOR'S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT**

7.2.2 Add after the words “public authority” in the second line of paragraph 7.2.2. “...which is not a Force Majeure event...”.

7.2.3.1 Delete subparagraph 7.2.3.1 in its entirety.

7.2.3.4 In subparagraph 7.2.3.4, delete the words "except for GC 5.1 - FINANCING INFORMATION REQUIRED OF THE OWNER".

Renumber paragraph 7.2.5 as paragraph 7.2.6. Add a new paragraph 7.2.5 as follows:

- 7.2.5 If the default cannot be corrected within the 5 *Working Days* specified in paragraph 7.2.4, the *Owner* shall be deemed to have cured the default if it:
- .1 commences correction of the default within the specified time;
  - .2 provides the *Contractor* with an acceptable schedule for such correction; and,
  - .3 completes the correction in accordance with such schedule.

Delete paragraph 7.2.6 entirely and replace with the following:

- 7.2.6 If the *Contractor* terminates the *Contract* under the conditions described in GC 7.2 – CONTRACTOR’S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT, the *Contractor* shall be entitled to be paid for all *Work* performed to the date of termination, as determined by the *Consultant*. The *Contractor* shall also be entitled to recover the direct costs associated with termination, including the costs of demobilization and losses sustained on *Products* and *Construction Equipment*. The *Contractor* shall not be entitled to any recovery for any special, indirect or consequential losses, including loss of profit.

Add new paragraphs 7.2.7, 7.2.8 and 7.2.9 as follows

- 7.2.7 The *Contractor* shall not be entitled to give notice of the *Owner*’s default or terminate the *Contract* in the event the *Owner* withholds certificates or payment or both in accordance with the *Contract* because of:
- (a) the *Contractor*’s failure to pay all legitimate claims promptly, or
  - (b) the failure of the *Contractor* to discharge construction liens which are registered against the title to the *Place of the Work*.
- 7.2.8 The *Contractor*’s obligations under the *Contract* as to quality, correction and warranty of the *Work* performed by the *Contractor* up to the effective date of termination shall continue in force and shall survive termination by the *Contractor* in accordance with paragraph 7.2.4.
- 7.2.9 If the *Contractor* suspends the *Work* or terminates the *Contract* as provided for in GC 7.2 – CONTRACTOR’S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT, the *Contractor* shall ensure the site and the *Work* are left in a safe, secure condition as required by authorities having jurisdiction at the *Place of the Work* and the *Contract Documents*.

## **GC 8.1 AUTHORITY OF THE CONSULTANT**

- 8.1.1 Add to line 3, prior to "findings", the words "interpretation and".

## **GC 8.2 NEGOTIATION, MEDIATION AND ARBITRATION**

- 8.2.1 Amend paragraph 8.2.1 by adding to the beginning “Except for those disputes enumerated in Paragraph 8.2.7 below”, and changing part of the second line from “shall appoint a *Project Mediator*” to “may appoint a *Project Mediator*, except that such an appointment shall only be made if both the *Owner* and the *Contractor* agree.”
- 8.2.4 Amend paragraph 8.2.4 by changing part of the second line from “the parties shall request the *Project Mediator*” to “and subject to paragraph 8.2.1 the parties may request the *Project Mediator*”.

Delete paragraphs 8.2.6, 8.2.7 and 8.2.8 in their entirety.



Add new paragraph 8.2.6 as follows:

- 8.2.6 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 *Contractor* and the *Owner* agree. If the *Contractor* and the *Owner* agree to resolve the dispute by arbitration, the arbitration shall be conducted in the jurisdiction of the *Place of the Work*.

Add new paragraphs 8.2.7, 8.2.8, 8.2.9, 8.2.10, 8.2.11, 8.2.12, and 8.2.13 as follows:

- 8.2.7 Notwithstanding the foregoing, either the Contractor or the Owner may submit the following disputes to construction dispute interim adjudication (“Interim Adjudication”) as defined in Part II.1 of the Construction Act (Ontario) (the “Act”):
- 8.2.7.1 The valuation of services or materials provided under the Contract.
  - 8.2.7.2 Payment under the Contract, including in respect of a Change Order, whether approved or not, or a Contemplated Change Order.
  - 8.2.7.3 Disputes that are the subject of a notice of refusal to pay or non-payment under Part 5 hereof and/or Part I.1. (Prompt Payment) of the Act.
  - 8.2.7.4 Amounts retained under section 12 (set-off by trustee) or under subsection 17 (3) (lien set-off) of the Act.
  - 8.2.7.5 Payment of a holdback under section 26.1 (payment of holdback on annual basis) or 26.2 (payment of holdback on phased basis) of the Act.
  - 8.2.7.6 Non-payment of holdback by the Board under section 27.1 of the Act.
  - 8.2.7.7 Any other matter that the parties to the Interim Adjudication agree to in writing, or that may be prescribed by the Act.
- 8.2.8 An Interim Adjudication shall be conducted in accordance with the Act, the Regulations, and the following requirements:  
[NTD: Board to consider including any other requirements. ]
- 8.2.9 If the Owner or the Contractor (the “Initiating Party”) wish to refer a dispute to Interim Adjudication, it shall give to the other party (the “Responding Party”), the Consultant, and any other party required by the Act, written notice thereof, including the following:
- 8.2.9.1 the names and addresses of the parties;
  - 8.2.9.2 the nature and a brief description of the dispute, including details respecting how and when it arose;
  - 8.2.9.3 the nature of the redress sought; and
  - 8.2.9.4 the name of a proposed adjudicator to conduct the Interim Adjudication.
- 8.2.10 The Responding Party who receives from the Initiating Party notice of the referral of a dispute to Interim Adjudication, shall respond in writing in accordance with the Act. The Responding Party shall either confirm that the proposed adjudicator is acceptable or propose an alternative adjudicator. If the parties cannot agree to a proposed adjudicator within five (5) days of the delivery of the initial notice of the referral of the dispute to Interim Adjudication, then the parties shall ask the Authority under the Act to appoint one.
- 8.2.11 The adjudicator agreed upon by the parties (the “**Adjudicator**”) shall have the following powers:
- 8.2.11.1 Issuing directions respecting the conduct of the Interim Adjudication.
  - 8.2.11.2 Taking the initiative in ascertaining the relevant facts and law.
  - 8.2.11.3 Drawing inferences based on the conduct of the parties to Interim Adjudication.
  - 8.2.11.4 Conducting an on-site inspection of the Project.

- 8.2.11.5 Obtaining the assistance of a merchant, accountant, actuary, building contractor, architect, engineer or other person in such a way as the adjudicator considers fit, as is reasonably necessary to enable him or her to determine better any matter of fact in question.
- 8.2.11.6 Making a determination in the adjudication.
- 8.2.11.7 Any other power that may be prescribed.
- 8.2.12 If the Adjudicator requests an extension of the deadline for the Adjudicator's determination, the parties agree to grant the Adjudicator's request, provided that the deadline is not extended by more than fourteen days.
- 8.2.13 The parties agree that a determination by an Adjudicator shall be final and binding on each party and no party to an Interim Adjudication shall attempt to arbitrate, or otherwise contest, the determination under the provisions of Paragraphs 8.2.1 to 8.2.6 hereof, or through any other process, except in accordance with the Act.

## GC 9.1 PROTECTION OF WORK AND PROPERTY

Delete subparagraph 9.1.1.1 in its entirety and substitute the following:

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

Delete paragraph 9.1.2 in its entirety and substitute as follows:

- 9.1.2 Before commencing any *Work*, the *Contractor* shall determine the locations of all underground or hidden utilities and structures indicated in or inferable from the *Contract Documents*, or that are inferable from an inspection of the *Place of the Work* exercising the degree of care and skill described in paragraph 3.14.1.

Add new paragraph 9.1.5 as follows:

- 9.1.5 With respect to any damage to which paragraphs 9.1.3 or 9.1.4 apply, the *Contractor* 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 *Contractor*, without first consulting the *Owner* and receiving written instructions as to the course of action to be followed from either the *Owner* or the *Consultant*. Where, however, there is danger to life, the environment, or public safety, the *Contractor* shall take such emergency action as it deems necessary to remove the danger.

## GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES

Add a new subparagraph 9.2.5.5 as follows:

- 9.2.5.5 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.

- 9.2.6 Add the following to paragraph 9.2.6, after the word "responsible" in the second line:

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

- 9.2.8 Add the following to paragraph 9.2.8, after the word "responsible" in the second line:

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

Add new paragraphs 9.2.10 and 9.2.11 as follows:

- 9.2.10 The *Contractor*, *Subcontractors* and *Suppliers* shall not bring on to the *Place of the Work* any toxic or hazardous substances and materials except as required in order to perform the *Work*. 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 *Place of the Work*.

#### GC 9.4 CONSTRUCTION SAFETY

Delete paragraph 9.4.1 in its entirety and substitute as follows:

- 9.4.1 The *Contractor* shall be solely responsible for construction safety at the *Place of the Work* and for compliance with the rules, regulations, and practices required by the applicable construction health and safety legislation and shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the *Work*.

Add new paragraphs 9.4.2 to 9.4.10 as follows:

- 9.4.2 Prior to the commencement of the *Work*, the *Contractor* shall submit to the *Owner*:
- .1 the evidence of workers' compensation compliance required by GC 10.4.1;
  - .2 copies of the *Contractor's* insurance policies having application to the *Project* or certificates of insurance, at the option of the *Owner*;
  - .3 documentation setting out the *Contractor's* in-house safety programs;
  - .4 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 *Place of the Work*.
- 9.4.3 The *Contractor* shall indemnify and save harmless the *Owner*, 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 *Contractor* under the occupational health and safety legislation in force at the *Place of the Work* including the payment of legal fees and disbursements on a substantial indemnity basis.
- 9.4.4 The *Owner* 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 *Contractor* with respect to occupational health and safety and related matters.
- 9.4.5 If the *Owner* is of the reasonable opinion that the *Contractor* has not taken such precautions as are necessary to ensure compliance with the requirements of paragraph 9.4.1, the *Owner* may take any remedial measures which it deems necessary, including stopping the performance of all or any portion of the *Work*, and the *Owner* may use its employees, the *Contractor*, any *Subcontractor* or any other contractors to perform such remedial measures.

- 9.4.6 The *Contractor* shall file any notices or any similar document required pursuant to the *Contract* or the safety regulations in force at the *Place of the Work*. This duty of the *Contractor* will be considered to be included in the *Work* and no separate payment therefore will be made to the *Contractor*.
- 9.4.7 Unless otherwise provided in the *Contract Documents*, the *Contractor* shall develop, maintain and supervise for the duration of the *Work* 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 *Owner* and any workers' compensation or occupational health and safety statutes or regulations in force at the *Place of the Work*.
- 9.4.8 The *Contractor* shall provide a copy of the safety program described in paragraph 9.4.7 hereof to the *Consultant* for delivery to the *Owner* prior to the commencement of the *Work*, and shall, ensure, as far as it is reasonably practical to do so, that every employer and worker performing work in respect of the *Project* complies with such program.
- 9.4.9 The *Contractor* 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 *Place of the Work*, 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.
- 9.4.10 The *Contractor* shall promptly report in writing to the *Owner* and the *Consultant* all accidents of any sort arising out of or in connection with the performance of the *Work*, 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 *Contractor* to the *Owner* and the *Consultant* by telephone or messenger in addition to any reporting required under the applicable safety regulations.

## GC 10.1 TAXES AND DUTIES

- 10.1.2 Amend paragraph 10.1.2 by adding the following sentence to the end of the paragraph:

For greater certainty, the *Contractor* shall not be entitled to any mark-up for overhead or profit on any increase in such taxes and duties and the *Owner* shall not be entitled to any credit relating to mark-up for overhead or profit on any decrease in such taxes. The *Contractor* shall provide a detailed breakdown of additional taxes if requested by the *Owner* in a form satisfactory to the *Owner*.

Add new paragraph 10.1.3 as follows:

- 10.1.3 Where the *Owner* is entitled to an exemption or a recovery of sales taxes, customs duties, excise taxes or *Value Added Taxes* applicable to the *Contract*, the *Contractor* shall, at the request of the *Owner*, 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 *Owner*. The *Contractor* agrees to endorse over to the *Owner* any cheques received from the federal or provincial governments, or any other taxing authority, as may be required to give effect to this paragraph.

## GC 10.2 LAWS, NOTICES, PERMITS, AND FEES

- 10.2.2 Change "The *Owner*" to read "The *Contractor*", in the first line.
- 10.2.5 Amend paragraph 10.2.5 by addition the words "Subject to paragraph 3.4" at the beginning of the paragraph. Add the following to the end of the second sentence:

...and no further *Work* on the affected components of the *Contract* shall proceed until these directives have been obtained by the *Contractor* from the *Consultant*.

10.2.6 Amend paragraph 10.2.6 by adding the following sentence to the end of the paragraph:

In the event the *Owner* suffers loss or damage as a result of the *Contractor's* failure to comply with paragraph 10.2.5 and notwithstanding any limitations described in paragraph 12.1.1, the *Contractor* agrees to indemnify and to hold harmless the *Owner* and the *Consultant* from and against any claims, demands, losses, costs, damages, actions suits or proceedings resulting from such failure by the *Contractor*.

Add new paragraph 10.2.8 as follows:

10.2.8 The *Contractor* shall furnish all certificates that are required or given by the appropriate governmental authorities as evidence that the *Work* as installed conforms with the laws and regulations of authorities having jurisdiction, including certificates of compliance for the *Owner's* occupancy or partial occupancy. The certificates are to be final certificates giving complete clearance of the *Work*, in the event that such governmental authorities furnish such certificates.

#### GC 10.4 WORKERS' COMPENSATION

10.4.1 Delete paragraph 10.4.1 and replace with the following:

Prior to commencing the *Work*, and with each and every application for payment thereafter, including the *Contractor's* application for payment of the holdback amount following *Substantial Performance of the Work* and again with the *Contractor's* application for final payment, the *Contractor* shall provide evidence of compliance with workers' compensation legislation in force at the *Place of the Work*, including payments due thereunder.

#### GC 11.1 INSURANCE

Delete entirety of general condition and CCDC 41 and replace with the following:

11.1 Without restricting the generality of GC 12 – INDEMNIFICATION, the *Contractor* shall provide, maintain, and pay for the insurance coverage specified in GC 11.1 – INSURANCE. Unless otherwise stipulated, the duration of each insurance policy shall be from the date of commencement of the *Work* until the expiration of the warranty periods set out in the *Contract Documents*. Prior to commencement of the *Work* and upon the placement, renewal, amendment, or extension of all or any part of the insurance, the *Contractor* shall promptly provide the *Owner* 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 amending endorsements.

##### .1 General Liability Insurance

General liability insurance shall be in the name of the *Contractor*, with the *Owner* and the *Consultant* named as additional insured, 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, *Subcontractors* and/or agents. The insurance coverage shall not be less than the insurance required by IBC Form 2100, or its equivalent replacement, 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 *Substantial Performance of the Work*, as set out in the certificate of *Substantial Performance of the Work*, on an ongoing basis for a period of 6 years following *Substantial Performance of the Work*. Where the *Contractor* maintains a single, blanket policy, the addition of the *Owner* and the *Consultant* is limited to liability arising out of the *Project* and all operations

necessary or incidental thereto. The policy shall be endorsed to provide the *Owner* with not less than 30 days' notice, in writing, in advance of any cancellation and of change or amendment restricting coverage.

## **.2 Automobile Liability Insurance**

Automobile liability insurance in respect of licensed vehicles shall have limits of not less than \$2,000,000.00 inclusive per occurrence for bodily injury, death and damage to property, covering all licensed vehicles *owned* or leased by the *Contractor*, and endorsed to provide the *Owner* with not less than 30 days' notice, in writing, in advance of any cancellation, change or amendment restricting coverage. Where the policy has been issued pursuant to a government-operated automobile insurance system, the *Contractor* shall provide the *Owner* with confirmation of automobile insurance coverage for all automobiles registered in the name of the *Contractor*.

## **.3 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 insured. 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 insured, 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.

#### **.4 Contractors' Equipment Insurance**

"All risks" contractors' equipment insurance covering construction machinery and equipment used by the *Contractor* for the performance of the *Work*, excluding boiler insurance, shall be in a form acceptable to the *Owner* and shall not allow subrogation claims by the insurer against 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. Subject to satisfactory proof of financial capability by the *Contractor* for self-insurance of his equipment, the *Owner* agrees to waive the equipment insurance requirement.

11.1.2 The *Contractor* shall be responsible for deductible amounts under the policies except where such amounts may be excluded from the *Contractor's* responsibility by the terms of GC 9.1 - PROTECTION OF WORK AND PROPERTY and GC 9.2 - DAMAGES AND MUTUAL RESPONSIBILITY.

11.1.3 Where the full insurable value of the *Work* is substantially less than the *Contract Price*, the *Owner* may reduce the amount of insurance required to waive the course of construction insurance requirement.

11.1.4 If the *Contractor* fails to provide or maintain insurance as required by the *Contract Documents*, then the *Owner* shall have the right to provide and maintain such insurance and provide evidence of same to the *Contractor*. The *Contractor* shall pay the costs thereof to the *Owner* on demand, or the *Owner* may deduct the amount that is due or may become due to the *Contractor*.

11.1.5 All required insurance policies shall be with insurers licensed to underwrite insurance in the jurisdiction of the *Place of the Work*.

#### **GC 11.2 CONTRACT SECURITY**

11.2.2 Delete paragraph after the word "provided" and replace with the following:

Such bonds shall be issued by an insurer licensed under the *Insurance Act* to write surety and fidelity insurance, which has been approved by the *Owner*, authorized to transact a business of suretyship in the province or territory of the *Place of the Work* and shall be maintained in good standing until the fulfillment of the *Contract*, including all warranty and maintenance periods set out in the *Contract Documents*.

Add new paragraph 11.2.3 as follows:

11.2.3 It is the intention of the parties that the performance bond shall be applicable to all of the *Contractor's* obligations in the *Contract Document* and, wherever a performance bond is provided with language which conflicts with this intention, it shall be deemed to be amended to comply. The *Contractor* represents and warrants to the *Owner* that it has provided its surety with a copy of the *Contract Documents* prior to the issuance of such bonds.

11.2.4 Add new paragraph 11.2.4 as follows:

The *Contractor* shall provide a Performance Bond in the amount of at least 50% of the total of the *Contract Price* plus the *Value Added Taxes* and a Labour and Material Payment Bond in the amount of at least 50% of the total of the *Contract Price* plus *Value Added Taxes*, which extends its protection to any *Subcontractors* supplying labour and materials to the *Work*, and guaranteeing the faithful performance of the *Contract*.

## GC 12.1 INDEMNIFICATION

Delete General Condition 12.1 – INDEMNIFICATION in its entirety and substitute as follows:

- 12.1.1 The *Contractor* shall indemnify and hold harmless the *Owner*, its parent, subsidiaries and affiliates, their respective partners, trustees, officers, directors, agents and employees and the *Consultant* 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 *Owner* 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 *Contractor*, its employees, agents, *Subcontractors*, *Suppliers* 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 *Work*, the *Owner’s* property or equipment, the *Contractor’s* property or equipment or equipment or property adjacent to the *Place of the Work* or death or injury to the *Contractor’s* personnel).
- 12.1.2 The provisions of GC 12.1 - INDEMNIFICATION shall survive the termination of the *Contract*, 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 *Work* shall constitute a waiver or release of any of the provisions of GC 12.1.

## GC 12.2 WAIVER OF CLAIMS

- 12.2.1 In the fourth line, add the words “claims for delay pursuant to GC 6.5 DELAYS” after the word “limitation”.  
Add the words “(collectively “Claims”)” after “*Substantial Performance of the Work*” in the sixth line.
- 12.2.1.1 Change the word “claims” to “Claims” and change the word “claim” to “Claim”.
- 12.2.1.2 Change the word “claims” to “Claims”.
- 12.2.1.3 Delete paragraph in its entirety.
- 12.2.1.4 Change the word “claims” to “Claims”.
- 12.2.2 Change the words “in paragraphs 12.2.1.2 and 12.2.1.3” to “in paragraph 12.2.1.2”. Change the word “claims” to “Claims” in both instances and change the word “claim” to “Claim”.
- 12.2.3 Delete paragraph in its entirety.
- 12.2.4 Delete paragraph in its entirety.
- 12.2.5 Delete paragraph in its entirety.
- 12.2.6 Change the word “claim” to “Claim” in all instances in the paragraph.
- 12.2.7 Change “The party” to “The *Contractor*”. Change the word “claim” to “Claim” in all instances in the paragraph.
- 12.2.8 Change “under paragraphs 12.2.1 or 12.2.3” to “under paragraph 12.2.1”. Change both instances of the words “the party” to “the *Contractor*”. Change the word “claim” to “Claim” in all instances in the paragraph.
- 12.2.9 Delete paragraph 12.2.9 in its entirety.
- 12.2.10 Delete paragraph 12.2.10 in its entirety.



## GC 12.3 WARRANTY

- 12.3.2 Delete from the first line of paragraph 12.3.2 the word, “The” and substitute the words “Subject to paragraph 3.4.1, the...”

Add new paragraphs 12.3.7 to 12.3.12 as follows:

- 12.3.7 Where required by the *Contract Documents*, the *Contractor* shall provide a maintenance bond as security for the performance of the *Contractor’s* obligations as set out in GC 12.3 WARRANTY.
- 12.3.8 The *Contractor* shall provide fully and properly completed and signed copies of all warranties and guarantees required by the *Contract Documents*, containing:
- .1 the proper name of the *Owner*;
  - .2 the proper name and address of the *Project*;
  - .3 the date the warranty commences, which shall be at the “date of *Substantial Performance of the Work*” unless otherwise agreed upon by the *Consultant* in writing.
  - .4 a clear definition of what is being warranted and/or guaranteed as required by the *Contract Documents*;
- and
- .5 the signature and seal (if required by the governing law of the *Contract*) of the company issuing the warranty, countersigned by the *Contractor*.
- 12.3.9 Should any *Work* 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.
- 12.3.10 The *Contractor* shall ensure that its *Subcontractors* are bound to the requirements of GC 12.3 – WARRANTY for the *Subcontractor’s* portion of the *Work*.
- 12.3.11 The *Contractor* shall ensure that all warranties, guarantees or other obligations for *Work*, services or *Products* performed or supplied by any *Subcontractor*, *Supplier* or other person in connection with the *Work* are obtained and available for the direct benefit of the *Owner*. In the alternative, the *Contractor* shall assign to the *Owner* all warranties, guarantees or other obligations for *Work*, services or *Products* performed or supplied by any *Subcontractor*, *Supplier* or other person in connection with the *Work* 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 *Owner* under the *Contract Documents*.
- 12.3.12 The *Contractor* shall commence or correct any deficiency within 2 Working Days after receiving a notice from the *Owner* or the *Consultant*, and shall complete the *Work* 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 *Owner* 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 *Contractor* fail to provide this emergency service within 8 hours of a request being made during the normal business hours of the *Contractor*, the *Owner* is authorized, notwithstanding GC 3.1, to carry out all necessary repairs or replacements at the *Contractor’s* expense.

## PART 13 OTHER PROVISIONS

Add new Part 13 OTHER PROVISIONS as follows:

### GC 13.1 OWNERSHIP OF MATERIALS

- 13.1.1 Unless otherwise specified, all materials existing at the *Place of the Work* at the time of execution of the *Contract* shall remain the property of the *Owner*. All *Work* and *Products* delivered to the *Place of the Work* by the

*Contractor* shall be the property of the *Owner*. The *Contractor* shall remove all surplus or rejected materials as its property when notified in writing to do so by the *Consultant*.

## GC 13.2 CONSTRUCTION LIENS

- 13.2.1 In the event that a claim for lien is registered against the *Project* by a *Subcontractor*, *Sub-subcontractor* or *Supplier*, and provided the *Owner* has paid all amounts properly owing under the *Contract*, the *Contractor* shall, at its own expense:
- .1 within 10 calendar days, ensure that any and all claims for lien and certificates of action are discharged, released, or vacated by the posting of security or otherwise; and
  - .2 in the case of written notices of lien, ensure that such notices are withdrawn, in writing.
- 13.2.2 In the event that the *Contractor* fails to conform with the requirements of paragraph 13.2.1, the *Owner* may fulfil those requirements without *Notice in Writing* to the *Contractor* and set off and deduct from any amount owing to the *Contractor*, all costs and associated expenses, including the costs of posting security and all legal fees and disbursements associated with discharging or vacating the claim for lien or certificate of action and defending the action. If there is no amount owing by the *Owner* to the *Contractor*, then the *Contractor* shall reimburse the *Owner* for all of the said costs and associated expenses.
- 13.2.3 Notwithstanding any other provision in the *Contract*, the *Consultant* shall not be obligated to issue a certificate and the *Owner* shall not be obligated to make payment to the *Contractor* if, at the time such certificate or payment was otherwise due:
- .1 a claim for lien has been registered against the *Project* lands, or
  - .2 if the *Owner* or mortgagee of the *Project* lands has received written notice of a lien, or
  - .3 the *Owner* or *Consultant* reasonably believe that any party has purported to retain title to *Products* or materials in respect of which an application for payment has been made.
- 13.2.4 Without limiting the foregoing, the *Contractor* shall, if requested by the *Owner*, defend, indemnify and save the *Owner* harmless from the amount of all such claims and the costs of defending any and all actions commenced against the *Owner* pursuant to the construction/builder's lien legislation in force at the *Place of the Work*, including the legal costs of the *Owner*, unless the lien was a direct result of a breach of the *Contract* by the *Owner* or the non-payment by the *Owner* of a valid charge or claim under the *Contract*.
- 13.2.5 GC 13.2 – CONSTRUCTION LIENS does not apply to construction/builder's liens claimed by the *Contractor*.

**END OF AMENDMENTS TO CCDC 2 - 2008**

## **PART 1 - GENERAL**

### **1.1 INSTRUCTIONS**

1. Comply with the Instructions to Bidders, the General Conditions of the Contract, the Supplementary Conditions and the General Requirements of Division 1.
2. **Painting Schedule:**
  - a) **Occupied Buildings: Painting shall only be completed when the schedule has been arranged and agreed to with Owner.**
  - b) **Unoccupied Buildings (New Construction): Painting can be completed as needed.**

### **1.2 SCOPE OF WORK**

1. The work in this division consists of furnishing all materials, accessories, equipment, tools, transportation and performing all services and labour required to complete the Painting and Coating Work for this job, all as indicated on the drawings and specified herein.
2. Refer to the drawings and specifications for information as to locations, extent, kinds and types of surfaces and materials required to be painted and/or otherwise finished. A complete job (in every respect) of Painting and Coating is required regardless of whether every item is specifically mentioned herein or not. The number of coats of paint or other finish specified herein are in addition to any shop or prime coat specified under other divisions and are the minimum requirements for a complete job.

#### **EXTERIOR**

- a) Metal doors and frames including the exposed steel lintel located at the head and as specified on drawings.
- b) Steel posts, columns, support framing and miscellaneous metals.

#### **INTERIOR**

- a) All block masonry surfaces exposed below the ceiling line, including acoustical wall units within the Gymnasium.
- b) All metal door frames, sidelight frames and metal window units.
- c) Exposed metal lintels, guards, railings, balusters, steel stairs, pipe railings, brackets, ladders, etc., exclusive of aluminium, brass and stainless steel.
- d) All gypsum board and plaster wall surfaces exposed below the ceiling line.
- e) All gypsum board, plaster and concrete ceiling surface areas.
- f) All ***painted*** wood bases, wood doors, wood frames, fixed millwork units, fixed shelving units and miscellaneous trim.
- g) All ***varnished or stained*** wood bases, wood doors, window frames, fixed millwork units, fixed shelving units, gymnasium bleachers, stage front, stage floor areas and miscellaneous trim.

- h) Interior steel window sash units including lintel head.
- i) Exposed steel joist, metal deck, beams and miscellaneous metals.
- j) Glazed concrete block walls located within corridors, washrooms, dressing rooms, gymnasiums, and all room areas.
- k) Accent colour walls and accent colour band strips to be completed in room locations identified on the drawings.
- l) Exposed mechanical ductwork, convector covers, wall fin enclosure covers, grilles and registers.
- m) Exposed electrical conduits, electrical heating units, wall mounted electrical panel units and electrical panel covers.

### **1.3 CONTRACTOR QUALIFICATIONS**

1. Work of this trade shall be executed by a company with a minimum of five (5) years proved first class experience in this field, having skilled personnel to expediently complete the work in an efficient and workmanlike manner.

### **1.4 EXISTING PAINT PRECAUTION**

1. This Contractor should be aware, that some existing paint may contain lead. If existing paint will be sanded, grinded, scraped or in any way disturbed, proper precautions in compliance with Ontario Regulation 536/81 as amended by O.Reg.23/87 must be taken.

### **1.5 PLANT AND SCAFFOLDING**

1. This Contractor shall provide all plant and scaffolding necessary for the proper and efficient performance of the work.
2. Construct and maintain scaffolding in a rigid, secure and safe manner.
3. Erect scaffolding independent of walls. Remove promptly when no longer required. Design and construct scaffolding in accordance with CSA S269.2-M1980 including all updated revisions.
4. Erect barriers or screens and post signs to warn of, limit or direct traffic away or around the work area as required.

### **1.6 PREPARATION**

1. Remove dust, grease, rust and extraneous matter from all surfaces and proceed with work only when surfaces and conditions are satisfactory for production of a first class job.
2. Touch up knots, pitch streaks and sappy spot with recommended sealer before priming.
3. Fill nail and screw holes, holes, cracks and other defects prior to the first coat, with non-shrinking filler, colour to match the finish. Bring filler flush with the adjoining surface.
4. Clean galvanized metal thoroughly with the proper cleaner suited for the type of material being used and apply the recommended primer.

5. Sand woodwork smooth. Clean surface before proceeding with the application of the first coat.
6. Protect all door hardware, marble sills, floors, existing millwork units, existing woodwork and ceiling areas (if not specified for refinishing), furniture, glass, etc., prior to the start of the painting application.
7. Coverage by means of tape is to be applied on all adjacent finishes and equipment. This also pertains to all associated labels. No paint shall cover equipment labels or stainless steel temperature sensor plates. Paint on temperature sensor plates acts as an insulator, giving false temperature readings.

**NOTE: IF THE ABOVE INSTRUCTIONS ARE NOT FOLLOWED, CONTRACTOR WILL BE NOTIFIED TO RETURN BACK TO THE SCHOOL FOR CLEAN UP OR BE BACK CHARGED BY THE BOARD.**

8. All paint, stain and varnish work shall be applied only by brush or roller.

**NOTE:** The only exceptions are:

- a) block filler application over new concrete block. This can be applied by spray and then block filler is to be worked in with a roller;
  - b) new acoustical concrete block (gymnasium walls) to receive spray application (total of three coats);
  - c) and textured (fine stone) wall panel units.
9. Do not paint or finish in unclean or improperly ventilated areas. Do not paint in temperatures lower than 50 degree F (10 degree C) or varnish in temperatures lower than 68 degrees F (20 degree C).
  10. Do not proceed until any or all corrections have been made (if required). Commencing work implies this Contractor's acceptance to the surfaces, spaces and items.
  11. Proper preparation to the floor surface must be done prior to any epoxy floor coating being applied. The minimum recommended preparation to the floor is to be a mechanical grind.

## **1.7 GENERAL REQUIREMENTS**

1. Number of coats specified for all work hereafter shall not relieve the Contractor from installing additional coats at his/her expense over any work deemed unacceptable for finished surfaces to various materials to be painted.
2. Where existing doors (interior or exterior) are being painted, stained, or varnished; cut-outs including the entire four (4) edges of each individual door will be completed to match the face and back's finish application.
3. Where existing fixed millwork and fixed shelving unit are being painted, stained, or varnished; tops, bottoms, sides, including projecting ledges, both above and below sight lines are to be completed to match the face's finish application.
4. All access doors, grilles, convectors, electrical light panels, exposed piping (be it mechanical or electrical) which does not have a factory finish will generally be painted the same colour and texture as adjacent walls.
5. **Materials shall be the products of Sherwin-Williams Paints, or equivalent, that conform to MPI Standards.**

6. Do not apply paint, stain or varnish finish in areas where dust is being generated.
7. **A written letter of Statement by the supplier must be given at the end of the project confirming all paints, stains and coatings were used and applied to the MPI Standards given within this specification and no alterations were made without proper approval by the Board's Representative.**
8. A minimum of three (3) site visits must be conducted by a representative from the supplier at the start, during and at the end of the project to ensure proper products were used and MPI Standards were met.

#### **1.8 MATERIAL DELIVERY AND STORAGE**

1. Upon delivery of material to site, the Contractor will be responsible for providing storage facilities in which all material must be placed in for protection against damage, vandalism, theft, etc.. Such storage facilities will be provided for the complete duration of the project. A CO<sub>2</sub> fire extinguisher with a minimum 20 lb capacity shall be kept in this area at all times.
2. Keep stored materials covered at all times and take all necessary precautions against fire. All oil, rags and waste shall be removed from the building every night.
3. Provide metal pans or adequate tarpaulin to protect floors in areas for mixing of paints along with protecting all areas which do not require painting, from paint spotting and other soiling during the painting process.

#### **1.9 COLOUR SCHEDULES**

1. The Board's Representative will prepare and issue a colour schedule prior to start-up of the project.
2. Commencing work before obtaining an approved colour schedule is at the Contractor's risk and any correction work will be at his/her expense.

#### **1.10 ACCENT COLOURS**

1. Some rooms will have one wall painted an accent colour. Refer to the drawings for locations.
2. Accent colour bands of two (2) colours which differ from the base wall colour are to be provided as requested. Refer to the drawings or finish schedule for location and clarification.

#### **1.11 SAMPLES**

1. **Prior to the start of any work, three (3) 12" x 12" drawdowns of each colour must be submitted to the board for approval by the Board's Representative.**
  - a) At minimum, the drawdown sample shall include a label indicating the colour name, job name, product code, paint formula, sheen, base and amount of lead in the paint.

#### **1.12 GUARANTEE**

1. Guarantee, in writing, all materials and workmanship for a period of ***two (2) years*** against peeling, discolouring and defects. The guarantee is to ***commence upon the date of substantial completion of the project.***

2. The contractor shall forward ALL of the required guarantees to the Board's Representative in order to receive final payment.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS GENERAL**

1. All paints including water based, oils, thinners, shellacs, etc. shall be based on MPI standards produced by manufacturer approved by the Board's Representative and their use and application shall be in strict accordance with manufacturer's instructions.
2. All materials on site will be in the original containers with labels intact.
3. Undercoats shall be compatible with the finish coats, based on MPI standards.
4. All paint used shall be in accordance with the Surface Coating materials Regulation SOR/2016-193 – Lead and Ontario Regulation 490/90 - Designated Substances. The amount of lead in the paint being used must be indicated on the drawdown label as per Section 1.11.

### **2.2 FLAME SPREAD RATING AND SMOKE DEVELOPED CLASSIFICATION**

1. The flame spread rating and smoke developed classification of finishing materials to comply with CAN4-S102, "Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies". Provide products that meet or exceed the classification rating of:

Flame Spread	5 or less
Smoke Developed	5 or less
Fuel Contributed	5 or less

### **2.3 MATERIALS - INTERIOR & EXTERIOR**

1. Metal Surfaces:
  - a) This Contractor shall paint all exposed ferrous metal work throughout the building (interior and exterior) to complete the Painting and Coating Work for this job, as indicated on the drawings and specified herein.
  - b) Generally the above work will have been given a prime coat. If the prime coat is found to be damaged, the contractor shall make good such portions of touching-up with identical prime coat specified above and shall have for interior or exterior application.
    - 1 coat of S-W Steel Spec Universal Metal Primer B50WV8430 "tinted Pink" (reference MPI #79)
    - 2 coats of Sherwin-Williams Alkyd Industrial Enamel B54WZ401 (reference MPI #48)
  - c) Hollow Metal Doors
    - i. New hollow metal doors and door frames shall receive three (3) coats consisting of:
      - 1 coat S-W Pro-Cryl Universal Primer B66W310 "tinted pink" (reference MPI #107)
      - 2 coats Sherwin-Williams Alkyd Industrial Enamel B54WZ401 (reference MPI #48)**NOTE:** Sand completely prior to the application of the three coat application.
    - ii. Existing hollow metal doors, door and window frames, including lintels, shall receive two (2) coats consisting of:
      - 2 coats Sherwin-Williams Alkyd Industrial Enamel B54WZ401 (reference MPI #48)

**NOTE:** Sand completely prior to the application of the two coat application.

- d) **New** interior and/or exterior metal lintels shall receive three (3) coats consisting of:  
- 1 coat of S-W Steel Spec Universal Metal Primer B50WV8430 “tinted Pink” (reference MPI #79)

- 2 coats of Sherwin-Williams Alkyd Industrial Enamel B54WZ401 (reference MPI #48)

**NOTE:** Sand completely prior to the application of the three coat application.

- e) **Exposed** mechanical ductwork, sprinkler piping in steel deck and open web steel joist shall receive one (1) coat consisting of:

- 1 coat Sherwin-Williams Acrylic Flat Dryfall B42W1 (reference MPI #155)

**NOTE:** Areas of the sprinkler piping, web joist, beams etc. that have rust present must be primed with:

- 1 coat of S-W Steel Spec Universal Metal Primer B50WV8430 “tinted Pink” (reference MPI #79)

- f) Items that have pre-finished paint application(s) do not require new paint application unless otherwise instructed by the Board’s Representative.

- g) **Exposed** electrical conduits, outlet boxes, fire hose cabinets, junction boxes, pull boxes, electrical heating units (such as baseboard heaters, cabinet convactor units and wall heater units), wall mounted electrical panel units and electrical panel covers shall receive three (3) coats consisting of:

- 1 coat of S-W Steel Spec Universal Metal Primer B50WV8430 “tinted Pink” (reference MPI #79)

- 2 coats S-W Multi Surface Acrylic Semi-Gloss B66W1551 (reference MPI #153)

**NOTE:** If any of the above noted electrical heating units **are not to be painted**, the painter must protect by means of paper or plastic sheet covering secured by such means to keep paint from being applied to these units. ***The factory grey primer does not apply in this case.*** Electrical conduits and boxes on finished walls surfaces to be painted with same wall finish coat to match.

## 2. Metal Surfaces (Aluminium & Galvanized):

### a) **Interior Aluminium & Galvanized Metals**

- i. Exposed Aluminium or Galvanized surfaces to be painted to receive cleaning as per paint manufactures specifications using Methyl Hydrate or equal water based cleaners.

Generally the above work will be given two (2) coats consisting of:

- 2 coats S-W Multi Surface Acrylic Semi-Gloss B66W1551 (reference MPI #153)

**(OR)**

Interior metal decking depending on location of metal

- 1 coat Sherwin Williams Acrylic Flat Dryfall B42W1 (reference MPI #155)

### b) **Exterior Aluminium & Galvanized Metals**

- i. Exposed Aluminium or Galvanized surfaces that are to be painted are to receive cleaning as per paint manufactures specifications using Methyl Hydrate or equal water based cleaners.

Generally the above work will be given two (2) coats consisting of:

- 2 coats S-W A-100 Exterior Acrylic Gloss A8WQ8151 (reference MPI #311)



3. Gypsum Board and Plaster Surfaces:

- a) **Existing** gypsum board and plaster surfaces with existing **alkyd** shall receive two (2) coats consisting of:
  - 2 coats S-W Multi Surface Acrylic Eggshell B66W1561 (reference MPI #151)
- b) **Existing** gypsum board and plaster surfaces with **water based** finishes shall receive two (2) coats consisting of:
  - 2 coats S-W ProMar 200 Eggshell Zero VOC B20W12651 (reference MPI #52)
- c) **Existing** gypsum board and plaster *surfaces (washrooms, corridors and custodial rooms only)* shall receive two (2) coats consisting of:
  - 2 coats S-W Multi Surface Acrylic Semi-Gloss B66W1551 (reference MPI #153)

**NOTE:** Additional coats may be needed if coating over top existing darker colours.
- d) **Existing** gypsum board and plaster **ceiling** surfaces shall receive two (2) coats consisting of:
  - 2 coats S-W ProMar 200 Flat Zero VOC B30W12651 (reference MPI #143)

**NOTE:** The above application strictly applies only to ceiling surfaces located within gymnasiums, auditoriums, stages, mechanical and electrical rooms.
- e) **New** gypsum board and plaster surfaces shall receive three (3) coats consisting of:
  - 1 coat S-W Promar 200 Zero VOC Primer B28WQ2600 (reference MPI #149)
  - 2 coats S-W ProMar 200 Eggshell Zero VOC B20W12651 (reference MPI #52)
- f) **New** gypsum board and plaster *surfaces (washrooms, corridors and custodial rooms only)* shall receive three (3) coats consisting of:
  - 1 coat S-W Promar 200 Zero VOC Primer B28WQ2600 (reference MPI #149)
  - 2 coats S-W ProMar 200 semi-gloss Zero VOC B20W12651 (reference MPI #52)
- g) **New** gypsum board and plaster **ceiling** surfaces shall receive three (3) coats consisting of:
  - 1 coat S-W Promar 200 Zero VOC Primer B28WQ2600 (reference MPI #149)
  - 2 coats S-W ProMar 200 Flat Zero VOC B30W12651 (reference MPI #143)

**NOTE:** The above application strictly applies only to ceiling surfaces located within gymnasiums, auditoriums, stages, mechanical and electrical rooms.

4. Steel Sash Window Unit Surfaces:

- a) All **new** steel sash mullions, muntins including entire perimeter frame units shall receive three (3) coats consisting of:
  - 1 coat of S-W Steel Spec Universal Metal Primer B50WV8430 “tinted Pink” (reference MPI #79)
  - 2 coats of Sherwin-Williams Alkyd Industrial Enamel B54WZ401 (reference MPI #48)

**NOTE:** Additional coats may be needed if coating over top existing darker colours.
- b) All **existing** steel sash mullions and muntins including entire perimeter frame units shall receive two (2) coats consisting of:
  - 2 coats of Sherwin-Williams Alkyd Industrial Enamel B54WZ401 (reference MPI #48)

**NOTE:** Additional coats may be needed if coating over top existing darker colours.

5. Wood Surfaces:

- a) **Existing painted** wood doors, wood frames, wood base, painted wood window trim, fixed painted wood millwork units and fixed painted wood shelving units shall receive three (3) coats consisting of:

- 1 coat S-W Multi-Purpose Latex Primer B51WQ4060 (reference MPI #6)
- 2 coats S-W Multi Surface Acrylic Semi-Gloss B66W1551 (reference MPI #153)

**NOTE:** A third coat may be needed if coating over top existing darker colours. Sand/scrape completely prior to the application of the three coat application.

- b) **Existing varnished** wood doors, wood frames, wood window trim, fixed wood millwork units and fixed wood shelving units, gymnasium bleachers, stage floor, and gymnasium stage front to receive **varnished finish**, shall receive two (2) coats consisting of:

- 2 coats Minwax Polyurethane Clear Gloss. (reference MPI #56)

**Any new wood surfaces will require a seal coat consisting of:**

- 1 coat Minwax Performance Series Sanding Sealer (reference MPI #102)

**NOTE:** Sand completely prior to the application of the four coat application.

- c) **Existing stained** wood doors, wood frames, wood window trim, fixed wood millwork units, fixed wood shelving units, gymnasium bleachers, stage floor, and gymnasium stage front to receive **stained finish**, shall receive two (2) coats consisting of:

- 2 coats Minwax Polyurethane Clear Gloss. (reference MPI #56)

**NOTE:** Sand completely prior to the application of the five application.

**Any new wood surfaces that requires a stain finish prior to top coat must have the following:**

- 1 coat Minwax Interior Oil Based Stain (reference MPI #90)
- 1 coat Minwax Performance Series Sanding Sealer (reference MPI #102)

6. Masonry Surfaces:

- a) **Existing** precast or poured concrete wall surfaces or concrete block masonry with an **alkyd/oil based** finish present shall receive two (2) coats consisting of:

- 2 coats S-W Multi Surface Acrylic Eggshell B66W1561 (reference MPI #151)

**NOTE:** Additional coats may be needed if coating over top existing darker colours.

- b) **Existing** precast or poured concrete wall surfaces or concrete block masonry shall receive two (2) coats consisting of:

- 2 coats S-W ProMar 200 Eggshell Zero VOC B20W12651 (reference MPI #52)

- c) **Existing** precast or poured concrete wall surfaces or concrete block masonry (**washrooms, corridors & custodial rooms only**) with an **alkyd/oil based** finish present shall receive two (2) coats consisting of:

- 2 coats S-W Multi Surface Acrylic Semi-Gloss B66W1551 (reference MPI #153)

**NOTE:** Additional coats may be needed if coating over top existing darker colours.

- d) **Existing** precast, poured concrete wall surfaces or concrete block masonry (**washrooms, corridors & custodial rooms only**) shall receive two (2) coats consisting of:

- 2 coats S-W Multi Surface Acrylic Semi-Gloss B66W1551 (reference MPI #153)

- e) **Existing glazed** precast or poured concrete wall surfaces or concrete block masonry shall receive two (2) coats consisting of:

- 2 coats S-W Multi Surface Acrylic Eggshell B66W1561 (reference MPI #151)

- f) **New** precast or poured concrete wall surfaces or concrete block masonry shall receive three (3) coats consisting of:
  - 1 coat S-W Int/Ext Acrylic Block Filler B42W150 “tinted pink” (reference MPI #4)
  - 2 coats S-W ProMar 200 Eggshell Zero VOC B20W12651 (reference MPI #52)
- g) **New** precast or poured concrete wall surfaces or concrete block masonry (**washrooms, corridors & custodial rooms only**) shall receive three (3) coats consisting of:
  - 1 coat S-W Int/Ext Acrylic Block Filler B42W150 “Tinted Pink” (reference MPI #4)
  - 2 coats S-W ProMar 200 Semi-Gloss Zero VOC B31W2651 (reference MPI #43)
- h) Exterior applied textured (fine stone) surface wall panels; precast panels and cement plaster soffits shall receive three (3) coats consisting of:
  - 1 coat S-W Int/Ext Acrylic Block Filler B42W150 “Tinted Pink” (reference MPI #4)
  - 2 coats S-W A-100 Exterior Acrylic Flat A6WQ8151 (reference MPI #311)

7. Concrete Floors:

- a) Concrete floors that are to receive an epoxy finish is to have cured for a minimum of 30 days. The concrete shall receive two (2) coats consisting of:
  - 2 coats S-W ArmorSeal Tread Plex B90W111 (reference MPI #60)

**NOTE:** As stated in section 1.5.11, Proper preparation to the floor surface must be done prior to any epoxy floor coating being applied. The minimum recommended preparation to the floor is to be a mechanical grind.

## **PART 3 - EXECUTION**

### **3.1 INSPECTION OF SURFACES**

- 1. Examine the work of others prior to the application of any paint or finishing material. If any surface to be finished cannot be put in proper condition for finishing by customary cleaning, sanding and puttying operations, notify the General Contractor or the Board’s Representative immediately in writing.
- 2. **Do not proceed with finishing until surface is acceptable. Application of paint or finish to the surface constitutes acceptance of the surface.**

### **3.2 WORKMANSHIP GENERAL**

- 1. The Contractor shall protect his/her work at all times and shall protect all adjacent work and materials included glass, aluminium surfaces, etc. by suitable covering or other method during progress of his/her work.
- 2. Remove and protect hardware, accessories, device plates, lighting fixtures, factory finished work and similar items or provide ample in-place protection. Upon completion of each space, carefully replace all removed items.

3. Coverage by means of tape is to be applied on all adjacent finishes and equipment. This also pertains to all associated labels. No paint shall cover equipment labels or stainless steel temperature sensor plates. Paint on temperature sensor plates acts as an insulator, giving false temperature readings.

**NOTE: IF THE ABOVE INSTRUCTIONS ARE NOT FOLLOWED, CONTRACTOR WILL BE NOTIFIED TO RETURN BACK TO THE SCHOOL FOR CLEAN UP OR BE BACK CHARGED BY THE BOARD.**

4. All materials shall be applied under adequate illumination, evenly spread and flowed-on smoothly to avoid runs, sags, brush marks, air bubbles and excessive roller stipple.
5. Coverage and hide shall be complete. When colour, stain, dirt or undercoats show through final coat of paint, the surface shall be covered by additional coats until the paint film is of uniform finish, colour, appearance and coverage, at no additional cost to the Board.
6. All suction spots or "hot spots" in plaster and/or cement after the application of the first coat shall be touched up before applying the second coat.
7. Apply all finishes in accordance with **MPI Standards**.

### **3.3 PREPARATION OF SURFACES**

#### **1. General:**

- a) Surfaces shall be clean, dry and adequately protected from dampness.
- b) Surfaces shall be free of any foreign materials which will adversely affect adhesion or appearance of applied coating.
- c) Mildew shall be removed and the surface neutralized per the coating manufacturer's recommendations.
- d) Efflorescence on any area will be corrected before painting.
- e) Remove doors if necessary to finish top and bottom edges.
- f) Do all necessary puttying of nail holes and cracks after first coat.
- g) Clean all mortar from surfaces of block masonry.

#### **2. Wood Surfaces:**

- a) Sand smooth wood surfaces to be painted or varnished or stained. Clean surfaces from all sanding before applying first coat, sand and clean between succeeding coats.
- b) Apply wood paste filler to nail holes. Tint filler to match stain for stained woodwork.

#### **3. Gypsum Board and Plaster:**

- a) Remove dust, wax, grease, damaged and unsound gypsum board or plaster prior to painting.
- b) Fill all minor irregularities with a packing paste and sand to a smooth, level surface. Exercise care to avoid raising nap of paper on gypsum board. Ensure all joint treatment has thoroughly cured.
- c) Damaged and unsound gypsum board or plaster is to be cut-out completely leaving all edges squared to received new matching material. New plaster repairs shall consist of a three (3) coat application prior to receiving paint.
- d) Prepare wallboard surfaces to **MPI Standards**.

4. Ferrous Metal Surfaces:

- a) Remove dirt and grease with mineral spirits and wipe dry with clean cloths.
- b) Remove rust, mill scale and defective paint down to sound surfaces or bare metal using scraper, sandpaper or wire brush as necessary. Grind, disc sand, etc., if necessary to remove shoulders at edge of sound paint to prevent them from photographing through finish coats.
- c) Touch up all bare metal and damaged shop coats with specified shop coat primer.
- d) For ferrous surfaces with shop coats touched up, as above required, the first coat as listed in the following schedule will be applied to the dry nil film thickness specified.
- e) Painting shall conform to **MPI Standards**.

5. Galvanized Metal Surfaces:

- a) Remove dirt and grease with Methyl Hydrate and wipe dry with clean clothes.
- b) **Painting shall conform to MPI Standards.**

6. Concrete and Masonry:

- a) Patch large openings and holes and finish flush with adjacent surface. After priming, fill any remaining small holes with prepared patching material.
- b) Remove form oil from poured-in-place concrete by washing concrete with xylol or exempt-type form oil solvent, or as required for complete removal.  
**NOTE:** This also applies to the preparation of concrete floor surfaces.

### 3.4 WORKMANSHIP FOR EXTERIOR PAINTING

- 1. Exterior painting shall not be done when the surface temperature is below 50 degrees F (10 degrees C), while the surface is damp, or during cold, rainy or frosty weather. The substrate temperature must be 5 degrees F. or more above the dew point temperature while painting and during the coatings cure. Avoid painting surfaces while they are exposed to hot sun.
- 2. Paint tops, edges and bottoms of doors the same as exterior faces.

### 3.5 WORKMANSHIP FOR INTERIOR PAINTING

1. Enamel finish applied to metal shall be sanded with fine sandpaper and then cleaned between coats to produce an even surface.
2. Interior doors shall have tops, bottoms and edges finished to match exterior faces.

### **3.6 PAINTING APPLICATION**

1. Painting and coating materials shall be mixed and applied in accordance with the manufacturer's directions for the materials. Reducing when required shall be done in strict accordance with the recommendation of the manufacturer for the particular materials.
2. Employ skilled mechanics to ensure the very best workmanship. Materials to be applied by craftsmen experienced in the use of the specified product involved.
3. Apply all material under adequate illumination. Spread evenly and flow on smoothly without runs or sags.
4. All coats must be thoroughly dry before applying succeeding coats as per manufacturer's instructions.
5. Cover surfaces to be stained with a uniform coat and wipe off, if required.
6. Between coats, sand enamel and varnish finish applied to wood or metal with fine sandpaper and clean to produce an even, smooth finish.
7. Apply filler sealer and finish coats with roller to wall surfaces.
8. Where existing work is to be cut, patched or added to, all surfaces shall be painted or touched-up to match present work as closely as possible to the nearest natural break point. Existing work to be repainted shall be put into condition to provide proper adhesion to receive new paint coats.

### **3.7 FIELD QUALITY CONTROL / STANDARD OF ACCEPTANCE**

1. All surfaces, preparation and paint applications shall be inspected.
2. Painted interior surfaces shall be considered to lack uniformity and soundness if any of the following defects are apparent to the Painting Inspector:
  - a) brush / roller marks, streaks, laps, runs, sags, drips, heavy stippling, hiding or shadowing by inefficient application methods, skipped or missed areas, and foreign materials in paint coatings.
  - b) evidence of poor coverage at rivet heads, plate edges, lap joints, crevices, pockets, corners and re-entrant coatings.
  - c) damage due to touching before paint is sufficiently dry or any other contributory cause.
  - d) damage due to application on moist surfaces or caused by inadequate protection from the weather.
  - e) damage and/or contamination of paint due to blown contaminants (dust, spray paint, etc.).
3. Painted surfaces shall be considered unacceptable if any of the following are evident under final lighting source (including daylight) for interior surfaces:

- a) visible defects are evident on vertical surfaces when viewed at normal viewing angles from a distance of not less than 39" (1000 mm)
  - b) visible defects are evident on horizontal surfaces when viewed at normal viewing angles from a distance of not less than 39" (1000 mm)
  - c) visible defects are evident on ceiling, soffit and other overhead surfaces when viewed at normal viewing angles.
  - d) when the final coat on any surface exhibits a lack of uniformity of colour, sheen, texture, and hiding across full surface area.
4. Painted surfaces rejected by the inspector shall be made good at the expense of the Contractor. Small affected areas may be touched up; large affected areas or areas without sufficient dry film thickness of paint shall be repainted. Runs, sags or damaged paint shall be removed by scraper or by sanding prior to application of paint.

### **3.8 CLEAN-UP**

1. Upon completion of the work, the contractor shall make good any damage caused by failure to provide adequate protection of adjacent surfaces and equipment inclusive of removing all paint and varnish spots from floors, glass, labels and other surfaces.
2. The contractor shall also remove all rubbish, tarpaulins, scaffolds, ladders, paint brushes, trays and all empty and leftover paint cans including cleaning solvents completely off the site, leaving his/her part of the work in clean and orderly condition.
3. Do not wash tools in sinks or pour paint down the drain. Use buckets of water to clean tools. Final rinse can be done in a sink designated by owner.

**NOTE: IF THE ABOVE INSTRUCTIONS ARE NOT FOLLOWED, CONTRACTOR WILL BE NOTIFIED TO RETURN BACK TO THE SCHOOL FOR CLEAN UP OR BE BACK CHARGED BY THE BOARD.**

**END OF SECTION**





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**01 31 10-Project Coordination**

**1.1 SITE MEETINGS**

- .1 The General Contractor shall chair and convene a 'Job Site' meeting every two weeks.
- .2 Ensure that persons, whose presence is required, are present and that relative information is available to allow meetings to be conducted efficiently.
- .3 The General Contractor shall issue and review an updated construction schedule at the first meeting of each month for review at the job meeting.
- .4 The General Contractor shall record minutes of each meeting and promptly distribute copies to be received by all participants not later than seven days after meeting has been held. Distribute minutes of meetings to the Owner, all Consultants whether in attendance or not and all other present.

**1.2 SUPERVISION**

- .1 An experienced and qualified supervisor (construction superintendent) shall be full time present on the construction site. A working foreperson will not be acceptable. The supervisor shall not be changed without the Owner's/Consultant's approval.
- .2 Arrange for sufficient number of qualified assistants to the supervisor as required for the proper and efficient execution of the Work.

**1.3 PROJECT DOCUMENTATION**

- .1 The General Contractor shall issue inquiries on behalf of all trades to the Consultant in writing as a Request for Information (RFI).
- .2 The Consultant will review, respond and distribute as necessary to the sub consultants. All responses will be in the form of a Supplemental Instruction or Proposed Change or Change Directive in accordance with CCDC 2.
- .3 The General Contractor shall issue a Request for Cash Allowance accompanied by invoices or receipts for those identified items within the Cash Allowance. The Consultant shall issue a Cash Allowance Disbursement Authorization (CADA) signed by the General Contractor, Consultant and Owner. Only a fully executed CADA's will be approved for payment.

**END OF SECTION**



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**01 32 10-Project Progress**

**1.1 CONSTRUCTION SCHEDULE**

- .1 Submit in a format acceptable to the Consultant, a minimum of four (4) copies of Contractor's construction schedule prior to issuance of the first application for payment.
- .2 Set up format to permit plotting of actual construction progress against scheduled progress.
- .3 The Schedule shall show:
  - .1 Commencement and completion dates of Contract.
  - .2 Commencement and completion dates of construction stages/phases, if any.
  - .3 Commencement and completion dates of each trade. Major trades shall be further broken down as directed by Consultant; generally follow Specification format.
  - .4 Order and delivery dates for major or critical equipment.
  - .5 Critical dates for shop drawing/sample submissions.
  - .6 Inspection dates.
  - .7 Any other information relating to orderly progress of Contract, considered by Contractor or Consultant to be pertinent.
- .4 The schedule shall be updated and issued prior to or with each monthly application for payment. Failure to issue an updated schedule will delay approval of the monthly application for payment.

**1.2 PROGRESS RECORD**

- .1 Maintain on site, permanent written record of progress of work. Record shall be open to inspection by Consultant at all times and copy shall be furnished to Consultant upon request.
- .2 Record weather conditions, dates of commencement, progress etc. Particulars pertaining to erection and removal of forms, pouring of concrete, installation of roofing and other critical or major components as well as number of employees of various trades and type and quantity of equipment employed daily, shall be noted.
- .3 Display a copy of the construction schedule in the site office from start of construction to completion. Superimpose actual progress of work on schedule at least once a week.

### 1.3 RECORD DRAWINGS

- .1 Obtain and keep on site a complete and separate set of black line white prints.
- .2 Note clearly, neatly, accurately and promptly as the work progresses all architectural, structural, mechanical and electrical field changes, revisions and additions to the work and deviations from the Contract Documents.
- .3 Note accurate location, depth, position, size and type of concealed and underground services, both inside and outside, on record drawings.
- .4 Record drawings shall be available for review at each site meeting.
- .5 Refer to Section 01 77 00 for requirements on submission of As-Built drawings.

### 1.4 PRODUCT DELIVERY CONTROL

- .1 The Contractor shall issue a shop drawing schedule to the consultants that is all inclusive of Divisions of the specifications and required within the drawings. The dates of submittals shall correspond the time sensitive products required in order to maintain the schedule.
- .2 It is the responsibility of the Contractor to ensure that the supplier or distributor of materials specified or alternatives accepted, which is intended for use, has materials on the site when required. The Contractor shall obtain confirmed delivery dates from the supplier.
- .3 Provide equipment delivery schedule, co-ordinated with construction and submittals' schedule, showing delivery dates for major and/or critical equipment.
- .4 The Contractor shall contact the Consultant immediately upon receipt of information indicating that any material, item, will not be available on time, in accordance with the original schedule and similarly it shall be the responsibility of all sub-contractors and suppliers to so inform the Contractor.

**END OF SECTION**

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**01 33 00-Submittals**

**1.1 GENERAL**

- .1 Unless specified or directed otherwise, make all submissions to the Consultant.
- .2 Make all submissions required by the Contract Documents with reasonable promptness and in orderly sequence so as to cause no delay in the work.

**1.2 RELATED REQUIREMENTS**

- .1 Make the following submissions in accordance with requirements specified elsewhere:
  - .1 Applications for Progress Payment Section 00 81 00
  - .2 WSIB Certificates of Clearance Section 00 81 00
  - .3 Insurance Certificates Section 00 81 00
  - .4 Bonds Section 00 81 00
  - .5 Construction Schedule Section 01 32 10
  - .6 Equipment Delivery Schedule Section 01 32 10
  - .7 Purchase Order Documentation Section 01 32 10
  - .8 Waste Audit and Reduction Plans Section 01 41 00
  - .9 Maintenance and Operations Data Section 01 77 00
  - .10 Record Drawings Section 01 77 00
  - .11 Maintenance Materials Section 01 77 00

**1.3 SCHEDULE OF VALUES**

- .1 Submit schedule of values in accordance with requirements of GC 5.2, as amended, APPLICATIONS FOR PROGRESS PAYMENT.
- .2 Follow specifications table of contents as basis for degree of breakdown required. Show breakdown for different construction phases/stages if required by Consultant.
- .3 Break down the cost of large items of work as directed by Consultant.
- .4 Provide additional cost breakdown information as requested by Consultant.
- .5 Provide within the breakdown line items as follows:

- .1 As-built drawings Architectural – Structural-Civil
- .2 As-built drawings Mechanical
- .3 As-built drawings Electrical
- .4 Maintenance Manuals Architectural – Structural-Civil
- .5 Maintenance Manuals Mechanical
- .6 Maintenance Manuals Electrical
- .7 Final cleaning

#### 1.4 SCHEDULE OF SUBMITTALS

- .1 Within 15 days of submission of construction schedule submit a schedule of submittals for shop drawings, samples, lists of materials and other documentation requiring Consultant's review.
- .2 For each item requiring submission and review show anticipated date of submission and critical date for return of reviewed submission.
- .3 Design sequence of submissions to reflect requirements of construction schedule.
- .4 Allow 10 working days for Consultant's review of each submission. Stagger submissions to permit adequate review time for each item submitted. If several submissions are made at the time or within a short time of each other, indicate order of priority in which submissions should be reviewed. Multiple submissions may result in delays to processing of submissions.
- .5 Include sufficient time to permit corrections and re-submission, if necessary, without affecting construction schedule.

#### 1.5 SHOP DRAWINGS

- .1 Submit shop drawings required by Contract Documents, in accordance with requirements of GC 3.10 SHOP DRAWINGS the Amended General Conditions and the following:
  - .1 Shop drawings received without review stamps by the subtrade submitting and the General Contractor will be returned for resubmission.
  - .2 Shop drawings requiring stamped, dated and signed certification of a professional engineer received without such certification will be rejected and returned.
- .2 Prepare shop drawings in imperial or metric measurements to match that of the contract documents.

- .3 Unless otherwise directed by the Consultant, submit all shop drawing electronically in PDF format and one hard copy if so requested by the Consultant and/or Sub-Consultants.
- .4 After review Consultant will return to the Contractor a electronic version of the reviewed shop drawings. The Contractor shall distribute the reviewed shop drawing to the appropriate subtrade(s) and supplier(s).
- .5 Shop drawings which require the approval of a legally constituted authority having jurisdiction shall be submitted by Contractor to such authority for approval. Such shop drawings shall receive final approval of authority having jurisdiction before Consultant's final review.
- .6 No work requiring a shop drawing submission shall be commenced until the submission has received Consultant's final review. Do not use any shop drawing, erection drawing or setting drawing which does not bear the stamp and signature of the Consultant.
- .7 The Consultant's review 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 submitting same. This review shall not relieve the Contractor of his responsibility for meeting the requirements of the Contract Documents. The Contractor is responsible for dimensions to be confirmed and correlated at the job site for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of the work of all sub-trades.
- .8 The Consultant will review and return shop drawings in accordance with a Shop Drawings Schedule prepared by the Contractor and agreed upon at the commencement of the Work. The Contractor shall allow the Consultant a minimum of 10 Working Days to review shop drawings from the date of receipt, to the date of issuance, for return by post or courier, based upon a regular and reasonable flow of shop drawings. If the Consultant requires resubmission of the shop drawings, allow for an additional 10 Working Days review. If, at any time, the Contractor submits an unusually large number of shop drawings, such that the Consultant, within 3 Working Days of receipt of such shop drawings, will provide the Contractor with an estimate of the time necessary for processing. The Contractor shall periodically re-submit the Shop Drawings Schedule to correspond to changes in the construction schedule. The schedule re-submissions shall maintain the minimum 10 Working Days period for the Consultant's review.
- .9 Only shop drawings bearing the Consultant's shop drawing review stamp, date and initials, shall be used at the Place of Work or for the manufacture or fabrication of Products.
- .10 The review of shop drawings, by the Consultant, does not authorize a change in the Contract Price or Contract Time.

- .11 The Consultant will not approve payment for materials, equipment etc. that have yet to have reviewed shop drawings (not rejected and/or required re-submittal) that arrive, stored and/or are installed within the Place of the Work.

## 1.6 SAMPLES

- .1 Submit samples required by Contract Documents and as directed by the Consultant.
- .2 Unless indicated otherwise submit samples in duplicate.
- .3 Where colour selection is required, submit manufacturer's full colour range for specified product line. Photo copy or electronic colour samples are not acceptable.
- .4 Submit samples with identifying labels bearing material or component description, manufacturer's name and brand name, Contractor's name, project name, location in which material or component is to be used, and dated.

## 1.7 REQUESTS FOR SUBSTITUTIONS

- .1 A substitution, also known as an "alternate" or "equal" by a nontechnical party, is a product which the Contractor proposes to replace that which is specified within these contract documents.
- .2 No requests for substitutions, alternates or "equals" will be accepted on this project without the Consultant's express written approval prior to the tender close date. The Consultant is under NO obligation to review requests for substitution prior to the tender close date.
- .3 No requests for substitutions, alternates or "equals" will be accepted on this project without the Consultant's express written approval after the tender close date except as follows:
  - .1 Where a specified product has been removed from the market or has been altered significantly or renamed by the product manufacturer after the tender close date, a substituted product may be proposed by the Contractor provided it is accompanied by the following information for review by the Consultant:
    - .1 Cover Letter – written by the supplier/manufacturer identifying the reason for the request for substitution.
    - .2 Side-by-Side Comparison – showing how the requested substitution or alternate product compares to the original product. This comparison is meant to be an exact side-by-side comparison for ease of review by the Consultant and is to include all testing reports and documentation as was specified herein. Company brochures, data sheets, etc may be appended to the Side-by-Side Comparison but are not considered to be the comparison itself. Comparison will include compliance with the Building Code and



other Codes and Regulations governing the use and application of the product.

- .3 Cost Adjustment Proposal – all requests must be accompanied by a cost adjustment (ie credit, extra or cost neutral) value in dollars. The value is to include all work related to the substitution or alternate to complete the intent of the work of the original specified product.
- .4 Depending on the request, additional information, including testing or engineering (licenced in the Province of Ontario) may be required as follows:
  - .1 Re-Design and Documentation – provide documentation which clearly identifies how the work impacts the overall design intent, adjacent building systems, materials or other component(s). Engineering to facilitate the request for substitution may be required and the requirement for such information is to the sole discretion of the Consultant.
- .2 Where the Contractor is requesting a review of a substitution or alternate, which is not the result of the above exemption (item 1.7.3.1), the follow applies:
  - .1 The Consultant will reject the request in its entirety.
  - .2 Or, if the Consultant decides to undertake, at its sole and unfettered discretion, a review of the request, the Contractor will reimburse the Consultant for time required to conduct such review. Terms of reimbursement will be identified by the Consultant prior to any review and will include time, material and all resources required for the review. Undertaking a review is NO guarantee of acceptance of a requested substitution. The Consultant has full authority to reject, deny or otherwise not review any or all requests for substitution. Due to the amount of time required for building component and building analysis review, any delay caused by the review itself is the full responsibility of the Contractor. The Consultant makes no guarantee of timelines for review which depends on numerous factors outside of the Consultant's control.

#### END OF SECTION



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**01 41 00-Regulatory Requirements**

**1.1 PERMITS, LICENCES, FEES**

- .1 Comply with requirements of GC 10.2 and the Amended General Conditions.
- .2 Where permits, licences and inspection fees are required by authorities having jurisdiction for specific trade functions, they shall be obtained by the particular sub-trade responsible for that work.
- .3 Review building permit set with Consultant immediately following receipt of building permit and jointly determine whether or not changes to Contract are required.
- .4 Be responsible for ensuring that no work is undertaken which is conditional on permits, approvals, reviews, licences, fees, until all applicable conditions are met. No time extension will be allowed for delay in obtaining necessary permits.
- .5 Report to the Consultant in writing any condition which would prohibit granting of any permit or approval before work affecting such items is commenced.
- .6 Give notice of completion of project prior to occupancy, as required by applicable legislation.

**1.2 BUILDING CODE, BY-LAWS, REGULATIONS**

- .1 Carry out work in accordance with requirements of the Ontario Building Code, latest issue, including all amendments and revisions.
- .2 Comply with requirements, regulations and ordinances of other jurisdictional authorities.
- .3 Where it is necessary to carry out work outside property lines, such as sidewalks, paving or concrete curbs, comply with applicable municipal requirements.
- .4 Submit written notice to Consultant, of observed variance of Contract Documents from requirements of Building Code and authorities having jurisdiction. Assume responsibility for work known to be contrary to such requirements and performed without notifying Consultant.

**1.3 CONSTRUCTION SAFETY**

- .1 Be governed by pertinent safety requirements of Federal or Provincial Governments and of municipal bodies having authority, particularly the Ontario Construction Safety Act, and regulations of Ontario Ministry of Labour, and work in conjunction with proper safety associations operating under the authority of Ontario Worker's Compensation Act.
- .2 Do not, in the performance of the work, in any manner endanger the safety or unlawfully interfere with the convenience of the public.

- .3 Notify the Ontario Ministry of Labour of intended work of this Contact as required by the Occupational Health and Safety Act. A copy of the "Notice of Project" shall be submitted to Consultant and Owner.

#### 1.4 FIRE PROTECTION

- .1 Refer to technical sections of Specifications and Drawings for fire protection requirements.
- .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 to Consultant with evidence of compliance with project fire protection requirements.
- .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 rated door assemblies shall include doors, frame, anchors and hardware and shall bear label of fire rating authority showing opening classification and rating.
- .6 Materials having a fire hazard classification shall be applied or installed in accordance with fire rating authority's printed instructions.
- .7 Fire rated assemblies shall be constructed in accordance with applicable fire test report information issued by fire rating authority. Deviation from fire test report will not be allowed.
- .8 Construct fire separations as continuous, uninterrupted elements except for permitted openings. Extend fire rated walls and partitions from floor to underside of structural deck above.
- .9 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 and Consultant.

#### 1.5 HAZARDOUS MATERIALS

- .1 Comply with provisions of the Occupational Health and Safety Act as amended to include WHMIS (Workplace Hazardous Materials Information System).
- .2 Ensure that Material Safety Data Sheets (MSDS) are available on site prior to first delivery to site of any controlled material or substance.
- .3 Maintain on site for duration of Contact a hazardous materials log containing all required MSDS.
- .4 Log shall be open for inspection for Owner, Consultant and all personnel on site.

- .5      Ensure that workers are instructed in the purpose and content of MSDS.

**END OF SECTION**



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01 45 00-Quality Control

1.1 INDEPENDENT INSPECTION AND TESTING

- .1 Requirements specified herein apply to independent inspection and testing specified under technical Specification Sections, Divisions 2 to 33. Costs for independent inspection and testing services shall be paid by Contractor out of cash allowance carried in the contract.
- .2 Requirements specified herein do not apply to the following:
  - .1 Inspection and testing required by law, ordinances, rules, regulations and orders of public authorities.
  - .2 Testing, adjustment and balancing of mechanical and electrical systems and equipment.
  - .3 Inspection and testing performed exclusively for Contractor's convenience.
  - .4 Tests specified in Division 2 to 16 inclusive, to be included in Contract such as mill tests, certificates of compliance and testing to be carried out by Contractor under direction of Consultant.
- .3 Failures by independent inspection and testing agency to detect defective work or materials shall not in any way prevent later rejection, when a defect is discovered or shall it obligate Consultant for final acceptance.
- .4 Independent inspection and testing agency (hereinafter referred to as testing agency) is expected to do the following:
  - .1 Carry out inspection and testing functions to establish compliance with requirements of Contract Documents.
  - .2 Check work as it progresses and prepare reports stating results of tests and conditions. Work and state in each report whether specimens tested conform to requirements of Contract Documents, specifically noting deviations.
  - .3 Distribute reports as follows:

.1	Owner:	1 copy
.2	Consultant:	1 copy
.3	Sub-consultants affected:	1 copy
.4	Contractor:	2 copies
.5	Building Department:	1 copy
- .5 The testing agency is not authorized to amend or release any requirements of Contract Documents, nor to approve or accept any portion of work.
- .6 The Contractor shall do the following:

- .1 Notify testing agency minimum 48 hours in advance of operations to allow for assignment of personnel and scheduling of tests without causing delay in work.
- .2 Provide testing agency with access to work at all times.
- .3 Supply material samples for testing.
- .4 Supply casual labour and other incidental services required by testing agency.
- .5 Provide facilities for site storage of samples.
- .6 Make good work disturbed by testing agency.
- .7 When initial inspection and testing indicates non-compliance with Contract Documents, any subsequent re-inspection and retesting occasioned by non-compliance shall be performed by same testing agency and cost thereof borne by Contractor.

## 1.2 MOCK-UPS

- .1 Where required by Contract Documents construct mock-ups of work on site, in size and at location directed by Consultant.
- .2 Construct mock-ups prior to start of affected work. Work affected by mock-ups may not commence prior to acceptance of mock-up.
- .3 Construct mock-ups to include all related specified materials and workmanship. Make revisions as directed by Consultant, in accordance with intent of Contract Documents, until mock-ups are acceptable.
- .4 Mock-ups, reviewed and accepted by Consultant, shall become the standard of quality.
- .5 Mock-ups, by prior arrangement, may be incorporated into finished work if approved by Consultant.

## 1.3 TOLERANCES

- .1 Unless more stringent tolerances are required by a Section of the Specifications or a referenced standard, meet the following non-cumulative tolerances for installed work:
  - .1 "plumb" shall mean plumb within 1/4" in 10'-0" (6 mm in 3 m).
  - .2 "level" shall mean level within 1/4" in 10'-0" (6 mm in 3 m).
  - .3 "square" shall mean not in excess of 30 seconds less or more than 90E.



- .4 "straight" shall mean within 1/4" in 10'-0" (6 mm in 3 m) under a 10'-0" (3 m) straightedge.

#### 1.4 BUILDING ENVELOPE

- .1 Requirements specified herein apply to all elements of the exterior building envelope.
- .2 The continuity of air barrier/vapour retarder and insulation components is critical and must be maintained at all locations. Where different systems meet, ensure proper interface and continuity between adjacent components by implementing suitable construction sequences and by using compatible materials only.
- .3 Provide control joints in exterior building components of design and spacing which will permit expansion and contraction of components without causing distortion, failure of joint seals, undue stress, cracking, bowing or other defects detrimental to appearance and performance. Review design and location of control joints with Consultant prior to start of work and follow directions given by Consultant.
- .4 Anchor exterior cladding and glazing components to structure in manner suitable to accommodate structural deflection and creep. Design anchorage to withstand expected wind loads, positive and negative, in accordance with applicable regulations.
- .5 Ensure that air spaces within exterior building components are fire stopped in accordance with applicable regulations.
- .6 Ensure that air spaces on the outside of vertical air barrier/vapour retarder (walls) are constructed with adequate drainage provisions to the exterior.

#### 1.5 DRAINAGE

- .1 Layout and construct work to ensure that positive drainage is provided to roof drains, floor drains, site drains and catch basins, as set in their final position to prevent un-drained areas and ponding.
- .2 Ensure that allowable construction tolerances and structural deflection do not cause ponding of water.
- .3 Issue a written report to the Consultant prior to executing work affected, for areas that adequate drainage cannot be provided.

**END OF SECTION**



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**01 51 00-Temporary Facilities**

**1.1 GENERAL**

- .1 Provide all temporary facilities and controls required for the proper execution of the work.
- .2 Provide and maintain temporary systems in accordance with applicable regulations and requirements. Arrange for, obtain and pay for any permits required.

**1.2 TEMPORARY ELECTRICITY AND LIGHTING**

- .1 Provide temporary power, electrical lighting and sub-power system for use by all Sections.
- .2 Arrange, obtain and pay for service, including meter, of sufficient size to allow use of required tools and equipment and to ensure adequate lighting levels for the proper execution work.
- .3 Install and maintain temporary electrical systems in accord with Construction Safety Association's "Temporary Wiring Standards on Construction Sites", the Ontario Electrical Code and other authorities having jurisdiction.
- .4 The cost of electrical usage to be paid by the Owner.

**1.3 TEMPORARY HEATING**

- .1 The General Contractor shall provide all necessary heating, dehumidification etc. to areas as required to permit the installations of all materials and as required to maintain schedule and mandatory completion dates.
- .2 Furnish equipment, labour and hook-up to provide temporary heat as required for proper execution of work should the existing temporary heat not suffice.
- .3 Heat the enclosed building to minimum 15 degrees C at all times until taken over by Owner.
- .4 Provide all humidity control devices to achieve moisture levels in associated materials to permit installation in accordance with manufacturer's recommendations.
- .5 The use of propane or natural gas heaters of a type where the flame is not exposed is permitted. Open flame heaters are not permitted.
- .6 Uniformly distributes heat to avoid hot and cold areas and to prevent excessive drying.
- .7 The General Contractor shall pay for all charges for fuel.

#### **1.4 TEMPORARY VENTILATION**

- .1 Provide minimum 1 air change per hour for enclosed areas receiving architectural finishes.
- .2 Install adequate mechanical ventilation prior to commencement of work where hazardous or volatile adhesives, coatings or substances are used.
- .3 Do not allow excessive build-up of moisture inside building.

#### **1.5 TEMPORARY WATER**

- .1 Provide temporary clean and potable water supply, for use by all Sections.
- .2 General Contractor to pay for related charges.

#### **1.6 TEMPORARY SANITARY FACILITIES**

- .1 Provide toilet facilities, including hand wash facilities, for all personnel on site.
- .2 Keep facilities clean, sanitary and provided with required supplies at all times.
- .3 Comply with requirements of Ministry of Labour and Board of Health.
- .4 The use of the Owner washroom facilities is not permitted.

#### **1.7 TEMPORARY FIRST-AID FACILITIES**

- .1 Provide equipment and medical facilities as necessary to supply first-aid service to injured personnel in accordance with regulations of the Workmen's Compensation Act. Maintain facilities for duration of Contract.

#### **1.8 TEMPORARY FIRE PROTECTION**

- .1 Provide and maintain in proper working order fire extinguishers on each floor, prominently placed, until completion of work.
- .2 Fire extinguishers shall be minimum 9 kg 4A 60BC type or other as deemed necessary.
- .3 Where gas welding or cutting is to be done within 3 m or above combustible material, or above space that may be occupied by persons, interpose shields of non-combustible material. Tanks supplying gases for welding or cutting shall be placed at no greater distance from the work than is necessary and shall be securely fastened in an upright position. Such tanks shall be free from exposure to the sun or high temperature.
- .4 Coordinate welding and torch, etc. permits with the Owner.

### 1.9 TEMPORARY USE OF NEW PERMANENT SERVICE & EQUIPMENT

- .1 Do not use any new permanent service or equipment without Consultant's written approval.
- .2 Where permission is granted to use permanent services and equipment provide competent persons to operate services and equipment; inspect frequently and maintain facilities in proper operating condition at all times.
- .3 Permanent services and equipment shall be turned over to Owner in "as new" and perfect operating condition.
- .4 Use of permanent systems and equipment as temporary facilities shall not affect the warranty conditions and warranty period for such systems and equipment. Make due allowance to ensure that Owner will receive full benefits of equipment manufacturers warranty after project takeover.
- .5 The equipment manufacturer/warrantor shall inspect equipment and provide a written report of review.

### 1.10 CONSTRUCTION AIDS

- .1 Provide temporary stairs, railing guards, ladders, ramps etc. required for movement and placing of materials, equipment and personnel.
- .2 Provide mechanical hoisting equipment and fully qualified operators as required during construction.
- .3 Erect required scaffolding independent of walls, arranged to avoid interference with work of other Sections as much as possible.
- .4 Provide and maintain required shoring and bracing in accordance with Construction Safety Act and other applicable regulations.
- .5 Shoring and all false work over one tier in height shall be designed and shall bear the stamp of a registered professional engineer, having experience in this field.
- .6 The use of explosive power tools will not be permitted under any circumstances unless equipped with a device which positively prevents free flight of the stud.

### 1.11 BARRIERS

- .1 Protect public and workmen from injury.
- .2 Provide and maintain required hoardings, barricades, guardrails, and lights in accordance with applicable regulations.
- .3 Construction site fencing to be a pre-manufactured 6'-0" high metal fencing and/or 6'-0" high chain link fencing. **NOTE:** Construction fence to protect the Place of the Work complete with traffic gates for equipment/vehicle access.

- .4 Provide a temporary covered hoarding as required.

#### **1.12 TEMPORARY CONTROLS**

- .1 Provide protective coverings to protect work against damage caused by weather, including but not necessarily limited to rain, snow, ice, wind, frost and excessive heat.
- .2 Provide wind breaks and sun shades to allow proper setting and curing of cement type materials.
- .3 Protect building materials from freezing.
- .4 Prevent sprayed materials from contaminating air beyond application area, by providing temporary enclosures.
- .5 Cover or wet down dry materials and rubbish to prevent blowing dust and debris.
- .6 Prevent tracking of mud and dirt from site onto paved roads. Provide stabilized vehicle access/egress points, constructed of coarse granular material. Place additional granular materials as required to maintain access/egress points in proper working order. Clean mud and dirt from paved roads at end of each day by shovelling or sweeping and subsequent washing. Dispose of mud and dirt in a controlled disposal area.
- .7 Provide temporary vestibule/door enclosures as required to ensure the building security.

#### **1.13 PEST CONTROL**

- .1 Provide rodent control and other pest control programs during construction, in accordance with requirements of jurisdictional authorities.

#### **1.14 SIGNS**

- .1 Except as specified herein, do not erect any signs unless approved by Consultant.
- .2 Supply and erect signage related to safety for the place of the work or mandatory regulations notices.
- .3 Prior to commencement of work wherein hazardous or volatile cements, coatings, or substances are used, barricade entire area and post adequate number of warning signs.

#### **1.15 FIELD OFFICE AND SHEDS**

- .1 Except as specified herein, do not erect any signs unless approved by Consultant. Provide a temporary office as required for work, large enough to accommodate site administrative activities and site meetings, complete with light, heating and cooling

equipment to maintain 21C, ventilation, table and chairs. Do not store materials, tools, equipment in meeting areas; keep clean and tidy.

- .2 Provide temporary covers, sheds, and platforms of weatherproof construction as may be required for protection and preservation of materials, small tools, equipment etc.

#### 1.16 TEMPORARY SEDIMENT, DUST AND DRAINAGE CONTROL

- .1 Provide and maintain adequate temporary pumping and drainage systems to keep excavations and structures free of water. Prevent flow of surface water into excavations. Locate sumps away from foundations. Prevent pumped water from carrying soil in suspension in sufficient quantity to cause settlement of adjacent earth. Provide sufficient standby equipment to ensure continuity of pumping systems.

#### 1.17 EROSION AND SEDIMENTATION CONTROL

- .1 Control the drainage on the site to prevent flooding, erosion and run-off onto adjacent properties and road ways.
- .2 Dispose of water containing silt in suspension in accordance with requirements of jurisdictional authorities.
- .3 Determine and conform to sedimentation and erosion control requirements of jurisdictional authorities. Provide and maintain until completion of work or until directed by Consultant to be removed, sediment control devices at catch basins, drainage courses and at other locations on site as directed.
- .4 Provide storm drain inlet protection consisting of a sediment control barrier or an excavated ponding area around storm drain inlet or curb inlet; add bracing where necessary to withstand high flow volumes and depth. Inspect inlet protection after each rainfall and repair damage.
- .5 Sweep up accumulated sediment and dispose of in a controlled area. Remove inlet protection after area has been stabilized with permanent vegetation.
- .6 Sweep and wash adjacent roads daily of accumulated sediment from the activities of the Place of the Work.

**END OF SECTION**





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## 01 61 50-Project Requirements

### 1.1 PROJECT QUALITY

- .1 Products supplied for work shall be new and as far as possible and unless otherwise specified, of Canadian manufacture.
- .2 Materials used for temporary facilities are not required to be new, provided they are structurally sound and in suitable and safe operating condition.

### 1.2 STANDARDS AND TERMINOLOGY

- .1 Where a standard has been adopted by these Specifications, incorporate minimum requirements of such standard into the work. Where requirements of Specifications are more stringent than those of the standard, follow more stringent requirements.
- .2 References to standards, specifications, handbooks and manufacturer's catalogues refer to latest edition thereof and all amendments or revisions applicable at bid closing date, unless date suffix is included with document number.
- .3 Wherever words "acceptable", "approved", "satisfactory", "selected", "directed", "designated", "permitted", "inspected", "instructed", "required", "submit", or similar words or phrases are used in standards or elsewhere in Contract Documents, it shall be understood, that "by (to) the Consultant" follow, unless context provides otherwise.
- .4 Where the word "provide" is used in these Contract Documents, it shall be taken to mean "supply and install" unless specifically noted otherwise.

### 1.3 CERTIFICATION

- .1 Building materials, components and elements specified without the use of trade or proprietary names shall meet requirements specified.
- .2 If requested by Consultant, submit evidence of meeting requirements specified. Evidence shall consist of certification based on tests carried out by an independent testing agency.
- .3 Certifications based on previous tests for same materials, components or elements are acceptable. Certification shall be in form of written test reports prepared by testing agency.

### 1.4 AVAILABILITY AND SUBSTITUTIONS

- .1 Products which are specified by their proprietary names or by part or catalogue number form the basis of the Contract. No substitutes for these may be used without Consultant's approval in writing.

- .2 Where it is found that specified materials have become unavailable for incorporating into work, notify Consultant immediately of proposed substitution.
- .3 In order to substantiate equivalency of proposed materials, products or processes, submit samples, printed product descriptions, test data, installations, standards, certification, sample, guarantee/warranty forms, list of successful projects incorporating such proposals, and similar information requested by Consultant in accordance with Section 01 33 00 - Submittals.
- .4 Whenever a substitute is proposed, any change to contract price as a result of acceptance of proposed product shall include any adjustments to adjacent structure or space in order to accept minor differences in size or weight between proposed items and corresponding specified items.
- .5 Prevent any substitution or request for substitution from delaying construction progress in any way.
- .6 Requests for substitution resulting from failure to place orders in time will not be entertained. Be responsible for ordering products in time to ensure their required delivery; bearing all costs for failure to comply with these requirements.
- .7 Refer to also to Section 01 33 00 - Submittals.

#### **1.5 PRODUCT HANDLING AND STORAGE**

- .1 Package, crate and protect products during transportation to site to preserve their quality and fitness for the purpose intended.
- .2 Store products in original, undamaged condition with manufacturer's labels and seals intact until they are being incorporated into completed work.
- .3 Handle and store materials in accordance with manufacturer's and supplier's recommendations and so as to ensure preservation of their quality, appearance and fitness for work.
- .4 Arrange materials so as to facilitate prompt inspection, and remove faulty, damaged or rejected materials immediately from site.

**END OF SECTION**

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## 01 73 03-Execution Requirements

### 1.1 EXAMINATION

- .1 Examine the site, existing premises and surrounding areas and be fully informed as to the conditions and limitations under which the work has to be executed. Claims for additional costs will not be entertained with respect to conditions which could reasonably have been ascertained by an inspection prior to bid closing.
- .2 Prior to commencement of work the contractor shall make careful examination of previously executed work, existing conditions, levels, dimensions and clearances. Promptly advise Consultant of unsatisfactory preparatory work and substrate conditions; commencement of work implies acceptance of conditions.

### 1.2 PROTECTION

- .1 Ensure no damage is caused to existing adjacent structures, buildings, foundations, pavement, fences, curbs, grounds, plant, property, utilities, services, etc. finishes during the progress of Work. Repair and make good any damage caused at no extra cost to Owner to the complete satisfaction of the respective property owners and authorities having jurisdiction. Only trades specifically capable of performing the work will be allowed to make remedial or repair work.
- .2 Keep surfaces to receive finished flooring dry and free from oil and grease. Stockpiling of damp or wet building materials and use of mixing boxes or water buckets without protecting floors from moisture gain by approved means, is prohibited.
- .3 Keep municipal roads clean of mud and debris resulting from construction traffic.
- .4 Prevent soiling of pavement due to spillage, mixing of material or any other cause. Make good any damage caused.
- .5 Protect new work from damage with suitable protective coverings.
- .6 Protect the place of the work during periods of down time.

### 1.3 SERVICES AND UTILITY SYSTEMS

- .1 Consult with utility companies and other authorities having jurisdiction to ascertain the locations of existing services on or adjacent to site.
- .2 The location of the existing services, if shown on the Drawings, does not relieve the Contractor of his responsibility to determine the exact number and location of existing services.
- .3 Give proper notices for new services as may be required. Make arrangements with authorities and utilities for service connections required.

- .4 Pay any charges levied by utilities or authorities for work carried out by them in connection with this Contract, unless specified otherwise.
- .5 Operate and maintain all utility systems affected by work of this Contract, until the building or specific portions thereof have been accepted by the Owner.
- .6 Report existing unknown services encountered during excavation to Consultant for instructions; cut back and cap or plug unused services. Be responsible for the protection of all active services encountered and for repair of such services if damaged.

#### 1.4 SLEEVES, SUPPORTS AND FASTENERS

- .1 Unless specified in other Sections, furnish set and secure inserts, hangers, sleeves, fasteners, adhesives, anchors and other supports and fittings required for proper installation of work.
- .2 Use exposed metal fastenings and accessories of same texture, colour and finish as base metal on which they occur.
- .3 Select appropriate type of anchoring and fastening devices in sufficient quantity and in such a manner as to provide positive permanent anchorage of unit to be anchored in position. Keep exposed fasteners to a minimum, evenly spaced and neatly laid out.
- .4 Fasteners shall be of permanent type. Do not use wood plugs.
- .5 Fasteners which cause spalling or cracking of material to which anchorage is being made shall not be used.

#### 1.5 CONCEALMENT

- .1 Conceal ductwork, piping, conduit and wiring located in finished areas, in ceiling spaces and furred construction unless specifically noted to be exposed.
- .2 If any doubt arises as to means of concealment, or intent of Contract Documents in this connection, request clarification from Consultant before proceeding with portion of work in question.

#### 1.6 WORKMANSHIP

- .1 All work shall be carried out in accordance with the best trade practice, by mechanics skilled in the type of work concerned.
- .2 Products, materials, systems and equipment shall be applied, installed, connected, erected, used cleaned and conditioned in accordance with the applicable manufacturer's printed directions .
- .3 Where specified requirements are in conflict with manufacturer's written directions, follow manufacturer's directions, but inform Consultant in writing prior to

proceeding with affected work. Where specified requirements are more stringent than manufacturer's directions, comply with specified requirements.

### 1.7 LINES AND LEVELS

- .1 Verify all elevations, lines, levels and dimensions as indicated and report errors, any conflicts, or inconsistencies to the Consultant before commencing work or as soon as discovered.
- .2 Arrange to have building base lines laid out by an Ontario Land Surveyor.
- .3 Accurately layout work and establish lines and levels in accord with requirements of Contract Documents.
- .4 Set up, maintain and protect permanent reference points and provide general dimensions and elevations for all Sections of Work.

### 1.8 DIMENSIONS

- .1 Check and verify dimensions wherever referring to work. Dimensions, when pertaining to work of another Section, shall be verified with Section concerned. Details and measurements of work which is to fit or conform with work installed, shall be taken at site/.
- .2 Do not scale Drawings. If there is ambiguity, lack of information or inconsistency, immediately consult Consultant for directions. Be responsible for extra costs involved through the disregarding to this notice.
- .3 Walls, partitions and screens shall be considered as extending from floor to underside of structural deck unless specifically indicated otherwise on Drawings.

### 1.9 LOCATION OF FIXTURES

- .1 Locations of fixtures, apparatus, equipment, fittings, outlets, conduits, pipes and ducts shown or specified, but not dimensioned, shall be considered approximate.
- .2 Request from the Consultant to establish exact locations. Any re-locations caused by Contractor's failure to request direction from Consultant shall be done by Contractor at no extra cost. Where job conditions require reasonable changes in indicated locations and arrangements, make changes at no additional cost.
- .3 Conserve space and co-ordinate with work of other Sections to ensure that ducts, pipes, conduits and other items will fit into allocated wall and ceiling spaces, while ensuring adequate space for access and maintenance.

**END OF SECTION**



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**01 74 11-Cleaning**

**1.1 GENERAL**

- .1 Be responsible for cleanliness of assigned work areas to satisfaction of Consultant. Maintain work area in neat and orderly conditions at all times.
- .2 Periodically, or when directed by the Consultant, remove from work areas rubbish and waste materials.
- .3 Use only cleaning materials as recommended by manufacturer of surface to be leaned.
- .4 Deficiencies review will commence after final cleaning has been executed.

**1.2 CLEANING DURING CONSTRUCTION**

- .1 Remove all debris, packaging, waste materials etc. from the place of the work on a weekly basis.
- .2 Keep dust and dirt to an acceptable level as directed or requested by the Consultant and/or Owner.
- .3 Remove oily rags, waste and other hazardous substances from premises at close of each day, or more often if required.

**1.3 FINAL CLEANING**

- .1 Upon completion of work, or, where work is phased, upon completion of each phase, thoroughly clean all interior and exterior surfaces and components. Provide professional cleaning by a recognized, established cleaning company, to allow Owner to occupy without further cleaning except where specifically indicated otherwise. In the event cleaning is not done on timely basis, the Owner reserves the right to bring own forces to clean surfaces and components and back charge the Contractor for the costs.
- .2 Remove stains, dirt and smudges from interior and exterior finished surfaces.
- .3 Clean exposed finished surfaces in accordance with respective material manufacturer's recommendations.
- .4 Clean mechanical and electrical fixtures and other fittings of labels, wrappings, paper and other foreign material.
- .5 Replace heating, ventilation and air conditioning filters if units were operated during the late stages of construction, testing and balancing procedures etc. Clean inside of ducts, blowers and coils.
- .6 Remove from work areas all waste and surplus materials from all areas, including roofs and ceiling spaces.

- .7 Remove snow and ice from driveways, parking areas and walks.
- .8 Power wash paved surfaces.
- .9 Clean all glass and glazing, interior and exterior.
- .10 Clean debris from the roof and power wash roof membrane.

#### **1.4 DISPOSAL OF WASTE MATERIALS**

- .1 All waste materials resulting from demolition and construction activities belong to the Contractor and shall be removed and legally disposed unless clearly stated otherwise.
- .2 Separate & recycle reusable materials to maximum extent possible from general waste stream and transport to recycling/reuse facilities.
- .3 Fires and burning of waste or materials are not permitted on site.
- .4 Do not bury waste or materials on site.
- .5 Do not dispose of liquid waste or volatile materials into watercourses, storm or sanitary sewers.
- .6 Comply with Ontario Regulations 102/94, 103/94 and all current regulations under the Environmental Protection Act.

**END OF SECTION**



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**01 77 00-Project Close-Out**

**1.1 REFERENCE STANDARD**

- .1 Comply with provisions of OAA/OGCA Document No. 100, December 2007 "Take-Over Procedures" except as modified within the Specifications.

**1.2 OPERATING AND MAINTENANCE MANUALS**

- .1 Provide operation and maintenance manuals. Data shall be contained in D-ring binders with hard covers. Binders shall have clean plastic pocket at back of spine identification containing label "Operation and Maintenance Manual" and project name and volume number, if applicable. Each manual shall contain a title sheet listing project name, date and volume number and names and addresses of Contractors and Subcontractors, Consultant and Sub-consultants.
- .2 Provide all of the above in a PDF digital format.
- .3 Data shall be assembled in systematic order, generally following the specification format. Provide labelled, celluloid covered tabs fastened to hard paper dividers to identify different Sections.
- .4 Provide the following material as applicable to work of this Contract:
  - .1 List of contents. If more than one volume is required, provide a cross-reference contents page of front of each volume.
  - .2 Complete list of subcontractors and suppliers, showing name, address, telephone/fax numbers, name of contact person and description of work done.
  - .3 Complete list of products used in the work showing product name, part number or code and manufacturer for each listing; follow specification format.
  - .4 Copy of finish hardware list, complete with all amendments and revisions.
  - .5 Schedule of paints and coatings. Include sufficient explanation to fully identify each surface with the applicable paint or coating used. Enclose copy of colour schedule.
  - .6 Maintenance instructions for all finished surfaces.
  - .7 Brochures, cuts of all equipment and fixtures.
  - .8 Operating and maintenance instruction for all equipment.
  - .9 Valve manual.
  - .10 Controls schematics.

- .11 Extended warranties.
- .12 Maintenance contracts.
- .13 Other data required elsewhere in Contract Documents or deemed necessary by Consultant.

### 1.3 EXTENDED WARRANTIES

- .1 Definition: Warranty = guarantee.
- .2 Submission Requirements:
  - .1 Submit extended warranties as part of "Operating and Maintenance Manuals".
  - .2 Arrange extended warranties in systematic order matching Specification format. Include a table of contents listing warranties in same order.
  - .3 Each warranty must show:
    - .1 Name and address of Project.
    - .2 Name of Owner.
    - .3 Section of Number and Title.
  - .4 All extended warranties must be presented under Contractor's letterhead, seal and signature and must be similar wording to that specified in Contract Documents.
  - .5 Submit manufacturers' Product warranties in accordance with GC 12.3.6.

### 1.4 RECORD DRAWINGS

- .1 Prior to Substantial Performance obtain a CAD file of all Contract Drawings from Consultant and transfer field changes, revisions, deletions and additions made throughout the execution of the Work, from the set of prints kept onsite to the CAD file. Consultant will incorporate modifications made to existing drawings and add new drawings issued during the course of construction into the CAD file prior to issuing CAD file to Contractor.
- .2 Clearly and prominently mark each drawing 'RECORD DRAWING' prepared by name of Contractor.
- .3 Submit CAD file of record drawings on USB's and two (2) complete sets of Xerox prints of updated CAD file to Consultant prior to application for Final Payment.

### 1.5 MAINTENANCE MATERIALS

- .1 Deliver to the location directed by Consultant maintenance materials as required elsewhere in these Specifications. Obtain receipt for delivered materials and submit copy of receipt to Consultant.
- .2 Package materials so that they are protected from damage and loss of essential properties.
- .3 Label packaged materials for proper identification of contents and project name.

#### 1.6 OPERATING AND MAINTENANCE INSTRUCTIONS

- .1 Prior to requesting Substantial Performance, at a time acceptable to Owner and Consultant, but not before operating and maintenance data has been reviewed and accepted by Consultant, instruct designated Owner's representatives in the operation and maintenance of all systems and equipment.
- .2 Arrange training sessions for each type of operating system and equipment. Sessions shall be conducted by qualified instructors and shall be of sufficient duration and depth to adequately instruct participants.
- .3 Throughout the training sessions, make reference to reviewed operation and maintenance manuals to familiarize participants with the data provided.
- .4 Prepare an attendance record for each training session, to be signed by each participant upon conclusion of session. Show date and time of session, subject of session and name, title and organization of each participant. Submit a copy of each record to Consultant.
- .5 Subcontractor whose work is subject of training session and Contractor shall be represented during training session by qualified personnel.

#### 1.7 INSPECTION AND ACCEPTANCE OF WORK

- .1 Prior to requesting Substantial Performance submit the following:
  - .1 Three (3) copies of operating and maintenance manuals (manuals must be submitted minimum 2 weeks prior to requesting Substantial Performance).
  - .2 Inspection and acceptance certificates required from regulatory agencies.
- .2 Advise the Consultant in writing, when work has been substantially completed. If Consultant agrees that this stage has been reached, prepare a complete list of deficiencies and submit this list to Consultant.
- .3 On receipt of the above deficiency list in a satisfactory form, the Consultant, accompanied by Sub-consultants, the Contractor and the Owner will carry out a review of the contractor issued deficiency list. The consultants will add to the list should additional items be encountered. The review will be issued to contractor and owner.

- .4 Add to the deficiency list, in accordance with Consultant's directions, any additional deficiencies which are identified during inspection and reissue updated deficiency list. A 'Deficiency' dollar value will therein be established as per Section 00 71 00, item 1.4.
- .5 Upon completion, inspection and acceptance of work, Owner will take over and occupy completed work. Refer to Supplementary Conditions for procedures relating to certification of Substantial Performance and release of holdback.

**END OF SECTION**

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**01 79 00-Demonstration And Training**

**1.1 GENERAL**

- .1 The Contractor shall co-ordinate and participate in all aspects of the Demonstration and Training.
- .2 The Contractor shall issue to the Consultant a schedule of all Demonstration and Train activities that has been established in consultation with the Owner representative to insure attendance.
- .3 The Contractor shall submit to the Consultant a copy of a sign-in sheet of all attendee's, Owner, Contractor, Subtrades, material/equipment representatives etc. having name, title and organization of each participant. The sign-in sheet shall have the project name, address and the specification section(s)/session being addressed.
- .4 The Contractor, Subtrades, material/equipment representatives etc. shall include for two (2) Demonstration and Training sessions for each/all aspects of the work.

**1.2 DEMONSTRATION AND TRAINING**

- .1 The Demonstration and Training sessions shall provide to the owner all necessary instructions as to the operation and maintenance of all materials and equipment provided within the execution of the contract.
- .2 The sessions shall be a classroom seminar environment complete with material manuals, operating manuals, product and system drawings etc.
- .3 Provide audio/visual aids. As requested by the owner provide a recorded version of each session.
- .4 The sessions shall demonstrate the operating procedure for each service/equipment.
- .5 The sessions shall train in the maintenance procedure for each material or piece of equipment.
- .6 Inform the owner of all required safe and proper access to equipment for operation and maintenance.

**END OF SECTION**



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**01 91 00-Commissioning**

**1.1 GENERAL**

- .1 The Contractor shall co-ordinate and participate in all aspects of the Commissioning of all Mechanical, Building Management Systems (BMS), Security Systems, Door Hardware Systems, Audio/Visual Systems, Public Announcement (PA), Sprinkler System, Fire Alarm System, Electrical systems etc. that are applicable to the Work of the contract.
- .2 The Contractor shall issue to the Consultant a schedule of all Commissioning activities that has been established in consultation with the Materials/Equipment representatives and the Owner representatives to insure attendance.
- .3 The Contractor shall submit to the Consultant a copy of a sign-in sheet of all attendee's, Owner, Contractor, Subtrades, material/equipment representatives etc. having name, title and organization of each participant. The sign-in sheet shall have the project name, address and the specification section(s)/session being addressed.
- .4 The Contractor, Subtrades, Material/Equipment Representatives etc. shall simulate and test all aspects of the work and equipment to demonstrate their functionality as intended by the contract documents.

**1.2 COMMISSIONING**

- .1 The Commissioning sessions shall provide to the owner a further understanding as to the operation of all materials and equipment provided within the execution of the contract.
- .2 The sessions shall be a classroom seminar environment complete with material manuals, operating manuals, product and system drawings etc.
- .3 Provide audio/visual aids. As requested by the owner provide a recorded version of each session.
- .4 The sessions shall demonstrate the operating procedure, program etc. for each device/equipment.
- .5 The Contractor shall issue a report of confirmation of operation and/or deficiency for each material or piece of equipment Commissioned. Where deficiencies are revealed through the commissioning process the Contractor shall then record each in a log and promptly rectify.
- .6 The Commissioning Reports shall be inserted in the Maintenance Manuals under prescriptive sections.

**END OF SECTION**

**Project: 20-105**  
**Portable Classroom Re-Location**  
**for the Greater Essex County District School Board**

**DIVISION 1 - GENERAL REQUIREMENTS**  
**EXECUTION REQUIREMENTS**

**Section 01 73 03**  
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**02 41 13-Selective Site Demolition**

**GENERAL NOTE**

Comply with Instructions to Bidders, the General Conditions as amended and with Division 1 requirements.

**1.0 GENERAL**

**1.1 WORK INCLUDED BUT NOT LIMITED TO**

- .1 Selective Site Demolition shall include the furnishing of all labour, materials and equipment to perform the work as indicated on the drawings and as follows:
  - .1 Protection and maintenance of existing services, buildings and property adjacent to and on the site.
  - .2 Removal of existing trees, stumps, root systems complete within the portable classroom foot print etc.
  - .3 Remove existing trees, plants, stumps and other landscaping elements as indicated on the drawings.
  - .4 Removal of all existing concrete curbs, asphalt paving , concrete walks, pavers and associated granular base material from the site.
  - .5 Stripping, loading and disposal of granular materials, asphalt, concrete etc. from the site.
  - .6 Removal of all existing obstructions within the Place of the Work not indicated to be required on the final project site.
  - .7 Excavating, loading and disposal of all materials as required by the work.
  - .8 All demolition and removals as required for water connections, storm/ sanitary sewer connections and all other services requiring demolition to access the said service.
  - .10 Refer to all other discipline drawings and specifications for the entire scope of work.

**1.1 RELATED WORK**

- .1 Refer to Section 31 23 13: Rough Grading.
- .2 Refer to Section 31 23 10: Excavation, Trenching and Backfilling.
- .3 Refer to Section 01 51 00: Protecting the Place of the Work.

## **1.2 PROTECTION**

- .1 The Contractor shall protect existing buildings and adjacent property from any damage caused by his operation.

*Note: Refer to “Instructions to Bidders”, “Examination of Site”.*

## **1.3 EXISTING UTILITIES, ETC.**

- .1 Prior to commencing any excavation work, the Contractor shall establish as near as possible the location and state of use of all buried utilities or services as shown on drawings or known to be in existence. The locations shall be clearly and unmistakably marked to prevent accidental disturbance during the work.

## **1.4 CO-OPERATION**

- .1 This Contractor shall make himself familiar with the work of other Contractors working in conjunction with his work and shall assist in such work as must be done together.

## **1.5 LINES**

- .1 All lines and levels for the future excavation will be furnished by the General Contractor.

**END OF SECTION**

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**02 41 19-Selective Building Demolition**

**GENERAL NOTE**

Comply with Instructions to Bidders, the General Conditions as amended and with Division 1 requirements.

**1.0 GENERAL**

**1.1 WORK INCLUDED BUT NOT LIMITED TO**

- .1 Selective Structure Demolition shall include the furnishing of all labour, materials and equipment to perform the work as indicated on the drawings and as follows:
  - .1 Protection and maintenance of existing services, buildings and property adjacent to and on the site.
  - .2 Do all necessary cutting and removal of concrete floor slabs, walls or portions thereof required to execute the work. Cut all roof and wall openings to install new components into existing structure.
  - .3 Do all necessary removal noted and required for the complete and proper execution of the work.
  - .6 Coordinate with electrical divisions to have all required services properly and adequately cut, capped, removed or otherwise terminated in the work area.
  - .7 All waste materials and debris resulting from the work shall be disposed of from the premises in accordance with authority jurisdiction.

**1.2 RELATED WORK**

- .1 Refer to Section 02 41 23: Selective Site Demolition

**1.3 GENERAL CONTRACTOR'S RESPONSIBILITY**

- .1 It shall be the General Contractor's responsibility to assign all Alterations and Patching Work to the various sub-trades concerned with such work and the tender price shall include a sum sufficient to perform all work contemplated by the drawings and specifications.
- .2 Where alteration work occurs and where new work joins old work, it shall match existing surrounding work, texture and finish unless otherwise noted or specified.
- .3 Hidden pipes and conduit not indicated on drawings shall be relocated as required.
- .4 All dismantled materials including mechanical and electrical items not reused in building shall remain the property of the Owner unless he decides otherwise. All

removed masonry, concrete and other materials rejected by the Owner shall be deemed debris and promptly removed from the site by the General Contractor.

- .5 At conclusion of job, all renovated areas shall be left spotlessly clean.

#### **1.4 EXAMINATION OF PREMISES**

- .1 This Contractor shall be deemed to have examined the premises and to have satisfied himself/herself as to the condition and suitability of the work and the means of access to perform the work and to have carefully examined all the drawings and specifications pertaining to his and other trades involving the reuse of certain dismantled materials. No allowance shall subsequently be made by reason of any error or misjudgment on his/her part in this connection.

#### **1.5 PROTECTION, DAMAGES AND WATCHMEN**

- .1 The Contractor shall provide adequate interior dust barriers and exterior barricades or fences with danger signals as required around work.
- .2 The Contractor shall provide red lights at night as required or directed.
- .3 The Contractor shall protect any paving and sidewalks also adjoining properties, and shall make good all damage caused without cost to the Owner.
- .4 The Contractor shall provide adequate protection for workmen, residents and the public at all times as directed and as required by Municipal, Provincial or Federal regulations or laws.
- .5 The Contractor, at own expense, shall maintain watchmen as required to keep the public out at all times and shall see that no fires occur at any time.

### **2.0 PRODUCTS**

#### **2.1 GENERAL:**

- .1 Provide all necessary equipment and resources to competently perform the work. During the whole time of construction work, the Contractor shall employ a competent foreman for the execution of all work.

### **3.0 EXECUTION**

#### **3.1 GENERAL DEMOLITION**

- .1 The sequence of demolition or removal work shall be such that at no time will a wall or portion of a wall be left standing unsupported in an unstable condition or in danger of accidental collapse.
- .2 Where the need for shoring, is established provided, adequately designed and constructed system and place in position at the appropriate time. Periodic checks shall be made for effectiveness as demolition proceeds.

- .3 During systematic demolition or removal work, strength and stability of individual structural members may be dependent on the support of other members.
- .4 During the removal of any element of the existing building, caution shall be exercised to prevent damage to the remainder due to impact. Provide plywood or other material as protection to other elements.
- .5 All combustible debris shall be removed from the site as promptly as possible.
- .6 All work shall be in accordance with CSA Standard S350-M1980.
- .7 The selective demolition work shall be conducted in such a way as to ensure that so far as is reasonably practicable, worker and other persons are not exposed to risks to their safety or health in connection with selective demolition work.

### **3.2 CUTTING AND PATCHING OF EXISTING FLOORS, WALLS AND CEILINGS**

- .1 The General Contractor shall do all necessary cutting of slab floors which may be required for the installation of mechanical and electrical work. General Contractor to provide scanning and other similar procedures of all floor and/or wall systems where services are unknown to ensure the location of hidden or underground services/systems or reinforcing or other element are not cut or damaged.
- .2 On other than the ground floor, the Mechanical Contractor shall cut all holes not exceeding 6" in diameter. Beyond 6" in diameter, the General Contractor shall do all necessary cutting.
  - .1 All holes through walls not exceeding 8" in square shall be cut by the Mechanical Contractor. Beyond 8", the General Contractor shall do all necessary cutting. All chases required in walls shall be cut out by the Mechanical or Electrical Contractor after consultation and under the supervision of the General Contractor.
  - .2 All holes through ceilings not exceeding 8" in diameter shall be cut out by the Mechanical Contractor - beyond 8" the General Contractor shall do all necessary cutting.
  - .3 All holes through the roof shall be cut out by the General Contractor.
  - .4 All patching of floors, walls, ceilings and roofs left by removed, existing or new mechanical and electrical work shall be done by the General Contractor to the satisfaction of the Architect.
  - .5 All new services to existing finished areas shall be run concealed. Do any necessary chasing of plaster walls or ceilings as required to conceal work and patch to match adjoining surface finish and texture. Fish walls where existing construction allows.

- .6 Do all patching of existing masonry, concrete and gypsum board finishes damaged in the execution of the work.

### 3.3 EXISTING DISMANTLED MATERIALS

- .1 All dismantled materials including mechanical and electrical items not re-used shall remain the property of the Owner unless he decides otherwise. Materials retained by the Owner will be placed in an area of the existing building as designated by the Owner.
- .2 All other dismantled materials not required by Owner (including mechanical and electrical items) shall be deemed debris and promptly removed from site by the General Contractor.
- .3 Items to be removed and relocated shall be protected and stored on site by the General Contractor until such time as they are placed in their new locations.

**END OF SECTION**

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**03 10 00-Concrete Forming and Accessories**

**GENERAL NOTE**

Comply with Instructions to Bidders, the General Conditions as amended and with Division 1 requirements.

**1.0 GENERAL**

**1.1 WORK INCLUDED BUT NOT LIMITED TO:**

- .1 All formwork for cast-in-place concrete including false work.

**1.2 RELATED SECTIONS:**

- .1 Section 03 20 00: Concrete Reinforcing
- .2 Section 03 30 00: Cast-in-Place Concrete

**1.3 FORMWORK DESIGN AND CODE REQUIREMENTS**

- .1 Design all formwork for all loads and lateral pressures as recommended in the Ontario Building Code and the National Building Code of Canada, latest edition, CAN/CSA A23.1-94 and CAN/CSA-S269.2-M92, ACI Standard 347. False work to CSA Standard S269.1-1975 for supported work. The design and erection of formwork and related supporting works shall comply with the Construction Safety legislation and regulations. This Contractor must assume full responsibility for the design and adequacy of all formwork and false work.

**1.4 SHOP DRAWINGS**

- .1 Submit shop drawings in accordance with Section 01 33 00 Submittals.
- .2 Submit shop drawings for formwork, falsework and reshoring. Illustrate method, materials, cambers etc. Illustrate sequence of erection and removal of falsework, formwork and reshoring.
- .3 Provide shop drawing for all forming accessories, forms, liners, ties, tie plugs etc.
- .4 Provide shop drawings sealed and signed by a Professional engineer in the Province of Ontario.

**1.5 TOLERANCES**

- .1 Conform to CSA A23.1, Clause 6.

## 2.0 PRODUCTS

### 2.1 MATERIALS

- .1 Falsework materials to meet CSA S269.1.
- .2 Formwork materials to meet CAN/CSA S269.3 as follows:
  - .1 For concrete not exposed to view, plywood and wood formwork materials to CSA O121 and CAN/CSA O141.
- .3 Form ties as follows:
  - .1 For concrete not exposed to view, removable or snap ties, fixed or adjustable length, free of devices leaving a hole larger than 25mm (1") in concrete surface.
  - .3 Form ties to be metal designed as ties and spreaders having a minimum strength of 13 kN (3,000 pounds).
  - .4 Snap ties to snap at minimum of 25mm (1") from the concrete surface.
  - .5 Cone ties to internal disconnecting snapping 38mm (1 ½") from concrete surface without damage to the concrete.
- .4 Form liner to be high density plywood to CSA O121 or equal to maintain exposed concrete finish.
- .5 Form releasing agents designed for application and resist staining of concrete.
- .6 Grooves, reglets and chamfers using select pine shall be straight and accurately dressed to the sizes indicated on the drawings.

## 3.0 EXECUTION

### 3.1 FABRICATION AND ERECTION

- .1 All work to conform to CSA A23.1.
- .2 Fabricate and erect falsework in accordance with CSA-S269.1.
- .3 Fabricate and erect falsework in accordance with CAN/CSA-S269.3 to provide finished concrete to shapes, dimensions etc. as per the drawings.
- .4 Fabricate formwork tight and flush to prevent leakage and panel outlines.
- .5 Obtain Consultant's review of required form openings not indicated on the structural drawings.
- .6 Use internal form ties:



- .1 Do not permit loads from forms to be transmitted to existing structural elements.
- .2 Apply a form coating and releasing agent to contact surfaces.

### **3.2 FORM STRIPPING AND RESHORING**

- .1 Conform to CSA A23.1.
- .2 Refer to the structural general notes for all stripping and reshoring requirements.
- .3 Obtain a field review and issue a report of all falsework and reshoring by a professional engineer registered in the province of Ontario prior to each pour.

### **3.3 MISCELLANEOUS FORMWORK**

- .1 Construct all concrete sumps, pits, trenches, housekeeping pads, curbs etc.
- .2 Co-ordinate the work with all trades so as to accommodate the requirements of other sections of the specifications and drawings.

### **3.4 CLEANING**

- .1 Upon completion of the work, remove all containers, surplus materials, and installation equipment, excess material, and debris. Project area must be left in a clean and orderly condition.

**END OF SECTION**



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**03 20 00-Concrete Reinforcing**

**GENERAL NOTE**

Comply with Instructions to Bidders, the General Conditions as amended and with Division 1 requirements.

**1.0 GENERAL**

**1.1 WORK INCLUDED:**

- .1 All reinforcing for cast-in-place concrete.

**1.2 RELATED SECTIONS:**

- .1 Section 03 10 00: Concrete Formwork
- .2 Section 03 30 00: Cast-in-Place Concrete

**1.3 QUALITY CONTROL OF MATERIAL**

- .1 Provide a certified copy of the material mill test report, source of supply, plant certification for epoxy coating and patching procedures for factory applied epoxy coating.

**1.4 SHOP DRAWINGS**

- .1 Submit shop drawings in accordance with Section 01 33 00 Submittals.
- .2 Submit shop drawings, plans, elevations, sections and bar lists to facilitate review and placing.
- .3 Indicate bar bending details, lists, quantities, sizes, spacing, location and splices with identifying code marks to permit placement and inspection without referencing the drawings.
- .4 Provide all accessories as required by the standard.
- .5 Design and detail lap lengths and bar development lengths to CSA-A23.3.
- .6 A copy of the reviewed shop drawings shall be on the construction site and made available to consultants, inspectors, installers etc.

**2.0 PRODUCTS**

**2.1 MATERIALS**

- .1 Reinforcing steel: billet steel, grade 400R, deformed bars to CSA-G30.18 unless otherwise indicated.

- .2 Cold-drawn annealed steel wire ties to meet ASTM A82.
- .3 Welded Wire Fabric to meet ASTM A185, flat sheets only.
- .4 Epoxy coated reinforcement to be fusion bonded epoxy coating conforming to ASTM D3963/D3963M. All bars to be supplied by plants certified by the Concrete Reinforcing Steel Institute for epoxy-coated steel.
- .5 Bar supports and side form spacers to meet CSA-A23.1 Use plastic bar supports and form side supports.

### **3.0 EXECUTION**

#### **3.1 FABRICATION**

- .1 Fabricate reinforcing steel in accordance with CSA-A23.1, and Reinforcing Steel Manual of Standard Practice by the Reinforcing Steel Institute of Canada.
- .2 Ship bundles of bar reinforcing clearly identified in accordance with the shop drawing bar list.

#### **3.2 INSTALLING REINFORCING**

- .1 Install reinforcing to CSA A23.1.
- .2 Handle epoxy coated bars in accordance with CSA S413.
- .3 Place reinforcing to maintain the concrete coverage as indicated on the drawings and/or as required by the fire rating.
- .4 Before placing reinforcing remove all scale, dirt, oil or other contaminate that would reduce bond.
- .5 Use bar supports and spacers.

#### **3.3 PATCHING FACTORY APPLIED EPOXY COATING**

- .1 At damaged epoxy coating locations patch in accordance with coating manufacturer written instructions and material.

#### **3.4 CLEANING**

- .1 Upon completion of the work, remove all containers, surplus materials, and installation equipment, excess material, and debris. Project area must be left in a clean and orderly condition.

**END OF SECTION**

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**03 30 00-Cast-In-Place Concrete**

**GENERAL NOTE**

Comply with Instructions to Bidders, the General Conditions as amended and with Division 1 requirements.

**1.0 GENERAL**

**1.1 WORK INCLUDED BUT NOT LIMITED TO:**

- .1 All plain and reinforced concrete piers.
- .2 All concrete work called for on architectural and electrical drawings unless noted by others.

**1.2 RELATED SECTIONS:**

- .1 Section 03 10 00: Concrete Formwork
- .2 Section 03 20 00: Concrete Reinforcing

**1.3 SUBMITTALS**

- .1 The concrete supplier provide a copy of Certificate of Ready Mixed Concrete Production Facilities as issued by the Ready Mixed Concrete Association of Ontario.
- .2 Submit all concrete mix designs, including pump mixes and indicate where the concrete mix is to be used.
- .3 Submit all admixtures intended to be used in the concrete mix design.
- .4 Each concrete mix design shall include the following:
  - .1 Aggregate type and size
  - .2 Concrete density range, wet and dry
  - .3 CSA exposure class
  - .4 Cement type
  - .5 Maximum water/cement ratio
  - .6 plastic air content range
  - .7 air-void system test data
  - .8 slump range
  - .9 percentage and type of supplemental cementing materials
  - .10 admixtures (all admixtures must be from the same supplier)
  - .11 assumed method of placement of the concrete.
- .5 Submit a drawing, indicating all slab on grade intended saw cut control joints and construction joints for review.

#### **1.4 COLD WEATHER REQUIREMENTS**

- .1 When air temperature is at or below 5 degrees Celsius or there is a probability of it falling to that limit during the placing or curing period, cold weather requirements shall be applicable and shall be governed by CAN/CSA A23.1-94 and ACI Standard 306, Recommended Practice for Cold Weather Concreting.
- .2 Provide heating equipment and enclosures to maintain humidified air within the enclosures to keep the concrete above freezing temperature for seven days. Heating equipment inducing carbon monoxide gas in the building is not acceptable. Also concrete shall be protected from alternately freezing and thawing for a period of 14 days after placement.
- .3 When placed, concrete shall have a temperature of not less than 5 degrees C. and not more than 27 degrees C. Accelerators or so called anti-freeze compounds shall not be permitted unless approved in writing by the Architect. All protective coverings shall be kept clear of the concrete and form surfaces to permit free circulation of air and shall be maintained intact for at least 24 hours after artificial heat is discontinued.
- .4 Forms must be clean of ice and snow. Use compressed air or other means to remove foreign matter.

#### **1.5 HOT WEATHER REQUIREMENTS**

- .1 Hot weather protection shall meet the requirements of CAN/CSA A23.1-94.
- .2 When the air temperature exceeds 27 degrees C. hot weather requirements shall be applicable. The time of initial mixing to complete discharge shall not exceed one hour and fifteen minutes. Temperature of concrete as placed shall not exceed 27 degrees C.
- .3 Concrete forming surfaces and reinforcing steel shall be sprinkled with cool water just prior to placing concrete but no standing water or puddles will be allowed.
- .4 Slabs shall be kept damp continuously for 24 hours followed by normal curing procedures.
- .5 Slabs may be cured by the application of a clear pigmented curing compound applied immediately after finishing of slab but before evaporation of surface moisture. The use of water reducing agents must be approved by the Architect when hot weather conditions prevail.

#### **1.6 MIXING AND DELIVERY**

- .1 Concrete shall be mixed in a mechanical batch mixer or a type approved by the Architect and meeting the requirements of CAN/CSA A23.1-94.
- .2 Mixing time shall conform to CAN/CSA A23.1-94. Mixers shall be rotated at the rate recommended by the manufacturer of the equipment.

- .3 Concrete from the mechanical batch mixer shall be transported to the project site in agitating or non-agitating equipment conforming to CAN/CSA A23.1-94.
- .4 Ready mixed or transit mixed concrete shall be batched, mixed and transported in accordance with CAN/CSA A23.1-94.
- .5 Each load of ready mixed or transit mixed concrete delivered to the project site shall be accompanied by duplicate delivery slips providing all information pertaining to each batch of concrete and/or as the Owner's Representative may require.

#### **1.7 STRENGTH AND CONSISTENCY**

- .1 Concrete materials shall be proportioned to provide a workable mix that can be handled, placed and worked into angles and corners of forms and around reinforcing steel and inserts. The mix proportion shall not be such that the concrete will easily segregate or cause excessive water to collect on the surface.
- .2 The strength of concrete shall be considered to be its strength at 28 days.

#### **1.8 INSPECTION AND TESTING**

- .1 The Consultant will appoint and costs will be paid from cash allowance in contract for an independent testing agency to test average concrete of each days pouring. The independent testing agency shall perform the following:
  - .1 Supply cylinder moulds sample the concrete, make and cure test cylinders and perform compressive strength tests in accordance with current CSA-A23.2-94 Standards.
  - .2 Make slump tests and air content tests as required in accordance with current CSA-A23.2-94.
  - .3 A concrete test shall consist of four (4) cylinders properly labeled showing mix, location and date of pouring. Cylinders shall be cured under laboratory conditions. Contractor shall make provisions for initial curing of all cylinders a minimum of 24 hours.
    - .1 Provide facilities for storing specimens at the required temperature and in a location free from vibration or injury.
    - .2 Test one (1) cylinder at seven (7) days and two (2) cylinders at 28 days. Should the 7 or 28 day test fail to meet the design strength, test the fourth (4th) cylinder at 90 days to verify results.
- .4 Send two (2) certified copies of all test results direct to the Consultants with additional copies to the Contractor as directed.

## **2.0 PRODUCTS**

### **2.1 BONDING AGENT**

- .1 Concrete bonding agent shall be a high solids, acrylic polymer latex bonding agent and admixture that conforms to the ASTM C1059 Type I standard.
- .2 Approved product: Intralok Bonding agent by W.R. Meadows of Canada.

### **2.2 ADMIXTURES**

- .1 Admixtures shall not be used unless prior written approval is obtained from the Consultant. All admixtures shall conform to the appropriate A.S.T.M. and CSA Standards. Air entraining admixtures and chemical admixtures shall conform to the requirements of the latest issue of CAN3-A266.1-M78.
- .2 For slabs on grade, mid-range water-reducing admixture, conforming to the requirements of the latest issue of CAN/266.6-M85 and ASTM-C494, Type A. Acceptable Product: Master Builders Technologies Limited, Polyheed at a mixing rate of 10 fl. oz. /cwt. cement.
- .3 No other admixture shall be used, without the permission of the consultant.

### **2.3 CURING COMPOUNDS**

- .1 Curing compounds shall conform to the requirements of the latest issue of A.S.T.M. Standard C-309, Type 1, Class B, Vocomp - 20 by W.R. Meadows of Canada Ltd. or approved equal.
- .2 For exterior concrete slab work curing compound shall be W.R. Meadows Sealtite white pigmented curing compound Conchem Promulsion 200, CPD White Cure (Water Emulsion) or Architect's approved equal. Concrete curing treatment must be applied in strict accordance to manufacturer's labeled instructions.

### **2.4 CONCRETE MIX DESIGNS**

- .1 Use ready-mix concrete. Proportion concrete in accordance with CSA A23.1, for exposures specified. Use a water-reducing agent in all concrete. Obtain approval of the Consultant for the use of admixtures other than water-reducing and air entraining agents.

Supplementary cementing materials: Conform to the directions of the slag and fly ash manufacturers for the proportioning and mixing concrete. Except as otherwise required, limit supplementary cementing materials to no more than 25% of total cementitious content and limit the fly ash component to no more than 10% of total cementitious content. The limit on supplementary cementing materials may be increased for Class N exposure concrete provided that the effects of the resulting concrete properties, including finishing, rate of early age strength gain, curing and protection, are considered by the Contractor and a letter describing these effects



and any special construction procedures is submitted for the review with the mix design. Do not use supplementary cementing materials in architectural concrete.

Supplementary cementing materials for Class N exposure concrete: Conform to the directions of the slag and fly ash manufacturers for the proportioning and mixing concrete. Provide supplementary cementing materials equal to 50% of total cementitious content and limit water-to-cementing materials ratio to 0.45 maximum. Use no more than 15% fly ash of total cementitious material. Do not use supplementary cementing materials in architectural concrete. For columns less than 300mm in least dimension and for walls less than 200mm thick, reduce nominal size of coarse aggregate to 10mm.

- .2 Footings, piers, grade beams and foundation walls: Provide normal density, frost resistant concrete to give following properties:
  - .1 Class of exposure: F-2
  - .2 Cement: Type GU
  - .3 Minimum compressive strength at 28 days: 25 MPa
  - .4 Maximum water/cementing material ratio: 0.55
  - .5 Nominal maximum size of coarse aggregate: 20mm.
  - .6 Slump at time and point of discharge: 50mm to 110mm
  - .7 Air content: 4 to 7%
- .3 Lean concrete and mud slabs: Provide normal density concrete to give following properties:
  - .1 Class of exposure: N
  - .2 Cement: Type GU
  - .3 Minimum compressive strength at 28 days: 10 MPa
  - .4 Nominal maximum size of coarse aggregate: 20mm
  - .5 Slump at time and point of discharge: 50mm to 110mm

### 3.0 EXECUTION

#### 3.1 ERECTION OF FORMS

- .1 Construction formwork, shoring and bracing to produce finished concrete conforming to the shape, dimensions, locations and levels shown on the drawings and within the tolerances required by CAN/CSA A23.1-94.
- .2 Form chases, slots, openings, drips, recesses and control joints as detailed.
- .3 Formwork shall be so arranged and assembled as to permit easy dismantling and stripping so that the concrete will not be damaged during its removal. Make form joints tight in order to prevent leakage of mortar. Clean all edges and contact surfaces before erection.
- .4 Verify lines, levels and column centre's before proceeding with formwork and ensure dimensions agree with drawings.

- .5 Formed chamfers and reglets at exterior retaining walls, benches and water feature shall be straight, level and precise. Waving and deviations in the finish product of these details will constitute a rejection of the work. Removal and reconstruction of the wall (walls) in its entirety will be at the expense of the contractor.

### **3.2 STRIPPING OF FORMS**

- .1 Remove forms only in accordance with requirements of CAN/CSA A23.1-94 the Ontario Building Code and the National Building Code and not sooner than concrete will safely bear its own and intended superimposed loads. Forms shall not be removed without notifying Engineer intent to remove forms. The Contractor shall be fully responsible for safe removal of the forms.
- .2 Re-use of formwork and false work subject to requirements of CAN/CSA A23.1-94 and CAN/CSA-S269.3-M92.

### **3.3 PLACEMENT OF REINFORCEMENT**

- .1 Reinforcement of the size and shapes shown on the drawings shall be accurately placed in accordance with the approved placement drawings, the structural drawings and the requirements of CAN/CSA A23.1-94.
- .2 Reinforcement including wire mesh shall be adequately supported by metal chairs, spacers or hangers and secured against displacement within the tolerances permitted and in accordance with the latest A.C.I. Standard 315.
- .3 Mechanical splices subject to the approval of the Consultant.
- .4 Obtain Consultant's approval of reinforcing steel and placing before pouring concrete.

### **3.4 PLACEMENT OF CONCRETE**

- .1 Place concrete in accordance with CAN/CSA A23.1-14. Ensure reinforcement and inserts are not disturbed during concrete placement.
- .2 Notify the Consultant and the independent testing agency at least 24 hours before any concreting operation is to proceed.
- .3 Before beginning a run of concrete, hardened concrete and foreign materials shall be removed from the inner surface of the conveying equipment.
- .4 Before depositing concrete, debris shall be removed from the space to be occupied by the concrete, reinforcing steel and forms accurately placed and secured in position. Clean reinforcing before placing concrete.
- .5 When pouring concrete against previously poured work, the surface shall be thoroughly cleaned and roughened removing all latency and scum and coated with a paste of neat cement and water not more than 15 minutes in advance of depositing the new concrete.

- .6 Concrete shall be conveyed to the place of final deposit by methods that will prevent segregation or loss of material keeping concrete sufficiently plastic to ensure proper bonding of successive layers or panels. Free fall of concrete shall not exceed 3'-0" (900 mm).
- .7 During placement, concrete shall be consolidated thoroughly and uniformly by means of tamping, hand tools, vibrators or finishing machines to secure dense, homogeneous structure, close bond with reinforcement and smooth formed surfaces. Extreme care shall be taken to ensure that internal type vibrators do not disturb the reinforcing steel or the forms.
- .8 Maintain accurate records of concrete pours to indicate date, location of pour, quality, air temperature and test samples taken.
- .9 Footings to be poured within the same day as exposure or a 2" lean concrete mud mat shall be provided.

### **3.5 CURING AND PROTECTION**

- .1 Freshly placed concrete shall be protected from the effects of direct sunshine, drying winds, cold, excessive heat and running water by the use of clear resin based curing compound or adequate tarpaulins or other suitable material until the end of the curing period.
- .2 All exposed non-formed surfaces shall be kept continuously moist for a minimum of seven consecutive days after placement of the concrete. Water shall be clean and free of any material that will cause staining or discoloration.
- .3 Apply curing and sealing compound to all interior concrete floors in strict accordance with manufacturer's labeled instructions where it will not jeopardize the bonding of future floor finishes. Co-ordinate with flooring divisions for compatibility.

### **3.6 DEFECTIVE CONCRETE**

- .1 Concrete not meeting the requirements of the specifications and the drawings will be considered defective concrete and shall be modified or replaced at the Contractor's expense and to the satisfaction of the Engineer.
- .2 Excessive honeycombing or other defects in critical areas of stress shall be repaired or replaced at the Contractor's expense to the satisfaction of the Architect.
- .3 Concrete of insufficient strength or improper consistency shall be as required by the Architect subject to one or more of the following, all at the Contractor's expense and at no extra cost to the Owner.
  - .1 Changes in mix proportion for the remainder of the work.
  - .2 Cores drilled and tested from the areas in question as directed by the Engineer and in accordance with C.S.A. Standard CAN/CSA A23.1-14 test

method A23.2-14C. The test results shall be indicative of the strength of the in-place concrete.

- .3 Load testing of the structural elements in accordance with CAN3A-123.3-M84.
- .4 Concrete failing to meet the strength requirements of this specification shall be strengthened or replaced at the Contractor's expense to the satisfaction of the Architect.

### 3.7 PIERS

- .1 Install all concrete piers as indicated on drawings of all sizes, forms and thickness indicated and reinforced as noted on drawings and schedules. Finish tops of piers true and level at heights indicated providing all necessary keyways.
  - .1 Where pipes or sleeves pass through or under footings, consult the Engineer for direction.
  - .2 The excavation for the footings shall be clean and free of water and kept so until the concrete has set.
  - .3 All footings shall be placed upon firm approved soil the same day as exposure or a previously poured 2" lean concrete mud mat or a combination of both.
  - .4 Step footings in accordance with Building Code requirements and required by construction.
  - .5 Plumbness of walls and columns shall be within 1:400 measured at any one surface but total variation shall not be more than  $\frac{3}{4}$ " (20 mm) for the total height of the structure.
  - .6 Thickness variations for cross section for walls, columns and slabs other than slabs on grade shall not exceed the following:
    - .1 12" (300 mm) and less  $\pm .31$ " (8 mm).
    - .2 Greater than 12" (300 mm) but less than 3'-3" (1 m)  $\pm \frac{3}{8}$ " (12 mm).
    - .3 3'-3" (1 m) and greater  $\pm \frac{3}{4}$ " (20 mm).

### 3.8 CONCRETE FINISH SCHEDULE

- .1 The following finishes shall be applied to concrete surfaces.
  - .1 Rub exposed sharp edges from concrete to product  $\frac{1}{8}$ " radius edge.

### 3.9 CLEANING

- .1 Contractor shall be responsible for good housekeeping during the work of this Section.
- .2 Remove all debris and inflammable rubbish from the site daily.
- .3 Do not bury any waste concrete on the project site.

**END OF SECTION**



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**04 80 00-Masonry Assemblies**

**GENERAL NOTE**

Comply with Instructions to Bidders, the General Conditions as amended and with Division 1 requirements.

**1.0 GENERAL**

**1.1 WORK INCLUDED BUT LIMITED TO:**

- .1 Masonry materials.
- .2 Storage and handling.
- .3 Laying all masonry.

**1.2 RELATED SECTIONS:**

- .1 Section 03 20 00: Concrete Reinforcing
- .2 Section 03 30 00: Cast-in-Place Concrete

**1.3 PRODUCTION, DELIVERY, STORAGE AND HANDLING**

- .1 Cementitious materials shall be stored in accordance with the requirements of CSA Standard A165.2 Series-14. Storage of aggregates shall be in accordance with the requirements of CSA A23.1, latest edition. Masonry units shall be stacked to prevent chipping and shall be protected from weather and soil. All materials shall be kept clean and dry.
- .2 Deliver cement, lime and mortar ingredients with manufacturer's seals and labels intact.
- .3 Exposed units which become stained or chipped and materials which are affected by inadequate protection shall be replaced.
- .4 Masonry units and bricks to be stacked on timbers or platforms at least 3" above grade. Provide necessary means to prevent staining during storage. Place polyethylene or other plastic film between wood and other finished surfaces of units when stored for an extended period of time. Cover stored units exposed to weather for an extended period of time.

**1.4 STANDARDS AND REFERENCES**

- .1 Materials and workmanship shall conform to the requirements of CSA Standards for Masonry and the by-laws of the local municipality. Work shall be supervised by a competent foreman at all times and shall be performed by skilled and experienced workmen.

- .2 Wherever in these specifications methods of tests or standards are referred to or implied and not otherwise specified, the latest ASTM Standard dealing with such subjects shall be used.

## 1.5 JOB CONDITIONS & WEATHER PRECAUTIONS

- .1 The Contractor shall examine the existing conditions and report in writing to the Architect any deficiency or defect in the work of others. Installation of any part shall constitute acceptance of such surfaces as being satisfactory.
- .2 In warm, dry weather, wet all masonry units thoroughly before laying. Take all necessary precautions to prevent excessive suction of water from mortar into masonry units.
- .3 Lay no brick masonry units or concrete masonry units on which there is a film of water, ice, frost or snow.
- .4 When ambient temperature is 5° C. or lower, heat all brick, concrete masonry units and mortar ingredients. Salt or other chemicals for lowering freezing temperature or mortar shall not be used. During freezing weather, provide approved means of heating, protecting and enclosing masonry work. All membrane shall be waterproofed and flame proofed.
- .5 Enclosure and heating systems shall conform to the regulations of all governing agencies.
- .6 At the close of each day's work and/or at other work stoppages, cover tops of masonry work with waterproof, flame proof membrane secured firmly in place. When work resumes, clean top surface free of loose mortar.

## 2.0 PRODUCTS

### 2.1 CONCRETE BLOCK

- .1 Concrete Masonry Units (CMU): Shall conform to CSA Standard A165.1 Series-14. Exterior and foundation block to be supplied per Table 1 of the standard as H, SS or SF/A/15/M. Interior Block per Table 1 as H, SS or SF/B/15/M where a normal weight concrete meets the required fire and load requirements as defined on the project documents. All other interior block to be supplied per Table 1 as H, SS or SF/C/15/M. Block size, shapes and thicknesses are as indicated on drawings or as required for the work.
- .2 Unless indicated otherwise, supply and install special shaped units where required on the drawings including corner returns, bond beams, sash blocks for control joints and lintel units as necessary over wall openings. All outside corners to be bullnose units.
- .3 Obtain each CMU type from the same Manufacturer. CMU units to be uniform in texture and colour and free from cracks, chips and blemishes.



- .4 Fire Resistance rating shall be of 1 hour unless otherwise indicated. Compliance of all fire ratings shall be determined in accordance to NCMA Tek 7-1C in compliance to Table D-2.1.1, NBCC-10. Provide units with fire resistive ratings not less than 1 hour for nominal 100mm thick units where structural framing fire resistive rating is provided by 100mm block masonry units.
- .5 Provide units to accommodate vertical and horizontal reinforcing as indicated on the drawings. Use of common lintel blocks (bond beams) at horizontal reinforcing locations will not be permitted.

## 2.2 MORTAR & GROUT

- .1 Mortar for all masonry to conform to CSA A179-14 or latest edition.
- .2 Aggregates for mortar to the requirements of CSA Standards as required.
- .3 Portland Cement: to CAN/CSA-A3000.
- .4 Water: clean and free of deleterious amounts of acids, alkalies or organic materials.
- .5 Mortar & Grout Types:
  - .1 Use natural grey for all brick and stone units.
  - .2 Follow manufacturer's mixing, application techniques and recommendations on all factory premix product. Mortar mixes may be bagged or bulk dry blended materials in enclosed containers.
  - .3 Grout for all load bearing and non-load bearing interior and exterior masonry walls to be:
    - .1 For Job Site Mixed: To CSA A179-14 or latest edition based on proportion specifications. Table 3 for course grout. Slump shall not exceed 10" (250 mm).
    - .2 For Plant Mixed Grout: To CSA A179-14 or latest edition based on property specifications Table 6 for coarse grout, 12.5 MPa at 28 days and 7.5 MPa at 7 days. Slump shall not exceed 10" (250 mm).
    - .3 For job site mixed grout follow procedures outlined in CSA A179-14 or latest edition Clause 6.2.2.
- .6 Admixtures shall not be used in mortar and grout.

### **3.0 EXECUTION**

#### **3.1 GENERAL**

- .1 Workmanship
  - .1 Build masonry plumb, level and true to line with vertical joints in alignment.
  - .2 Lay coursing and bond to achieve correct coursing heights, and continuity of bond above and below openings, with minimum of cutting.
- .2 Tolerances
  - .1 Tolerances in notes to Clause 5.3 of CAN/CSA-A371-04 (R2014) or latest edition apply.
- .3 Exposed Masonry
  - .1 Remove chipped, cracked or otherwise damaged units in exposed masonry and replace with undamaged units.
- .4 Cutting
  - .1 Cut carefully for electrical switches, outlet boxes and other built-in items.
  - .2 Use masonry saw for cutting. Make cuts straight, clean and free from uneven edges. Do all cutting of exterior masonry to maintain continuity of appearance of exterior brick, renaissance masonry units and interior concrete masonry units.
- .6 Building-In
  - .1 Build-in all items required to be built into masonry.
  - .2 Prevent displacement of built-in items during construction. Check plumb, location and alignment frequently, as work progresses.

#### **3.2 NOTICE TO OTHER TRADES**

- .1 The Contractor shall notify all other trades when materials to be set in masonry work will be required and also to notify all trades when and where the exact location of openings and chases will be necessary.

#### **3.3 PROTECTION**

- .1 Protect all finished masonry work from damage and replace all damaged or defective material.

### **3.4 CLEAN UP**

- .1 Remove all debris and excess material not required in the performance of the work immediately from the site.

**END OF SECTION**

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**06 10 10-Rough Carpentry**

**GENERAL NOTE**

Comply with Instructions to Bidders, the General Conditions as amended and with Division 1 requirements.

**1.0 GENERAL**

**1.1 WORK INCLUDED BUT NOT LIMITED TO:**

- .1 All nailers, blocking, bucks, studs, furring, grounds, strapping, shims, etc.
- .2 All plywood exclusive of form work.
- .3 All nails, fasteners, bolts, washers, nuts, screws and rough hardware accessories.
- .4 All rework and new construction of wooden stairs.
- .5 All repairs and new construction of portable plywood skirt.

**1.2 RELATED SECTIONS:**

- .1 Section 03 10 00: Concrete Forming and Accessories

**1.3 CO-OPERATION**

- .1 Do all carpentry work and wood framing required by other trades. Refer to other sections of the specifications and to the drawings for pertinent information regarding such requirements.

**1.4 DELIVERY, STORAGE AND PROTECTION**

- .1 Protect materials from weather while in transit to the job site. Store materials on site in such a way as to prevent deterioration or loss of impairment of their structural and other essential properties.

**1.5 MEASUREMENTS**

- .1 Obtain measurements at the building for all items which are to be fabricated as required so that all parts of the work will fit together and will meet the conditions at the building.

**1.6 BARRICADES**

- .1 This Contractor shall provide all temporary protection, barricades, hoardings, etc. and miscellaneous items for building security, workmen and pedestrian traffic.

**2.0 PRODUCTS**

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## 2.1 LUMBER GRADES AND QUALITY

- .1 All lumber shall be the grades specified in accordance with the standard grading rules of the National Lumber Grades Authority and C.S.A. Standard 0141 Softwood. Lumber shall be grade stamped by a grading organization or agency certified by the Canadian Lumber Standards Administrative Board.
- .2 All lumber shall be sound, thoroughly seasoned and free from warp that cannot be corrected in the process of bridging or nailing. Woodwork exposed to view shall be dressed four sides. Moisture content shall not exceed percentages allowed by the National Lumber Grades Authority.

## 2.2 FRAMING LUMBER

- .1 All framing lumber for joists, studs, plates, nailers, bucks, grounds, copings, blocking, roof platforms and curbs and furring and strapping shall be No. 2 S.P.F. to sizes and spacing shown on drawings. Pressure treated for roof copings, members in contact with masonry and curbs on roof.

## 2.3 ROUGH HARDWARE AND NAIL

- .1 Nails, spikes, screws, bolts, etc. shall be of sufficient size and type to rigidly secure all members in place.
- .2 Rough hardware and nails shall be in accordance with C.S.A. Specification B111-1974 and the National Building Code of Canada.
- .3 Galvanizing to CSA G164-M92. Use galvanized fasteners for exterior work and in all pressure treated lumber.

## 2.4 PRESSURE TREATED LUMBER

- .1 All pressure treated lumber to be in accordance with CSA Standards 080 Series-M89 and 080.1 M 1983.

## 2.5 PLYWOOD

- .1 All interior, non-painted plywood shall be G.I.S. Grade B fir plywood in accordance with CSA 0121-M78, to thickness as detailed on the drawings.
- .2 Interior painted poplar plywood G.I.S., Grade 'A' in accordance with CSA-0153-M1980.
- .3 Plywood for exterior use on roof. G.I.S. Exterior Grade B Fir Plywood in accordance with CSA 0121-M78 or CSA 0151. Thickness as per drawings.

## **2.6 FASTENERS**

- .1 For anchorage of plywood and framing members to block masonry or concrete surfaces, Gripcon or Powers, Tapper mechanical fasteners, 1" embedment into the base material.
- .2 Bolts 12.7mm (1/2") diameter unless indicated otherwise, complete with nuts and washers.
- .3 Toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs recommended for purpose by manufacturer.
- .4 For anchorage of plywood and wood blocking to metal framing members, Powers, TEKS.
- .5 Other fastener types required performing the function intended and compatible to material being fastened and substrate to which it is fastened.

## **3.0 EXECUTION**

### **3.1 WORKMANSHIP**

- .1 All work of this section shall be done by skilled and experienced mechanics in accordance with drawing details and manufacturers recommendations. This trade shall examine the work and materials installed by others insofar as it applies to this section and report to the Consultant any work improperly done or arranged to receive the work of this trade. Erection of materials to be carried out in a substantial manner to ensure a rigid, straight, square, plumb and horizontal lines level.

### **3.2 WOOD FRAMING IN GENERAL**

- .1 Provide and install all items of wood framing, nailers, plywood, sheathing, blocking, etc. All wood members shall be anchored to masonry, steel and concrete construction as shown or required with anchor bolts, plates, washers, etc. of size sufficient to securely fasten all items and to the spacing as noted on the drawings.
- .2 Where bolt size and spacing is not shown or noted, members shall be secured with 1/2" bolts; not less than two in each member and for continuous nailers at 24" o/c. Lumber shall be bored for bolts and countersunk for heads. Provide washers under all bolt heads and nuts. All nails for exterior work shall be hot dip galvanize coated.
- .3 Fastening devices or adhesives shall be of appropriate type, used in sufficient quantity and in such manner to provide positive, permanent fastening which will not shift, work loose or fail due to vibration or other causes resulting from normal use of building. Install anchors or spacing to provide required load/stress carrying capacity. Do not use wood plugs.
- .4 Lay out neatly to keep exposed fastenings to minimum, evenly spaced and aligned. Do not use fastening which will cause spalling, cracking, or deformation or

deterioration of material being fastened by or to. Follow manufacturer's recommended edge distances and embedment depths.

- .5 Do not use powder actuated fastening devices which are stressed in withdrawal without approval. Take stringent safety precautions when using powder actuated fastenings. Use only low velocity plunger-type devices.
- .6 Use screws, nails, staples and other similar driven fasteners suitable to materials to be joined and to conditions under which they are installed and used.
- .7 Ensure that in finished work fasteners are sized to take durable hold under stress to be encountered without damage to, or weakening of elements secured together, and that fastenings will not corrode or cause staining of exposed surfaces.
- .8 Treat all field cuts in lumber and plywood with special non-leachable field cut preservative by brush coating. Approved field-cut wood preservative is available from outlets distributing pressure treated wood products. Follow instructions and cautions on container.
- .9 Use exterior grade lumber in contact with masonry or concrete and on all roof areas.

### **3.3 FINISH WORK**

- .1 Scribe and cut as required to fit abutting walls and surfaces to fit properly into recesses and to accommodate fixtures, outlets and other projecting, intersecting or penetrating objects.
- .2 Form joints to conceal shrinkage.
- .3 Position items of finished carpentry work accurately, level, plumb, true and fasten or anchor securely.
- .4 Design and select fasteners to suit size and nature of components being joined. Use proprietary devices as recommended by manufacturer.
- .5 Set finishing nails to receive filler. Where screws are used to secure members, countersink screw in round, cleanly cut hole and plug with wood-plug to match material being secured.
- .6 Replace items of finish carpentry with damage to wood surfaces including hammer and other bruises.
- .7 Butt and cope internal joints of baseboards to make snug, tight joint. Cut right angle joints of trim members with metered joints.
- .8 Fit backs of finish trim members snugly to wall surfaces to eliminate cracks at junction of walls.

### **3.4 CLEAN UP**

- .1 Remove all debris and excess material not required by the contractor promptly from the site in accordance with Section 01 74 11, Cleaning.

**END OF SECTION**





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**07 51 01-Miscellaneous Roofing and Accessories**

**GENERAL NOTE**

Comply with Instructions to Bidders, the General Conditions as amended and with Division 1 requirements.

**1.0 GENERAL**

**1.1 SCOPE OF WORK**

- .1 The work required under this section of the specifications shall include all labour, equipment and materials necessary to complete all Roofing & Sheet Metal and Associated Work as indicated on the drawings, specified herein and briefly described as follows:
  - .1 All new roof supports, pitch pockets, counter flashings, Built-Up Bituminous Roof System etc as required by the work for the replacement of mechanical roof top equipment
  - .2 All roof demolition and/or removals as required due to the installation of supports, pitch pockets, accessory flashings etc as required for the replacement of mechanical roof top equipment as shown on the drawings.
  - .3 All roof repairs and accessories shall be executed under the supervision and in strict accordance with Tremco Roofing and Building Maintenance Guidelines and Recommendations.
  - .4 Roof accessories, specialty flashings, mechanical equipment supports, devices etc.
  - .5 Provide a letter of confirmation from Tremco Roofing and Building Maintenance stating all roof repairs and work was executed in an acceptable manner and all current warranties remain in place.

**1.2 EXAMINATION AND CO-ORDINATION**

- .1 The Contractor shall examine all drawings and specifications and visit the site for information affecting the execution and completion of the work
- .2 Roofing Contractor shall co-ordinate all roofing operations with the General Contractor. He shall not interfere with the normal operations of the School nor interrupt any of the utilities that are necessary for the operation of the School.

### 1.3 PRODUCT HANDLING, STORAGE & DELIVERY

- .1 Deliver materials to the job site in the manufacturer's original, unopened containers or wrappings with the manufacturer's name, brand name and installation instructions intact and legible. Deliver in sufficient quantity to permit work to continue without interruption.
- .2 Comply with the manufacturer's written instructions for proper material storage.
  - .1 Store membrane in the original undisturbed plastic wrap in a cool, shaded area and cover with light-colored, breathable, waterproof tarpaulins.
  - .2 Store curable materials (adhesives and sealants) between 60°F and 80°F in dry areas protected from water and direct sunlight. If exposed to lower temperature, restore to 60°F minimum temperature before using.
  - .3 Store materials containing solvents in dry, well ventilated spaces with proper fire and safety precautions. Keep lids on tight. Use before expiration of their shelf life.
  - .3 Insulation must be on pallets, off the ground and tightly covered with waterproof materials.
  - .4 Any materials which are found to be damaged shall be removed and replaced at the applicator's expense.

### 1.4 SAFETY

- .1 Respect safety measures described in the manufacturer's instructions and recommendations.
- .2 Throughout roofing installation, maintain a clean site and have one approved ABC fire extinguisher. Respect all safety measures described in technical data sheets.
- .3 The roofing contractor shall be responsible for all means and methods as they relate to safety and shall comply with all applicable local, state and federal requirements that are safety related. Safety shall be the responsibility of the roofing contractor. All related personnel shall be instructed daily to be mindful of the full time requirement to maintain a safe environment for the facility's occupants including staff, visitors, customers and the occurrence of the general public on or near the site.

### 1.5 JOB CONDITIONS AND PROTECTION

- .1 Protect surrounding surfaces against damage from roofing work. Where hoisting is necessary, hang tarpaulins to protect walls. Hoisting area to be within a fenced enclosure. The storage of all roofing material and equipment shall be within a fenced enclosure.

- .2 Co-ordinate with the school the time of all school activities, start/end of day, bus arrival/departures, recess and lunch breaks etc. Roofing activities, vehicle movement within the Place of the Work must be suspended during these times.
- .2 Before commencing work, ensure environmental and site conditions are suitable for installation of materials in accordance with the manufacturer's recommendations.
- .3 Assure that substrates are free of bituminous substances, smooth, clean and dry and of sufficient strength to withstand construction traffic and equipment.
- .4 Notify the Architect in writing of unsuitable surfaces and conditions.
- .5 Where roofing is left incomplete at end of day, apply cut offs to prevent moisture entering the roofing system.

#### **1.6 ROOFING INSPECTION**

- .1 The Owner/Consultant will appoint an independent inspection company to carry out part time inspections of the roofing and sheet metal material, application and workmanship. This inspection company will act as the Owner's and Architect's agent during the progress of the roofing and sheet metal application.
- .2 The Roofing Membrane Manufacturer representative will make weekly site inspections and issue inspection reports to the contractor, consultant and owner.
- .3 There will be a pre-construction meeting arranged with the successful Roofer, Owner, Architect, Contractor, Roofing Membrane Manufacturer and Inspection Company to review job conditions, specifications and workmanship.
- .4 The Roofing Contractor shall notify the testing company in ample time of his work schedule and all changes thereto, also he shall co-operate fully with the testing company on the job. There must be roofing inspections for all roofing and sheet metal applications and a final inspection of the completed work.
- .5 A copy of the written reports of these roof inspections shall be forwarded directly to the Consultant and Owner by the testing company with additional copies as required to the Roofer and General Contractor. All reports must be in the Owner's hands before final payment for the roof can be authorized.
- .6 The General Contractor shall pay the roof inspection costs from an allowance in the contract.

#### **1.7 WARRANTY**

- .1 All work shall be review and approve by Tremco subject to maintain current warranties.

## 2.0 PRODUCTS

### 2.1 ACCESSORIES

- .1 Provide all accessories required for the complete fabrication and installation of all roofing and sheet metal work.

## 3.0 EXECUTION

### 3.1 GENERAL

- .1 Comply with the manufacturer's published instructions for the installation of the membrane roofing system including proper substrate preparation, jobsite considerations and weather restrictions.
- .2 Position sheets to accommodate contours of the roof deck and shingle splices to avoid bucking water.

### 3.2 INSPECTION OF SURFACES

- .1 Verify that work of other trades which penetrates roof deck or that requires men and equipment to traverse roof deck has been completed.
- .2 Clean all surfaces removing nails and other loose and foreign materials, oil and grease, dispose of all debris. Insure substrate is dry and within the requirements of the membrane manufacturer. Inspect all deck surfaces and report any areas in question as to its soundness or structural integrity.
- .3 Check that coping blocking and penetrating objects are solidly fixed in place.
- .4 Do not begin any work before surfaces are smooth, dry, free of ice and debris. Use of calcium or salt is forbidden for ice or snow removal.

### 3.3 CLEAN UP

- .1 Perform daily clean-up to collect all wrappings, empty containers, paper, and other debris from the project site. Upon completion, all debris must be disposed of in a legally acceptable manner.
- .2 Prior to the manufacturer's inspection for warranty, the applicator must perform a pre-inspection to review all work and to verify all flashing has been completed as well as the application of all caulking.

**END OF SECTION**

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**07 84 00-FireStopping & Smoke Seals**

**GENERAL NOTE**

Comply with Instructions to Bidders, the General Conditions as amended and with Division 1 requirements.

**1.0 GENERAL**

**1.1 WORK INCLUDED BUT NOT LIMITED TO**

- .1 The work of this section consists of furnishing all materials, labour and equipment necessary to complete the proper installation of all fire stopping and smoke sealing of all fire separations rated and non-rated.

**1.2 RELATED WORK:**

- .1 Fire stopping and smoke seals forming part of electrical assemblies (i.e. conduit, wiring, cable trays) are specified in Division 26.

**1.3 QUALITY ASSURANCE**

- .1 Applicator shall have not less than two years' experience installing ULC classified firestop systems or industry equivalent.
- .2 Materials shall have been tested to provide a fire resistance rating equal to or surpassing that required by the design documents.
- .3 Opening dimensions that are not in keeping with the mechanical or electrical drawing requirements will be the responsibility of the respective sections for correction to meet the requirements of the firestop system.

**1.4 SUBMITTALS**

- .1 Submit two copies of manufacturer's product data for materials and prefabricated devices, providing descriptions of each type of material required. Include manufacturer's printed instructions for installation.
- .2 Submit shop drawings or manufacturer's detail sheets showing each condition that requires continuous firestopping, location-specific firestopping and / or penetration firestopping systems. These details must be in accordance with the proposed approved system. Details must include materials to be used, anchorage, methods of installation and relationship to all adjacent construction relative to this project.
- .3 Make submittals in accordance with Section 01 33 00, Submittals.

**1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver materials undamaged in manufacturer's clearly labelled, unopened containers, identified with brand, type, grade and qualification label where applicable.
- .2 Coordinate delivery and scheduled installation date to allow minimum storage time at site.
- .3 Store materials in clean, dry, ventilated location. Protect from soiling, abuse and moisture. Follow manufacturer's instructions.

## **1.6 PROJECT CONDITIONS**

- .1 Installer shall verify that existing conditions and substrate are acceptable for the proposed application before starting work. Unsatisfactory conditions must be corrected before proceeding.

## **2.0 PRODUCTS**

### **2.1 MATERIALS**

- .1 Fire stopping and smoke seal systems: In accordance with CAN4-S115-M95.
  - .1 Asbestos-free materials and systems capable of maintaining an effective barrier against flame, smoke and gases in compliance with requirements of CAN4-S115-M95 and not to exceed opening sizes for which they are intended.
  - .2 Refer to drawings for length of time required for fire-resistance ratings.
- .2 Service penetration assemblies: certified by ULC in accordance with CAN4-S115-M95 and listed in ULC Guide No. 40 U19.
- .3 Service penetration firestop components: certified by ULC in accordance with CAN4-S115-M95 and listed in ULC Guide No. 40 U19.13 and ULC Guide No. 40 U19.15 under the Label Service of ULC.
- .4 Fire-resistance rating of installed fire stopping assembly not less than the fire-resistance rating of surrounding floor and wall assembly.
- .5 Fire stopping and smoke seals at openings intended for ease of re-entry such as cables: elastomeric seal; do not use cementitious or rigid seal at such locations.
- .6 Fire stopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control: elastomeric seal; do not use a cementitious or rigid seal at such locations.
- .7 Primers: to manufacturer's recommendation for specific material, substrate, and end use.

- .8 Water (if applicable): potable, clean and free from injurious amounts of deleterious substances.
- .9 Damming and backup materials, supports and anchoring devices: to manufacturer's recommendations, and in accordance with tested assembly being installed as acceptable to authorities having jurisdiction.
- .10 Sealants for vertical joints: non-sagging.
- .11 Acceptable Materials
  - .1 Firebarrier distributed by Double A/D Distributors Ltd.
  - .2 Fire-Bloc by M. W. McGill Associates Ltd.
  - .3 Dow Corning Corporation, Fire Stop Foam, Fire Stop Sealant, Silicone RTV Foam.
  - .4 Tremco Fire and Smoke Containment Systems
  - .5 Thermal Ceramics, Fire Master Systems.
  - .6 3M Fire Protection Products.
  - .7 Hilti Firestop Systems

### **3.0 EXECUTION**

#### **3.1 PREPARATION**

- .1 Examine sizes and conditions of voids to be filled to establish correct thicknesses and installation of materials. Ensure that substrates and surfaces are clean, dry and frost free.
- .2 Prepare surfaces in contact with fire stopping materials and smoke seals to manufacturer's instructions.
- .3 Maintain insulation around pipes and ducts penetrating fire separation without interruption to vapour barrier.
- .4 Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.
- .5 Review Health and Life Safety Plans and all other drawings for locations and ratings of required fire separations.

#### **3.2 INSTALLATION**

- .1 Install fire stopping and smoke seal material and components in accordance with ULC certification and manufacturer's instructions.



- .2 Seal holes or voids made through penetrations, poke-through termination devices, and unpenetrated openings or joints to ensure continuity and integrity of fire separation are maintained.

### **3.3 INSPECTION**

- .1 Notify Consultant when ready for inspection and prior to concealing or enclosing firestopping materials and service penetration assemblies.

### **3.4 SCHEDULE**

- .1 Firestop and smoke seal at:
  - .1 Penetrations through fire-resistance rated or non-rated masonry, concrete, and gypsum board partitions and walls.
  - .2 Penetrations through all non-rated fire separations.
  - .3 Top of fire-resistance rated concrete, masonry and gypsum board partitions and cavity shaft walls and system above (floor/roof/etc).
  - .4 Intersection of fire-resistance rated concrete, masonry and gypsum board partitions.
  - .5 Control joints in fire-resistance rated concrete, masonry and gypsum board partitions and walls.
  - .6 Penetrations through fire-resistance rated floor assemblies.
  - .7 Openings between floor assemblies and curtain wall framing.
  - .8 Openings and gaps between floor assemblies and masonry/concrete walls.
  - .9 Around mechanical and electrical assemblies penetrating horizontal and vertical fire separations.

### **3.5 CLEAN UP**

- .1 Remove excess materials and debris and clean adjacent surfaces immediately after application.
- .2 Remove temporary dams after initial set of fire stopping and smoke seal materials.

**END OF SECTION**

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**07 92 10-Sealants & Caulking**

**GENERAL NOTE**

Comply with Instructions to Bidders, the General Conditions as amended and with Division 1 requirements.

**1.0 GENERAL**

**1.1 WORK INCLUDED BUT LIMITED TO:**

- .1 The work under this Section of the Specifications shall include all labour, equipment and materials to complete all sealants and caulking indicated on the drawings and specified herein including the following:
  - .1 Locations as required to provide watertight installation.

**1.2 RELATED WORK**

- .1 Refer to Section 03 30 00: Caulking of saw cuts in exposed concrete floors
- .2 Division 7 - Thermal and Moisture Protection
- .3 Refer to Section 07 84 00: Firestopping and Smoke Seals.
- .4 Refer to Divisions 22, 23, 24, 25: Caulking work in connection with mechanical and electrical trades.

**1.3 QUALITY ASSURANCE**

- .1 The work shall be executed by fully trained mechanics employed by an applicator in strict accordance with manufacturer's printed directions.
- .2 Applicator shall be able to supply proof of competence in application of specified material, design and system.
- .3 Use samples of materials to be applied to test primers and elastomeric sealants for compatibility and adhesion to materials requiring sealant.
- .4 Compounds to be non-staining to masonry.
- .5 Ensure compatibility of sealants with site applied paint and other finishes.
- .6 Do not proceed with sealing operations until unsatisfactory conditions have been corrected.

**1.4 SUBMITTALS**

- .1 Submit manufacturer's technical product data for sealants, including detailed recommendations for joint preparation, use of primers and sealant application.

- .2 Upon request submit to the Architect samples of cured caulking compound as designated. Identify samples as to product name, colour, date, project and sub-contractor. All materials used on the project shall conform with approved samples.
- .3 Colour of caulking compound shall be selected by the Architect from the manufacturer's standard colour range. Submit charts for colour selection, showing manufacturer's complete range of standard colours for each specified type.
- .4 Submit upon request, test reports showing qualifications of caulking material used.
- .5 Job-applied samples: Prepare joints and install samples of materials in selected locations to demonstrate materials and workmanship. Obtain approval of installed samples as an acceptable standard of quality before continuing.

#### **1.5 PRODUCT DELIVERY, STORAGE AND HANDLING**

- .1 Deliver all caulking materials to site in factory sealed containers or packaged with all labels intact.
- .2 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials; and regarding labelling and provision of material safety data sheets acceptable to Labour Canada.

#### **1.6 JOB CONDITIONS**

- .1 Environmental Conditions: To avoid frost on surface, material shall not be applied when surface temperature is 7 degrees C or under. Comply with manufacturer's recommendations.
- .2 Protection: Take proper precautions to prevent adjacent surfaces from becoming stained, marked or soiled when doing this work.

#### **1.7 WARRANTY**

- .1 The Contractor shall warrant to the Owner in writing sealant material and labour against all defects for a period of five (5) years from the date of acceptance and substantial performance of the contract. Warranty shall not include mechanical damage. Warranty shall be for replacement and installation of defective sealant at no charge to the Owner.

### **2.0 PRODUCTS**

#### **2.1 MATERIALS**

- .1 Joint Fillers:
  - .1 General: compatible with primers and sealants, outsized 25%.

- .2 Polyethylene: extruded closed cell foam, non-gasing, tensile strength 140 to 200 kPa meeting CEGS-07951-9 Standard for back-stop materials.
- .3 Bond Breaker: pressure sensitive plastic tape which will not bond to sealants as recommended by the sealant manufacturer.
- .2 Sealant Type-A:
  - .1 A one-part, neutral-cure, architectural-grade, cold-applied, non-sagging silicone sealant to effectively resist moisture, abrasion and up to 50% movement. Not for use in below-grade or underwater applications.
  - .2 Applicable Standards: CAN2 19.13 M82 and Federal Specification TT-S-001 543A, Class A and TT-S-00230C, Class A for silicone building sealants.
  - .3 Colours: Architect to select colour from standard colour range to suit locations and building colours.
  - .4 Acceptable Products:
    - .1 Dow (Corning) Dowsil 795 Silicone.
    - .2 Tremco - Spectrum 2
- .3 Sealant Type-B:
  - .1 Acrylic latex, one-part compound, non-sag, non-staining, non-bleeding, non-cracking; to remain flexible, quick drying and paintable with alkyd or latex paints, designed for interior joints.
  - .2 Applicable Standard: CAN/CGSB-19.17-M90.
  - .3 Colour: White.
  - .4 Acceptable Products: Tremco Tremflex 834, Hilti CS2311, Mulco Inc. Acrylastic, Sonneborn Sonolac.
- .4 Related Materials
  - .1 Primer-sealers: Non-staining, types required for sealant and surface (as applicable) and recommended by sealant manufacturer for substrate.
  - .2 Solvents, cleaning agents: Recommended by sealant manufacturer for type of sealant, such as Xylol, Xylene, Methyl-Ethyl-Ketone or other suitable oil free solvent; harmless to factory finish of metal and other materials when used on permanent surfaces.

### 3.0 EXECUTION

#### 3.1 PREPARATION

- .1 Remove dust, paint, loose mortar and other foreign matter. Dry joint surfaces.
- .2 Remove rust, mill scale and coatings from ferrous metals by wire brush, grinding or sandblasting.
- .3 Remove oil, grease and other coatings from non-ferrous metals and joint cleaner.
- .4 Prepare concrete, masonry, glazed and vitreous surfaces to sealant manufacturer's instructions.
- .5 Examine joint sizes and correct to achieve depth ratio  $\frac{1}{2}$  of joint width with minimum width and depth of  $\frac{1}{4}$ " (6mm), maximum width 1" (25mm).
- .6 Substrate shall be tested for adhesion if required. Ensure adhesion of sealant to paint and compatibility of materials. Applicator shall ensure that joints are visibly clean and sound prior to application of sealant.

#### 3.2 GENERAL INSTALLATION PROCEDURES

- .1 Apply sealants, primers, joint fillers and bond breakers to manufacturer's instructions. Apply sealant using gun with proper size nozzle. Use sufficient pressure to fill voids and joints solid. Superficial pointing with skin bead is not acceptable.
- .2 Form surfaces of sealant with full bead, smooth, free from ridges, wrinkles, sags, aid pockets, embedded impurities. Neatly tool surface to a slight concave joint.
- .3 Use only proven installation techniques, which will ensure that sealants will be deposited in smooth uniform, continuous ribbons without gaps or air pockets, with complete "wetting" of the joint bond surfaces equally on opposite sides. Fill sealant rabbet and tool the sealant to a slightly concave surface, slightly below adjoining surfaces. Where horizontal joints are between a horizontal surface and a vertical surface, fill the joint to form a slight cove, so that joint will not trap moisture and dirt.
- .4 Apply sealant to joints specified and where indicated.
- .5 Colours of exposed sealants shall match approved samples.
- .6 Remove excess and spillage of compounds promptly as the work progresses, before materials cure or harden. Clean the adjoining surfaces by whatever means may be necessary to eliminate evidence of spillage or smearing. Do not damage the adjoining surfaces or finished.
- .7 Do not permit elastomeric sealant and other incompatible materials to come in contact with bituminous materials such as pre-moulded expansion strips.

- .8 Carefully seal all openings in interior masonry partitions, such as spaces around electrical outlets, pipes and ducts, and around door frames, which might permit sound transmission between adjoining spaces.

### **3.3 WEATHER CONDITIONS AND SCHEDULE**

- .1 Do not proceed with installation of liquid sealants under adverse weather conditions, or when temperatures are below or above manufacturer's recommended limitations for installation. Generally, apply sealants when ambient temperature is between 7 deg C and 32 deg C.
- .2 Apply primers and sealants only to dry joints.
- .3 Coordinate time schedule of application with work of other trades to avoid delay of project.

### **3.4 APPLICATION OF TYPE-A SEALANT FOR BUILDING JOINTS**

- .1 Use sealant in exterior and interior control joints shown or scheduled to receive Type-A sealant.
- .2 Prior to use of sealant protect unopened containers from heat and direct sunshine. In cold weather store the containers at approximately 22 deg C for at least 16 hours before using.
- .3 Install sealant horizontally in one direction and where possible in vertical joints from bottom end of joint to top of properly prepared joints. Where joints have been primed, install sealant within time limitations of primer.
- .4 Apply sealant with professional gun to a minimum joint width of ¼" (6mm). Depth of sealant shall be 1/2 of the joint and a minimum of ¼" (6mm).
- .5 If necessary for smooth bead, tool joints within 10 minutes of application and remove masking immediately. Do not tool unmasked joints.
- .6 Clean excess sealant from non-porous surfaces while in uncured state with a commercial solvent. On porous surfaces while in uncured state with a commercial solvent. On porous surfaces allow excess sealant to cure and then remove by mechanical means.
- .7 Allow sealed joints to cure at least 48 hours before disturbing. When used in subsurface applications, allow one week curing time before disturbing.

### **3.5 APPLICATION OF TYPE-B SEALANT (ACRYLIC-LATEX)**

- .1 Use acrylic-latex compounds for interior as scheduled following or indicated, which do not exceed limitations of manufacture (usually 12 mm by 12 mm deep or 18 mm wide by 9 mm deep).

- .2 Apply sealant with a gun using nozzles of proper size and providing satisfactory bead. Completely fill the joint making sure compound is forced against sides.
- .3 Firmly tool surface with sticking agent to assure complete contact and adhesion. Do not apply agent to adjacent surfaces.
- .4 Clean adjoining surfaces of smears of compound or soiling due to application; remove excess at once with solvent recommended by compound manufacturer.

### **3.6 SCHEDULE**

- .1 Exterior & Interior Sealants
  - .1 Sealant Type-A: For joint sealant locations exposed to exterior temperatures as follows:
    - .1 Control joints in masonry and joints between masonry and concrete.
    - .2 At perimeter of frames for doors, louvers, windows, entrances, and other exterior openings.
    - .3 Under thresholds.
    - .4 Where sealant is shown on drawings in other building locations and the sealant is not specified elsewhere.
    - .5 Between different materials in surfaces where necessary to provide watertight finish and a sealant is not otherwise specified.
  - .2 Interior Sealants (In Enclosed Spaces)
    - .1 Sealant Type-B: Install acrylic latex sealant continuously in joints of interior surfaces to be painted, except locations specifically shown or specified to receive Type-A sealant, as follows:
      - .1 To fill voids at perimeter of metal door frames, borrowed light frames, louvers, aluminum frames built into interior walls or partitions to be painted.
      - .2 At built-in miscellaneous items installed under this contract, to complete a neat fit at walls for painting.
      - .3 In interior joints between masonry or concrete and metal fabrications of all types to fill cracks and joints for painting.
      - .4 Between window stools and window or curtain wall framing.
      - .5 Masonry wall internal corners and where abutting masonry walls are not bonded (keyed-in).

- .6 Other interior painted wall locations specifically noted to receive "caulking": or "sealant", except where other type sealants are specifically specified.

### **3.7 CLEAN UP**

- .1 Immediately remove excess compound or droppings which would set or become difficult to remove from adjacent finished surfaces using recommended cleaners as the work progresses.
- .2 Do not use scrapers, chemicals or other tools which could damage the finished surfaces.
- .3 After completion, remove all excess materials and equipment from site.

**END OF SECTION**





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**10 95 00-Miscellaneous Specialties**

**GENERAL NOTE**

Comply with Instructions to Bidders, the General Conditions as amended and with Division 1 requirements.

**1.0 GENERAL**

**1.1 WORK INCLUDED BUT NOT LIMITED TO:**

- .1 The work required under this Section of the specifications shall include all labour, equipment and materials necessary to complete the supply and installation of the following items.
- .2 The contractor shall review the drawings and account for products and materials having specifications outline on the drawings that will not be included in the specifications.

**1.2 SUBMITTALS**

- .1 Prepare and submit copies of reviewed shop drawings of items specified herein to the Consultant for review in accordance with Section 01 33 00, Submittals.
- .2 Where products require colour selection, submit manufacturer's colour selection in accordance with Section 01 33 00, Submittals.

**2.0 PRODUCTS**

**2.1 ROOF CLEAN-UP**

- .1 During construction and again immediately before turning building over to the Owner, the General Contractor shall inspect the entire roof surface and remove all debris, dirt and dust.

**2.2 POLYVINYL MEMBRANE**

- .1 Provide 6mm thick polyvinyl membrane under the entire area of the portable classroom as noted on the drawings.

## 2.3 SITE CLEAN-UP

- .1 The contractor prior to owner occupancy and/or substantial performance shall clean the site of all construction materials, temporary fencing, hoarding, trailers, etc. All landscaped shall be cleaned of construction debris, cut and/or pruned in accordance with the specifications. All concrete walks and asphalt paved areas shall be water power sprayed cleaned.

**END OF SECTION**

Plot

<u>SECTION</u>	<u>DESCRIPTION</u>	<u>PAGES</u>
26 05 01	GENERAL ELECTRICAL PROVISIONS	9
26 05 02	SUBMITTALS	5
26 05 03	BASIC MATERIALS AND METHODS	8
26 24 16	CIRCUIT BREAKERS	2
27 15 00	TELECOMMUNICATIONS CABLING	7
27 51 16	PUBLIC ADDRESS EQUIPMENT	2
28 31 00	FIRE ALARM SYSTEM	8

**END OF INDEX**



**PART 1 : GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- .1 The specifications of Section 26 05 01 shall apply to and govern the work of Divisions 26, 27 and 28 and shall be read as an integral part of each Section.
- .2 The Electrical Drawings and these Specifications are complementary to each other and each forms a part of this contract. In the event of discrepancies between Drawings and Specifications, the more restrictive conditions shall apply unless a written clarification is obtained from the Consultant.
- .3 Misinterpretation of any requirement of the Drawings or Specifications will not relieve this Division of responsibility to complete the work. If in doubt, contact the Consultant for written clarification. If clarification is not sought the Consultant's decision shall be final and binding on the Contractor.
- .4 Related Work
  - .1 Submittals Section 26 05 02

**1.02 SYSTEM DESCRIPTION**

- .1 Supply all labour, tools, equipment, materials and transportation required for the installation and proper operation of the complete systems as shown on the Drawings, as specified herein, or as reasonably inferable from both.
- .2 Work to be Supplied and Installed

The work of this Division includes, but is not limited to supply and installation of the following systems:

Secondary Distribution to Relocated Portable Classrooms  
Fire Alarm System Modifications and new devices as required  
Communication Systems (Connection of PA Devices into system and Data wiring connection).  
Renovations and Removal of Existing Equipment

**1.03 REFERENCES**

- .1 The Specifications for the Divisions as listed below shall govern the work of all Sections of this Division.

Existing Conditions	Division 02
Concrete	Division 03
Openings	Division 08
Finishes	Division 09

**1.04 WORKMANSHIP**

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- .1 Only first class workmanship by skilled electricians will be accepted, not only with regards to durability, and safety, but also with regard to its neatness of installation, and overall accessibility. Present a neat and clean installation on completion to the satisfaction of the Consultant. Any unsatisfactory workmanship shall be replaced at no extra cost.
- .2 Employ a competent foreman to supervise the work.
- .3 Employ qualified and experienced trades people employed to perform specific work such as installation or testing of specific systems including fire alarm systems, special systems, etc.

**1.05 DRAWINGS**

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- .1 Drawings, which accompany these specifications, are diagrammatic and show the power distribution, number and general location of the electrical equipment. They do not show all details and are not intended to be shop or working drawings.
- .2 Do not scale drawings but use only dimensions, which are shown. Where exact building dimensions and details are required, use only figured dimensions on the Architectural or Structural Drawings or job site dimensions.
- .3 Make alterations to device and equipment locations as required; co-ordinate with other trades at no extra cost.
- .4 No deviations from the Drawings or Specifications will be permitted without written authorization from the Consultant.

**1.06 RECORD & SHOP DRAWINGS**

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- .1 Provide record drawings and shop drawings in accordance with Section 26 05 03, Submittals.

**1.07 PERMITS AND FEES**

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- .1 Obtain and pay for all permits and fees required for the execution and inspection of the electrical work and pay all charges incidental to such permits.
- .2 Arrange and pay for any special inspection of equipment specified if and when required.
- .3 On completion of the electrical work, obtain and submit to the Consultant the Electrical Safety Authority Final Unconditional Inspection certificate together with the maintenance manuals.

**1.08 RULES AND REGULATIONS**

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- .1 Provide all materials and installation in accordance with the latest editions of the Canadian Electrical Code, Ontario Electrical Safety Code, CSA Standards and Bulletins, the Electrical Safety Authority Department Special Inspection, The Ontario Fire Marshal and any other more restrictive requirements of all applicable Municipal and Provincial Codes and Regulations.

- .2 The Contract Drawings show the minimum standard acceptable regardless of any lesser standards set by any Codes or Regulations having jurisdiction.

**1.09 CO-OPERATION OF TRADES**

- .1 Read Specifications and Drawings of other trades and conform with their requirements before proceeding with any work specified in this Division related to the other trades.
- .2 Co-operate with all other trades on the job, so that all equipment can be satisfactorily installed, and so that no delay is caused to any other trade.

**1.10 EXAMINATIONS**

- .1 Before submitting tenders, carefully examine the Architectural and Electrical Drawings and all Specifications having a bearing on the work of this Division. Visit the site of the building and thoroughly ascertain that the work of this Division can be carried out satisfactorily without any changes to the Drawings or Specifications. No extras will be allowed for anything, which would have been revealed in the course of such an examination.
- .2 Examine the proposed locations of equipment and fixtures of other trades and report any defects or interference with the work of this Division in writing to the Consultant. Affected work shall not commence until any discrepancies adversely affecting the work of this Division are remedied.
- .3 Fully understand the function of the systems described in this Division. Have no doubt as to the extent of the systems and/or materials and labour required. Contact the Consultant for clarification. No extras will be allowed to complete systems inadequately installed or not fully operational.

**1.11 ABBREVIATIONS & DEFINITIONS**

- .1 Abbreviations used on Electrical Drawings and in this Division are generally listed below:
- |          |   |
|----------|---|
| OBC      | Ontario Building Code                                     |
| CSA      | Canadian Standards Association                            |
| FHP      | Fractional Horse Power                                    |
| C        | Conduit   |
| E.C.     | Empty Conduit   |
| Trans.   | Transformer   |
| F @      | Fused at  |
| SP (DP)  | Single Pole (Double Pole)                                 |
| 3P       | Three Pole  |
| SN       | Solid Neutral   |
| Disc. Sw | Disconnect Switch   |
| LP       | Lighting Panel  |
| PP       | Power Panel   |
| DP       | Distribution Panel  |
| WP       | Weatherproof  |
| MH       | Mounting Height   |
| OESC     | Ontario Electrical Safety Code                            |
| NFPA     | National Fire Protection Association                      |
| NFC      | National Fire Code  |
| EEMAC    | Electrical Equipment Manufacturer's Association of Canada |



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ANSI	American National Standards Institute
ULC	Underwriter Laboratories of Canada
RT	Rain Tight
FA	Fire Alarm

- .2 Wherever the words "approved", "satisfactory", "directed", "permitted", "inspected", "instructed", "required", "submit", "order", or similar words or phrases are used in the specification, it shall be understood, unless the context implies otherwise, that the words "by (to) the Consultant" follows.
- .3 Wherever the word "provide" is used in this specification or on the drawings, it shall be understood, unless the context implies otherwise, that it is equivalent to "supply and install".

#### 1.12 ELECTRICAL EXTRAS AND CREDITS

- .1 Changes to the contract requiring additions to or deletions from the work of this Division shall be carried out upon written request of the Consultant. Extras to the contract or credits shall be submitted with a complete cost breakdown as follows:
  - .1 Materials, quantities and unit prices for all equipment required or deleted.
  - .2 Unit man hours.
  - .3 Total material cost.
  - .4 Total man hours.
  - .5 Hourly rate. (Refer to Supplementary Conditions and General Contract).
  - .6 Total overhead and profit. (Refer to Supplementary Conditions and General Contract).
- .2 Equipment and material costs shall be accepted at net costs only.
- .3 Invoices, time sheets, and other evidence of costs shall be provided upon request by the Consultant.
- .4 Prices not submitted in this format will not be accepted.

#### 1.13 OPERATING AND MAINTENANCE MANUALS

- .1 Submit operating and maintenance manuals in accordance with Section 26 05 02, Submittals.

#### 1.14 GUARANTEE

- .1 Upon completion of the work of this Division and prior to final payment, provide to the owner a written guarantee that for one year from the date of acceptance, any defect in workmanship or materials will be corrected at no cost to the Owner except where Owner misuse, neglect, or abnormal conditions have caused the defect.

- .2 This guarantee shall not supersede any longer Guarantee furnished by a manufacturer.

#### **1.15 INSPECTION**

- .1 All work and materials covered by these Specifications shall be subject to inspection at any time, by the Consultant or the Owner's Representative.
- .2 If the Consultant or Owner's representative finds that any material or workmanship does not conform with these specifications undertake to correct such workmanship within 5 days of notification by the Consultant.

#### **1.16 FINAL INSPECTION**

- .1 Notify the Consultant when the final inspection of the work shall be performed. Defects or deficiencies found during this inspection shall be corrected to the satisfaction of the Consultant before final payment is made.

#### **1.17 DAMAGE TO OTHER WORK**

- .1 This Trade shall be responsible for all damages to his own work or the work of other trades caused by the execution of work by this Division.
- .2 Provide protective covers on or around equipment and materials to prevent damage during construction.

### **PART 2 : PRODUCTS**

#### **2.01 MATERIALS AND EQUIPMENT**

- .1 All materials and equipment shall be new and conform to CSA Standards. All materials and equipment shall be approved for their intended use by the authority having jurisdiction.
- .2 Material or equipment specified by technical description shall be provided with the best commercial qualities obtainable for the purposes described.
- .3 Maintain uniformity of manufacturer, type, and style, within a particular group of equipment or class or type of fixture.
- .4 Requests for extra money, time or equipment substitution due to late ordering of equipment will not receive any consideration.
- .5 The listing of specific manufacturers does not imply acceptance of their products. Any listed manufacturers must meet the specifications in their entirety.

#### **2.02 ALTERNATES AND SUBSTITUTIONS**

- .1 Whenever a substitute or alternate product is proposed for use, this Contractor shall guarantee that such proposed substitutes or alternates will not adversely affect the requirements allocated on the drawings for the material or item or plant or equipment specified. He shall agree to bear any additional expense incurred due to the use of proposed substitutes or alternates, particularly in connection with any required changes

in the work of any other division.

- .2 Requests for approval shall be accompanied by complete specifications for the equipment, showing dimensions, ratings, photometrics, cost reductions, etc.
- .3 No substitutions or alternates will be allowed after tender close.
- .4 Any equipment installed, without the Consultant's written approval, shall be removed and the correct equipment installed at no extra cost.
- .5 In the event the approved alternate equipment is not available for any reason, the specified equipment shall be installed.
- .6 When proposing an alternative product make all affected parties aware of any structural, architectural, mechanical, or electrical design changes necessary to accommodate the alternative product. The contractor is responsible for paying all costs incurred, which may result from the acceptance of the alternative. Any cost savings anticipated must include all additional costs incurred for any changes to the original design.

### **PART 3 : EXECUTION**

#### **3.01 GENERAL REQUIREMENTS**

- .1 Megger test all feeders prior to energizing. Submit test results in maintenance manuals.
- .2 Measure voltage at all feeder supply connectors and at the load connections. Tests to be conducted at normal operating conditions. Submit test results in maintenance manuals.

#### **3.02 STORAGE OF MATERIALS**

- .1 Provide proper facilities for a workshop, tool shop, office space and protection of materials and equipment. Coordinate location with General Contractor.
- .2 Store all material, equipment in a dry, clean place and cover as necessary to preserve factory finish.

#### **3.03 WASTE AND SURPLUS MATERIALS**

- .1 Keep the premises free of accumulation of waste and surplus materials.
- .2 On completion of the contract, this Division shall remove all tools, scaffolding, surplus material, scrap and debris resulting from the work of this Division from the site.
- .3 Clean all equipment such as panel boxes, luminaires, switches receptacles, etc., of all dirt and dirt at the time of final acceptance of the work.

#### **3.04 SLEEVES, HOLES AND PATCHING**

- .1 All cutting, patching, sleeves and grouting is to be done by fully qualified craftsmen of that respective trade. All costs for cutting and patching required by this Division are to be included in the tender.

- .2 All cutting, patching, sleeving, etc. shall be carried out under the direct supervision of the General Contractor, and to the satisfaction of the Consultant.

### 3.05 GROUNDING AND TESTING

- .1 Provide a complete grounding system throughout. All grounds are not shown on the drawings.
- .2 Under this Section, test all equipment and wiring supplied and installed in this contract at any time requested by the Consultant. Provide all meters, materials and labour to carry out these tests. All readings shall conform to the requirements of the Local and Provincial codes which apply to this Specification.
- .3 Test May Include:
  - .1 Voltage reading on near full load at main service switch, distribution panel feeders, transformer feeders, and load connection points for Mechanical & Electrical equipment.
  - .2 Amperage readings of service and each panel feeder.
  - .3 Ground fault insulation resistance.
  - .4 Continuity of metal raceways.
  - .5 Operation of each piece of equipment and system for correct function.
- .4 Written records of the tests performed indicating date of test, equipment name, purpose of test, device used for testing and measured results. Include test results in maintenance manuals.

### 3.06 CORROSION, PROTECTION & TOUCH-UP

- .1 Provide prime and paint finish on exterior ferrous metal.
- .2 All priming shall be free of runs or drips. Scratches, chipped or rough items will not be accepted. Sand smooth and refinish.
- .3 Provide protection of installed materials from abuse and damage during construction. Provide all necessary protective coatings or shields to prevent damage to installed equipment until final acceptance by the Owner.

### 3.07 EQUIPMENT IDENTIFICATION

- .1 Identify all equipment such as breakers and disconnect switch with labels as specified below.
- .2 Labels shall be 3 mm (1/8") thick lamacoid plates, black with 6 mm (1/4") white lettering, mechanically fastened to the equipment.
- .3 Mount nameplates on the top inside cover on all panels and on the front cover of equipment for the respective system.

- .4 The wording on these plates shall conform generally with that used in these Specifications and on the Drawings. All fused disconnects to include size and type of fusing on equipment name plate. All panels to have mains voltage indicated. Panel nameplates to indicate from where and which distribution they are fed from.
- .5 Mechanically fasten nameplates directly on the equipment. For small size equipment install nameplates on the wall above or under equipment.
- .6 Colour code all conduits and metallic sheathed cables according to the following standards:
  - .1 Colour to be min. 25 mm (1") band of plastic tape or spray bomb.
  - .2 Colour code at entrance/exit to wall, ceiling, or floor and minimum 15 m (50') intervals.
  - .3 Systems colour code for conduits, metallic cables, and low voltage wiring sheath.  
Green – Lighting Controls  
Red - Fire Alarm  
Blue – Communications/Data  
Orange - Auxiliary Power.
- .7 Colour code conductors as follows:  
Phase A - Red  
Phase B - Black  
Phase C - Blue  
Neutral - White  
Ground - Green
- .8 The junction boxes of all power and lighting systems shall be labelled indicating circuits contained within.
- .9 **CIRCUIT IDENTIFICATION:**  
Provide p-touch labelling, 6mm (1/4") tape, white with black lettering with electrical equipment device (receptacles, emergency battery units, etc.) circuit number. Place one on front of coverplate and one inside box.

### 3.08 MOUNTING AND MOUNTING HEIGHTS

- .1 Provide all supports and bases for the work of this trade. Every conduit run shall have at least one support. Only approved conduit supports shall be used.
- .2 Support every outlet box, junction box, panel tub, etc. independent of conduits running to it.
- .3 No piece of equipment shall be mounted on a wall or panel with the underside of the equipment less than 460 mm (18") above the floor except for equipment over 1650 mm (5'-6") high which shall be mounted with the top side of the equipment 2100 mm (7'-0") above the floor or as directed in the field.
- .4 Panels for mounting of equipment shall consist of #10 gauge steel on an angle iron frame. The complete panel is to be thoroughly cleaned of all dirt, rust and loose material and be given two coats of grey enamel before mounting any equipment.

- .5 In areas of combustible construction mount service box and panelboards on spacers to provide 50 mm (2") ventilated distance between back of the panel and the backboard.

**END OF SECTION**



**PART 1 : GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- .1 Shop drawings and product data
- .2 Working/Interference drawings
- .3 As-built drawings
- .4 Operating and maintenance manuals including extended warranties.
- .5 Related Work
  - .1 Basic Materials and Methods Section 26 05 03
  - .2 Public Address Section 27 51 16
  - .3 Fire Alarm System Section 28 31 00

**1.02 ADMINISTRATIVE**

- .1 Submit to Consultant submittals listed for review. Submit with reasonable promptness and in an orderly sequence so as to not cause delay in the construction schedule. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default is allowed.
- .2 Work affected by the submittal not to proceed until the review is complete unless an approval is obtained from the Consultant.
- .3 Review submittals prior to submission to the Consultant. This review represents that necessary requirements have been determined and verified, and that each submittal has been checked and co-ordinated with the requirements of the Contract Documents.

**1.03 SHOP DRAWINGS**

- .1 Submit shop drawings in accordance with the General Requirements of Division 1 and as required in various sections of these specifications and on the drawings.
- .2 Shop drawings to be submitted with a cover sheet(s) on the Contractor's letterhead listing the following information:
  - Project:
  - Owner/Client:
  - Architect:
  - Mechanical/Electrical Consultant:
  - General Contractor:
  - Electrical Contractor:
  - Supplier



- Specification Section
- Materials or Equipment submitted

Include space for review stamps by Consultant, General Contractor and Electrical Contractor.

- .3 Prepare and submit for review, where specified, shown or considered necessary by the Consultant, shop drawings showing details of work as follows:
  - .1 Fabrication and erection dimension.
  - .2 Sections, arrangements and details which indicate complete construction as well as interconnections with other work.
  - .3 Location and type of anchors and fastenings.
  - .4 Materials including gauges, thickness, sizes and finishes.
  - .5 Descriptive names of equipment and mechanical and electrical characteristics when applicable.
  - .6 Data verifying that superimposed loads will not affect function, appearance, and safety of work shown on shop drawings as well as other work interconnected.
- .4 Submit shop drawings, unless otherwise specified in form of electronic copies.
- .5 Manufacturer's printed data sheets for standard items are acceptable providing pertinent characteristics are identified and relate to specified items. Submit eight (8) copies of data sheets except where specified otherwise.
- .6 Check shop drawings and data sheets, before submission as follows:
  - .1 Against contract documents and other applicable shop drawings, to ensure that work adjacent to and affecting other work is accurately detailed.
  - .2 To ensure that work shown on shop drawings conforms to requirements of Contract Documents.
  - .3 Enclose notice in writing of any variations from requirements of Contract Documents.
- .7 Indicate on shop drawings that they have been checked by applying stamp "checked and certified correct for construction", including date and Contractor's signature. Drawings and details submitted without such stamp or whenever it is evident that drawings have not been checked (despite approval stamp) will not be reviewed and will be returned to Contractor.
- .8 The Consultant's review of shop drawings and data sheets pertain to general design only. Errors in dimensions, quantities or interference will be marked if noticed, but this will not in any way relieve Contractor from his responsibility to complete work as shown and specified.

- .9 All shop drawings are to be submitted in Imperial dimensions.
- .10 Shop drawings are to be returned with "Reviewed", "Revised as noted" or "Revise and Submit".
  - .1 "Reviewed" - Drawings conform with the general design concept.
  - .2 "Revised as noted" - Drawings conform with the general design concept subject to the corrections noted. Drawings to be corrected and resubmitted for final review and incorporation into maintenance manuals. Such submission is not to hold up manufacture.
  - .3 "Revise and Resubmit" - Drawings are rejected and manufacture of this equipment is not to proceed. Drawings are to be resubmitted with required corrections on equipment.

#### 1.04 WORKING/INTERFERENCE DRAWINGS

- .1 Before commencing any work, the Contractor is to prepare working/interference drawings, to ensure that all components, including any components of other divisions, are to be properly accommodated within the spaces provided, ensuring all clearances required by jurisdictional authorities and for proper maintenance are indicated and maintained.
- .2 Prepare drawings to indicate co-ordination and method of installation of a system with other systems where their relationship is critical. Ensure all details of equipment, apparatus and connections are co-ordinated.
- .3 As an alternative to preparing interference drawings, regularly scheduled meetings on site with all associated trades are to be conducted as necessary but not less than one per week.
- .4 Failure to co-ordinate with all other trades could result in reworking of installed equipment, conduit or wiring at the discretion of the Consultant. Any reworking to accommodate the installation of other trades to be performed at no extra cost.

#### 1.05 AS-BUILT DRAWINGS

- .1 As-built drawings are to be maintained in accordance with the general requirements of Division 1.
- .2 The Consultant is to provide this Division with an extra set of white prints on which to show clearly in red ink, as the job progresses, all changes and deviations from the plans, including all changes as part of change orders, site instructions or site conditions.
- .3 Record location of concealed electrical services and components. Dimension and reference all concealed and buried electrical services from visible and accessible permanent features of structure.
- .4 Maintain as-built drawings on site for periodic review by Consultant.

- .5 In accordance with the Commissioning Schedule Plan, submit a complete set of record drawings, marked “as-built” and dated.

**1.06 MAINTENANCE DATA AND OPERATING INSTRUCTIONS**

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- .1 Submit three (3) copies of Operation and Maintenance Manual individually bound in suitable sized hard backed three-ring binders.
- .2 Front cover of each binder to be suitably lettered as follows:

OPERATION AND MAINTENANCE MANUAL FOR  
(Project Name)  
  
(Owners Name)  
(Date)
- .3 Provide plastic tab indices for all sections of the manual, provide separate sections for each major piece of equipment and for groups of smaller products.
- .4 Provide master index at the beginning of each binder indicating all items included in each section.
- .5 Provide list of names, addresses and telephone numbers of equipment suppliers, Installing Contractors, General Contractors, Architect and Consulting Engineer.
- .6 Provide final review shop drawings of each manufactured item in addition to the operating and maintenance instructions.
- .7 Operating instructions to include:
  - .1 General description of each electrical system.
  - .2 Step by step procedure to follow in commissioning each piece of equipment.
  - .3 Schematic control diagrams for each separate system.
  - .4 Drawings of each control panel identifying all components on the panels and their function.
  - .5 All electrical equipment wiring diagrams.
- .8 Maintenance instructions are to include:
  - .1 Manufacturer's maintenance instructions for each item of electrical equipment installed under this Division. Instructions are to include installation instructions, parts numbers and lists, name of supplier and maintenance instructions.
  - .2 Summary list of each item of electrical equipment requiring maintenance, indicating the name of the equipment item, maintenance required and frequency of maintenance.
  - .3 Copies of all panel directories.

- .9 Provide written warranty on the Contractor's letterhead addressed to the Owner, copied to the General Contractor.

**1.07 EXTENDED WARRANTIES**

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- .1 The contractor is to submit extended warranties for specific materials and/or work specified in their respective sections.
- .2 Extended warranties are to be issued on the General Contractor's letterhead, under seal, and issued in the name of the owner.

**END OF SECTION**



**PART 1 : GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- .1 Conform to General Conditions, Supplementary General Conditions and Sections of Division 01, as applicable.
- .2 Conform to General Electrical Provisions, Section 26 05 01 as applicable.
- .3 Related Work
  - .1 Submittals Section 26 05 02

**1.02 SCOPE OF WORK**

- .1 Work to be Supplied and Installed
  - .1 Raceways
  - .2 Conductors
  - .3 Armoured Cable
  - .4 Wire Connections and Devices
  - .5 Pull and Junction Boxes
  - .6 Supporting Devices
  - .7 Circuit Disconnects
  - .8 Fuses

**1.03 QUALITY ASSURANCE**

- .1 Install all equipment to the minimum of Ontario Electrical Safety Code standards, unless stricter standards are indicated on the drawings or in this specification. In all situations the more restrictive standard of material and installation shall apply.

**1.04 REFERENCES**

- .1 CSA Standards
  - C22.2 No. 83 Electrical Metallic Tubing.
  - C22.2 No. 211.1 EB1 and DB2/ES2 PVC Conduit.
  - C22.2 No. 211.2 Rigid PVC Conduit.
  - C22.2 No. 211.3 Rigid Fibreglass Reinforced Epoxy (RE) Conduit and Associated Fittings.
  - C22.2 No. 51 Armoured Cables.
  - C22.2 No. 52 Service-Entrance Cables.
  - C22.2 No. 227.1 Electrical Nonmetallic Tubing.
  - C22.2 No. 227.2 Flexible Liquid-Tight Nonmetallic Conduit.
  - C22.2 No. 227.3 Flexible Nonmetallic Tubing.
  - C22.2 No. 85 Rigid PVC Boxes and Fittings.
  - C22.2 No. 18 Outlet boxes, Conduit Boxes and Fittings.
  - C22.2 No. 40 Cutout, Junction and Pull Boxes.
  - C22.2 No. 65 Wire Connectors.

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C22.2 No. 111	General Use Switches
C22.2 No. 55	Specialty Use Switches
C22.2 No. 106	HRC Fuses
C22.2 No. 248	Low-Voltage Fuses

#### **1.05 SUBMITTALS**

- .1 Submit shop drawings for the following pieces of equipment:
  - .1 Fire Rated Access Panels
  - .2 Wiring Devices and Coverplates
  - .3 Contactors
  - .4 Time Switches
  - .5 Motor Starters
  - .6 Motor and Circuit Disconnects
  - .7 Fuses
- .2 Submit to the Engineer, in writing, a schedule of proposed feeders to be used if different than those specified on the drawings or in this specification.

#### **PART 2 : PRODUCTS**

##### **2.01 GENERAL**

- .1 Where an alternate manufacturer is proposed for use, the proposed item must meet all qualifications of the specification.
- .2 All materials/equipment of similar type shall be of one manufacturer.

##### **2.02 RACEWAYS**

- .1 Provide raceway type as detailed on drawings. Where type is not specified, raceways shall be provided in accordance with Section 12 of the Ontario Electrical Safety Code.
- .2 Provide all empty raceways and raceway systems complete with outlet boxes, coverplates, nylon fish wire, bushings, caps, etc.
- .3 Size all raceways to suit the number and type of conductors and of sufficient size to permit easy removal of conductors at any time. Where raceway sizes are shown on the drawings, these sizes are minimum and in no case shall they be reduced.
- .4 Colour code surface and exposed parts of raceways and all conduits as specified in Section 26 05 01.
- .5 Where conduits cross expansion joints of building, provide expansion joints for conduit c/w grounding straps.
- .6 All raceways shall be installed parallel to building lines.

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**2.03 CONDUCTORS**

- .1 Use R-90, RW-90, or T90 copper conductor building wires rated at 600 Volt, X-Link insulation.
- .2 Where a particular type of insulation is specified, or shown, that type of wire shall be used.
- .3 Use minimum # 12 copper wire unless otherwise specified. Minimum wire size is #10 for runs greater than 25m (82').
- .4 All conductors shall be colour coded consistent with the OESC, Section 4-038.
- .5 Conductors up to and including # 10 shall be solid copper. Larger conductors shall be stranded.
- .6 Size conductors for a maximum of 3% voltage drop from the supplying panel to the farthest outlet in the circuit.
- .7 All joints must be approved solderless pressure connectors or insulated crimped connections terminated in boxes or fittings of adequate size.
- .8 Conductors shall be copper unless noted otherwise on the drawings.

**2.04 ARMOURED CABLE**

- .1 Armoured cable when used for final drops to lighting fixtures shall not exceed 3m (10') in length.
- .2 AC-90 shall be allowed for branch circuit wiring in stud walls but shall not exceed 3m (10') in length exposed in ceiling.

**2.05 WIRE CONNECTIONS AND DEVICES**

- .1 Install wire connectors as per Manufacturer and OESC requirements.

**2.06 OUTLET BOXES**

- .1 Use outlet boxes to suit device and OESC requirements.
- .2 Multiple-gang boxes shall be of one piece construction. Sectional boxes will not be permitted.

**2.07 PULL BOXES AND JUNCTION BOXES**

- .1 Size pull boxes and junction boxes for the dimensions and cubic inch capacity as required by the OESC. for the application or as shown on the drawings.
- .2 Pull boxes and junction boxes shall be constructed of code gauge steel, primed and painted, complete with screw-on or hinged covers.



- .3 Junction boxes in hazardous locations shall be approved for such locations.

## 2.08 SUPPORTING DEVICES

- .1 Every conduit or cable shall have at least one support. Only approved conduit supports will be accepted. Perforated pipe straps, tie wrap or wood support for conduits or outlet boxes etc., will not be accepted.
- .2 Single conduit runs: Galvanized conduit straps, ring bolt type hangers or P.V.C. saddles.
- .3 Horizontal multiple raceways runs: Conduit rack with minimum 25 percent spare capacity. Trapeze style hanger on threaded rod.
- .4 Vertical multiple raceway runs: Electrical strut fastened to structure.

## 2.09 CIRCUIT DISCONNECTS

- .1 General Requirements
- .1 Where more than one manufacturer is named for an item, proposed item must meet all qualifications of the specification.
- .2 All materials of similar type shall be of one manufacturer.
- .3 Acceptable Manufacturers: Arrow Hart, Bryant, Cutler Hammer, Schneider Electric, Siemens.
- .2 Circuit Disconnects
- .1 This section governs the use of disconnects for the purpose of local isolation switches for non-motorized electrical equipment and feeder circuits.
- .2 Size disconnect switches for isolation and feeder protection as required by the connected load conditions or as indicated on the drawings. The more stringent of the two requirements shall govern in each situation.
- .3 Provide fuse holders designed for the correct fuses as indicated on the drawings.
- .4 Switch operation shall be quick make, quick break design with arc quenching facilities at the contacts.
- .5 Provide sufficient size contact area for the ampere rating of the switch and the connected load to be interrupted.

## 2.10 FUSES

- .1 HRC fuses rated 600 amperes and smaller shall be CSA certified HRCI-J fuses of the type(s) specified below, and shall be in accordance with CSA Standard C22.2 No. 106 or specification C22.2 No. 106 with HRC-J (HRC-JY fuses are not acceptable) fuse dimensions and current-limiting performance in accordance with the appropriate ULC standard as specified below.
- .2 Fuse interrupting rating shall be 200,000 amperes RMS symmetrical, unless otherwise noted.
- .3 Submit fuse melting and clearing time-current characteristic and current-limiting performance data for each fuse type and size above 200 Amps.

- .4 Select fuses to provide a fully co-ordinated system for both overload and short circuit fault conditions.
- .5 Application of all fuses shall comply with the Canadian Electrical Code - Part 1 and local inspection authority regulations.
- .6 Unless otherwise noted on the drawings, Time Delay fuses for overcurrent protection of motor circuits are to be rated up to 150% of motor full-load current.
- .7 Manufacturers: Bussman, Gould Shawmut, Littelfuse.

### **PART 3 : EXECUTION**

#### **3.01 GENERAL**

- .1 All equipment, devices and panels to be mounted plumbed-true.
- .2 All equipment and panel labels to be mounted level.
- .3 Provide a separate conductor and raceway system for each separate system.

#### **3.02 RACEWAYS**

- .1 All raceways to be installed in concrete between floor levels must be reviewed with and approved by the Structural Engineer prior to installation. Where, in the opinion of the Structural Engineer, it is not acceptable to install raceways in concrete between floor levels, raceways shall be installed concealed in walls, ceilings etc.
- .2 Empty ducts shall be capped at both ends. Provide 10 mm (3/8") nylon fish wire in each duct.
- .3 Locate raceways at least 150 mm (6") clear of steam pipe, flues and similar items and do not install in slab under boilers, or like equipment.
- .4 All conduit and raceways to be concealed in all finished areas. Exposed raceways and conduit are permitted only in service areas, utility rooms such as Mechanical and Electrical Rooms. Where exposed, they shall be neatly grouped and installed parallel to the building lines.
- .5 Conduit must be plugged and kept clean and dry during installation and be free from kinks or foreign matter.
- .6 Where the Consultant determines additional support is required, this shall be provided without cost to the Owner.
- .7 Where conduits are proposed to pass through structural members, written approval must be obtained from the Structural Consultant.
- .8 Provide pull boxes every 30 m (100') of conduit run to facilitate installation of conductors.
- .9 Provide acceptable pull boxes in telephone or system raceways to facilitate installation of

conductors. Co-ordinate with cable installer prior to commencing work.

- .10 Underground raceways shall be sealed/drained in accordance with OESC Section 22.

### 3.03 ARMOURED CABLE

- .1 Provide acceptable insulating bushings between armour and conductors at all terminations.
- .2 Provide acceptable cable straps within 300 mm (12") of any box or fitting and at 1.5 m (5') or less intervals throughout its length.
- .3 Single conductor cables shall be installed as per manufacturer's recommendations to achieve desired rating of conductors.
- .4 Support individual conductors with non-ferrous straps and hangers.
- .5 Where aluminum armour comes in contact with copper piping a permanent non-metallic sleeve shall be installed.

### 3.04 CONDUCTORS

- .1 Conductor length for parallel feeders to be identical.
- .2 Wire or cable used for feeders shall be free of splices.
- .3 Systems of different voltages shall be installed in separate raceways.

### 3.05 WIRE CONNECTIONS AND DEVICES

- .1 All pressure connectors shall be tightened to the manufacturers stated pressures, for the wire size used.

### 3.06 OUTLET BOXES

- .1 See Section 26 05 01, Part 3 for mounting heights.
- .2 Mount all boxes, plumbed-true on vertical installations. Mount level on horizontal installations.
- .3 All boxes to be installed flush mounted except in service areas, utility rooms such as Mechanical and Electrical Rooms.
- .4 All boxes to be supported independent of conduits or cables.
- .5 Test all boxes for continuity of ground through the box where the conduit is the grounding means.
- .6 Openings in all boxes shall be punched or cut, no burning of holes allowed.
- .7 Fill all K.O. openings not used with proper filler plates.

- .8 Keep access doors to a minimum by locating equipment in easily accessible locations.
- .9 Door swings are to be determined from the Architectural drawings for switch locations.
- .10 A variation of location of 3 m (10') shall be provided without cost to the Owner if requested before installation of equipment. Confirm location prior to installation.

### 3.07 PULL BOXES AND JUNCTION BOXES

- .1 Install pull and junction boxes so they are supported independent of raceways.
- .2 Install pull boxes after every 30 m (100') of continuous raceway.
- .3 Locate pull boxes above accessible ceiling spaces in inconspicuous locations wherever possible.
- .4 Colour code pull boxes to indicate system involved.

### 3.08 EQUIPMENT ENCLOSURES

- .1 Mount all surface mounted equipment enclosures on an approved fire rated backing, or unistrut channels.
- .2 All recessed enclosures shall have trim for recessed mounting.
- .3 Enclosures mounted in finished areas shall be finished to match.
- .4 Terminate wiring in screw type terminal blocks or strips.

### 3.09 SUPPORTING DEVICES

- .1 Install supporting devices to maintain headroom and clearances as described for conduits and conductors. Maintain a neat appearance and follow building lines where possible.

### 3.10 ACCESS PANELS

- .1 Provide access panels where required for electrical equipment concealed in walls, partitions or floors. Location and type of access panels shall be to the Consultant's approval.
- .2 Paint access panels to match surrounding decor or as directed by the Consultant on site.

### 3.11 CIRCUIT DISCONNECTS

- .1 General
  - .1 Provide proposed wording for all electrical equipment labels to the consultant for review and approval prior to installing the labels.

.2      Circuit Disconnects

- .1      Mount circuit disconnects securely to the structural elements of the building. Where the structure is not present or not of sufficient capacity to support the additional weight of the electrical equipment, provide sufficient reinforcing or construct additional facilities to support the load.
- .2      Use weather tight connections to all EEMAC type 3R enclosures.
- .3      Label each disconnect switch to indicate the device it controls.
- .4      On all fused equipment, provide a label indicating fusing size and type on the outside of the fused equipment.

3.12    FUSES

- .1      Ship fuses in original containers
- .2      Do not ship equipment with fuses installed.
- .3      Store spare fuses in original containers in fuse storage cabinet. Install fuse storage cabinet in electrical room.
- .4      Install fuses in mounting devices immediately before energizing circuit.
- .5      Prior to energization of any circuit, verify that the correct fuse is installed:
  - a) for the calculated or assumed circuit capacity, and
  - b) for the proper equipment and conductor protection requirements.

**END OF SECTION**

**PART 1 : GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- .1 Conform to General Conditions, Supplementary General Conditions and Sections of Division 01, as applicable.
- .2 Conform to General Electrical Provisions, Section 26 05 01 as applicable.
- .3 Related Work
  - .1 Submittals Section 26 05 02
  - .2 Basic Materials and Methods Section 26 05 03

**1.02 SYSTEM DESCRIPTION**

- .1 Work to be Supplied and Installed:
  - .1 Circuit Breakers in existing Switchboards.

**1.03 QUALITY ASSURANCE**

- .1 Acceptable Manufacturers:
  - .1 Schneider Group
  - .2 Eaton-Cutler Hammer

**1.04 REFERENCES**

- .1 Moulded Case Circuit Breakers CSA C22.2 No.5.

**1.05 SUBMITTALS**

- .1 Submit shop drawings for the following:
  - .1 Circuit breakers

**PART 2 : PRODUCTS**

**2.01 CIRCUIT BREAKERS**

- .1 Quick-make quick-break design, c/w arc quenching device, trip free handle, thermal overload protection and instantaneous magnetic trip, ambient temperature compensating type. Breaker frame size and mounting type to match required interrupting capacity and

panel type.

- .2 Two pole and three pole breakers are to have a common trip.
- .3 Minimum interrupting capacity shall be 10 kAIC unless listed otherwise on the drawings - refer to panel schedule(s).

### **PART 3 : EXECUTION**

#### **3.01 CIRCUIT BREAKERS**

- .1 All circuit breakers shall be identified as per Section 26 05 03.
- .2 Install circuit breakers as required.
- .3 Ensure all circuit breakers mounted in panelboard have the specified interrupting capacity required for that piece of equipment.

#### **3.02 FIELD QUALITY CONTROL**

- .1 Provide spot checks on all terminations as directed by the Consultant. Tighten all loose connections discovered.

**END OF SECTION**

**PART 1 : GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- .1 Conform to General Conditions, Supplementary General Conditions and Section 26 05 00 General Electrical Provisions.
- .2 Related Work
  - .1 Submittals Section 26 00 13
  - .2 Basic Methods and Materials Section 26 05 10

**1.02 DESCRIPTION**

- .1 Work to be Supplied & Installed:
  - .1 Wire relocated Portable Classroom devices into existing PA system.
  - .2 Provide new PA speakers and call switch as necessary where existing devices are damaged or malfunctioning.

**1.03 SHOP DRAWINGS**

- .1 The following information shall be submitted for shop drawing approval:
  - .1 All components of PA system

**1.04 ACCEPTABLE MANUFACTURERS**

- .1 Carehawk CH1000LT.

**PART 2 : PRODUCTS**

**2.01 CALL SWITCHES**

- .1 CLASSROOM STATION – CS50
  - .1 A CS50 is a basic single gang stainless steel call station with a rocker switch. The switch provides for a momentary call and lockable privacy position. This station provides a RJ-45 connectivity for connection to the SS16 and stripped wire ends facilitating crimp connection onto cable going to the associated speaker.
- .2 ZONE SPEAKER
  - .1 The HP-25 model is a wall or ceiling mounted speaker of 20 cm (8") with a line transformer and a shock resistant head-on steel baffle, finished in white enamel.
  - .2 Features:



- .1 15 Watts
  - .2 25 V / 8 ohms line transformer with multiple power tap connections (0,625W; 1,25W; 2,5W; 5,0W; 10,0W)
  - .3 Dimensions: 317 x 317x 6.35 mm (12 1/2" x 12 1/2" x 1/4").
  - .4 Enclosure: H-20 Flush back box 11 3/16" x 11 3/16" X 4"
  - .5 SH-20 Surface back box 11 3/16" x 11 3/16" x 4"
- .3 The speakers of 15 Watts must have a permanent ceramic magnet of 80 mm x 40 mm x 12 mm, a resonant diaphragm coil with impedance of 8 ohms and a frequency range of 50 to 16000 Hz.

### **PART 3 : EXECUTION**

#### **3.01 INSTALLATION**

- .1 Review status of existing PA devices and wire into existing system.
- .2 All wiring shall conform to local codes and the OESC.
  - .1 Wiring to manufacturer's requirements. Wiring shall be provided by PA contractor.
  - .2 Electrical contractor to provide all conduit required by PA contractor. Verify requirements with sub-contractor.
- .3 Wiring shall be continuous from each speaker to receiver/amplifier. Splices are not permitted.

#### **3.02 TESTS AND ADJUSTMENTS**

- .1 At the completion of the installation, the system shall be commissioned by a factory trained representative of the contractor. At this time all applicable tests shall be conducted.
- .2 Documentation verification. The contractor in conjunction with the representative of the owner shall review the entire project and create, if necessary, a deviation list of items requiring correction. All corrections shall be made in a timely manner so as not to lengthen the contract period nor interfere with daily activities of user.

**END OF SECTION**

**PART 1 : GENERAL**

**1.01 RELATED WORK SPECIFIED ELSEWHERE**

- |    |                                    |                  |
|----|------------------------------------|------------------|
| .1 | Submittals                         | Section 26 05 02 |
| .2 | Basic Materials and Methods        | Section 26 05 03 |
| .3 | Telecommunication Systems Raceways | Section 27 05 28 |

**1.02 PROJECT DESCRIPTION**

- .1 All data wiring shall be completed by Vollmer under Division 26 contract.
- .2 Work within this section includes (but is not limited to) provision of the following major components:
  - .1 Fiber optic backbone cabling between main computer rooms portable rooms.
  - .2 Testing and Certification.

**1.03 MATERIAL**

- .1 Supply and installation of all materials will be the responsibility of Division 27 unless indicated otherwise.
- .2 This specification has been developed on the basis of a complete cabling system utilizing AMP NETCONNECT products. Equivalent products/materials as manufactured by NORDX will also be acceptable.

**1.04 APPLICABLE DOCUMENTS**

- .1 Under no circumstances will changes to the project be made without the approval of the Consultant.
- .2 The cabling system described in this specification is derived in part from the recommendations made in industry standard documents. The list of documents below are incorporated by reference:
  - .1 This Technical Specification and Associated Drawings
  - .2 TIA/EIA 568-B.2-1 Performance Specification for 4-Pair 100 Ohm Category 6 Cabling (latest revision)
  - .3 TIA/EIA-568-B Commercial Building Telecommunications Cabling Standard – April, 2001
  - .4 TIA/EIA-569-A Commercial Building Standard for Telecommunications Pathways and Spaces - February, 1998
  - .5 TIA/EIA-606 Administration Standard for the Telecommunications Infrastructure of Commercial Buildings - February, 1993
  - .6 TIA/EIA-607 Commercial Building Grounding and Bonding Requirements for Telecommunications - August, 1994
  - .7 Building Industries Consulting Services, International (BICSI)

- .8 Telecommunications Distribution Methods Manual (TDMM) – 9<sup>th</sup> edition  
 AMP NETCONNECT Design and Installation Contractor Agreement (current)

- .3 If a conflict exists between applicable documents, then the order in the list above shall dictate the order of precedence in resolving conflicts. This order of precedence shall be maintained unless a lesser order document has been adopted as code by a local, state or federal entity, and is therefore enforceable as law by a local, state or federal inspection agency.
- .4 If this document and any of the documents listed above are in conflict, then the more stringent requirement shall apply. All documents listed are believed to be the most current releases of the documents; the vendor is responsible to determine and adhere to the most recent release when developing the proposal for installation.

#### 1.05 TELECOMMUNICATIONS SYSTEM DESCRIPTION

- .1 Where applicable a fiber optic data backbone is employed between the LAN room and Portable Classroom for data connectivity. High pair count Category 3 CMR backbone riser cables are employed.

### **PART 2 : PRODUCTS**

#### 2.01 FIBER OPTIC BACKBONE CABLING

- .1 Backbone data cable shall be all-dielectric and shall consist of 12 Singlemode and 12 Multimode 900µm tight-buffered 50/125µm fibers surrounded by aramid strength members and a PVC outer jacket.
- .2 The cable shall have a UL rating of OFNR (Riser). The nominal cable dimensions shall be as listed below:

Fiber Count	Nominal O.D. mm (in)	Minimum Bend Radius		NEC/NFPA Rating	Nominal Weight kg/km (lbs/1000ft)	Rated Tensile Load	
		Install mm (in)	Long Term mm (in)			Install N (lbf)	Long Term N (lbf)
12-fiber (SBS)	7.2x13.4 (0.28x0.53)	144 (5.6)	72 (2.8)	Riser (OFNR)	87 (59)	1335 (300)	334 (75)
				Plenum (OFNP)	117 (79)	667 (150)	167 (38)

- .3 The cable jacket shall be orange for multimode and yellow for singlemode. The cable shall comply with the performance requirements listed below:

	Multimode 50/125µm (850nm/1300nm)
Maximum Attenuation	3.5/1.5 dB/km
OFL Bandwidth	500/500 MHz-km
1000BASE-SX Distance	2-600m
1000BASE-LX Distance	2-600m
10GBASE-SR Distance	2-82m
10GBASE-LX4 Distance	2-300m

- .4 The cable shall be UL or ETL listed and shall be an AMP NETCONNECT part numbers (or approved equal) as listed below:

Fiber Count	Construction	NEC/NFPA Rating	Part Numbers
12	1x12	Riser (OFNR)	2-1664050-1 (Multimode)
12	1x12	Riser (OFNR)	1664048-6 (Singlemode)

- .5 The temperature ratings for storage, shipping, installation and operation shall comply with the temperatures listed below:

NEC/NFPA Rating	Operation	Installation	Storage/Shipping
Riser (OFNR)	-20°C to +50°C (-22°F to +122°F)	-20°C to +50°C (-22°F to +122°F)	-40°C to +65°C (-40°F to +149°F)

## 2.02 FIBER OPTIC CABLE TERMINATIONS

- .1 Multimode fiber optic cable shall be terminated with SC connectors in 2U rack-mount enclosures providing protection for the terminated fibers. Each SC connector shall accept one 900µm buffered 50/125µm multimode fibers. Each SC connector shall be field-installable, requiring no epoxy, no polishing and no bench. SC connectors shall be AMP NETCONNECT part number 1278079-1.
- .2 Singlemode fiber optic cable shall be terminated with SC connectors in 2U rack-mount enclosures providing protection for the terminated fibers. Each SC connector shall accept one 900µm buffered singlemode fibers. Each SC connector shall be field-installable, requiring no epoxy, no polishing and no bench. SC connectors shall be AMP NETCONNECT part number 1693276-1.
- .3 All terminations shall be completed using a "NEW" AMP NETCONNECT LightCrimp Plus Termination Tool Kit part number 1278118-1.
- .4 Each SC connector shall be held by an SC snap-in adapter plate, which in turn shall be installed into a rack-mount fiber optic enclosure. SC snap-in adapter plates shall be AMP NETCONNECT part number 559558-1.
- .5 The backbone fiber shall be contained in 19" x 7' rack(s). Fiber optic enclosures shall be capable of containing 24 SC connectors. Fiber optic enclosures shall be AMP NETCONNECT part number 559542-2.

## PART 3 : EXECUTION

### 3.01 FIBER OPTIC BACKBONE TERMINATION HARDWARE

- .1 Fiber optic termination hardware shall be installed in the following manner:
  - .1 Fiber slack shall be neatly coiled within the fiber termination enclosures or in rack-mount fiber management enclosures.
  - .2 No slack loops shall be allowed external to the fiber enclosure(s).
  - .3 Each cable shall be individually attached to the respective termination panel by mechanical means.
  - .4 The cable strength member(s) shall be securely attached the cable strain relief bracket in the panel.
  - .5 Each fiber cable shall be stripped upon entering the termination panel and the

- individual fibers routed in the termination panel.
- .6 Each cable shall be clearly labeled at the entrance to the termination panel.
- .7 Cable labels shall not be obscured from view.
- .8 Dust caps shall be installed on the connectors and couplings at all times unless physically connected.

### 3.02 CABLE LABELLING

- .1 All labels for the cable should be self laminating vinyl construction with a white printing area and a clear tail that self laminates the printed area when wrapped around the cable.

### 3.03 CABLE TESTING - GENERAL

- .1 All testing to be performed to verify performance requirements to ANSI/TIA/EIA-568-B Standard.
- .2 All cables and termination hardware shall be 100% tested for defects in installation and to verify cable performance under installed conditions. All conductors of each installed cable shall be verified useable by the contractor prior to system acceptance. Any defect in the cabling system installation including but not limited to cable, connectors, feedthrough couplers, patch panels, and connector blocks shall be repaired or replaced in order to ensure 100% useable conductors in all cables installed.
- .3 All cables shall be tested in accordance with this document and best industry practices. If any of these are in conflict, the Contractor shall be responsible to bring any discrepancies to the attention of the project team for clarification and/or resolution.

### 3.04 CABLE TESTING – FIBER OPTIC

- .1 Each fiber strand shall be tested for attenuation with an optical power meter and light source. Cable length and splice attenuation shall be verified using an OTDR.

- .1 Attenuation

Horizontal distribution multimode optical fiber attenuation shall be measured at either 850 nanometers (nm) or 1300 nm using an LED light source and power meter. Backbone multimode fiber shall be tested at both 850 nm and 1300 nm in one direction. Test set-up and performance shall be conducted in accordance with TIA/EIA-526-14 Standard, Method B. The MT-RJ system shall be tested in accordance with the AMP testing procedures established in "MT-RJ Optical Fiber Systems Testing" literature # 1307540. This measurement is consistent with the loss which network equipment will see under normal installation and use. Test evaluation for the panel to panel (backbone) or panel to outlet (horizontal) shall be based on the values set forth in TIA/EIA-568-B.1.

Where concatenated links are installed to complete a circuit between devices, the Contractor shall test each link from end to end to ensure the performance of the system. After the link performance test has been successfully completed, each link shall be concatenated and tested. The test method shall be the same used for the test described above. The evaluation criteria shall be established between the Owner and the Contractor prior to the start of the test.

Singlemode optical fiber attenuation shall be measured at 1310 nm and 1500 nm using a laser light source and power meter. Tests shall be performed at both wavelengths in one direction on each strand of fiber. The set-up and test shall be performed in accordance with TIA/EIA-526-7 Standard, Method 1A. Two meter patch cords shall be used as test references and for the actual test. This test method utilizes a one jumper reference, two jumper test to estimate the actual link loss of the install cable plus two patch cords.

Test evaluation for the panel to panel (backbone) shall be based on the values set forth in TIA/EIA-568-B.1. Attenuation testing shall be performed with a stable launch condition using two meter jumpers to attach the test equipment to the cable plant. The light source shall be left in place after calibration and the power meter moved to the far end to take measurements. Maximum attenuation for installed cables shall be evaluated based on the following formula: manufacturer's maximum attenuation per kilometer, divided by 1000 and then multiplied by the installed cable length in meters\*. The adjusted cable attenuation value shall be added to the manufacturers mean loss per mated pair of connectors multiplied by the number of mated pairs under test\*\*.

The expected results for each cable (or group of cables of the same nominal length) shall be calculated before the start of testing and recorded in a space provided on the Contractor's test matrix. Each strand of fiber in the respective cable shall be evaluated against this target number. Any fibers that exceed this value by more than (3dB) shall be repaired or replaced at no cost to the Owner.

\*For this application, the length based on cable length measurements marked on the jacket, will be suitable. If OTDR testing is performed in accordance with 8.2.2, then the actual measured length shall be used. Conversion from metric to US Standard measurement shall use 3.2808 as a constant with the result rounded to the next highest whole number.

\*\*The testing for this project is measuring the loss over the installed cable plus two jumpers which accounts for three mated pairs of connectors. Subtract one mated pair for the equipment interface to arrive at a total of two mated pairs under test.

Where concatenated links are installed to complete a circuit between devices, the Contractor shall test each link from end to end to ensure the performance of the system. After the link performance test has been successfully completed, each link shall be concatenated and tested. The test method shall be the same used for the test described above. The evaluation criteria shall be established between the Owner and the Contractor prior to the start of the test.

## **.2 Length and Splice Loss**

Each cable shall be tested with an Optical Time Domain Reflectometer (OTDR) to verify installed cable length and splice losses. The OTDR measurements for length shall be performed in accordance with TIA/EIA-455-60. The measurements to determine splice loss shall be performed in accordance with manufacturer's recommendations and best industry practices. These tests shall be employed where one or more of the following conditions exist.

1. Where OTDR testing is specifically requested by the Owner
2. Each strand shall be tested on all outside plant cables and/or where splices exist.
3. A representative strand of each fiber cable shall be tested to verify length if the estimated cable length is within 10% of the maximum length specified, in respect to cable function, in the TIA/EIA-568-B Standard.
4. Where abnormal or unexpected results are obtained during attenuation testing
5. Where the cable has been subjected to extreme conditions or stresses during installation.

### **3.05 DOCUMENTATION**

- .1 The cabling contractor will document the location of all zones, horizontal cabling and spares in a final “as built drawing”. Two copies of these drawings will be supplied in both electronic format and hard copy. One copy will remain on site. The electronic drawings shall be in AutoCAD (2004 version) or compatible format on compact discs (CD’s).
- .2 All cable test results will be documented. Two copies of the test results will be supplied in both electronic format and hard copy. The electronic documentation shall use Comma Separated Variable (CSV) format and be supplied on compact discs (CD’s).
- .3 All documentation records will include; name, address, and telephone number of the contractor, the contract/project number if known, the building name, the full address, the postal code and the date of completion.
- .4 When repairs and re-tests are performed, the problem found and corrective action taken shall be noted, and both the failed and passed test data shall be collocated in the binder.

### **3.06 WARRANTY AND SERVICES**

- .1 The contractor shall provide a system warranty covering the installed cabling system against defects in workmanship, components, and performance, and follow-on support after project completion.

### **3.07 INSTALLATION WARRANTY**

- .1 The contractor shall warrant the cabling system against defects in workmanship for a period of one year from the date of system acceptance. The warranty shall cover all labour and materials necessary to correct a failed portion of the system and to demonstrate performance within the original installation specifications after repairs are accomplished. This warranty shall be provided at no additional cost to the Owner.

### **3.08 CABLING SYSTEM WARRANTY**

- .1 The contractor shall facilitate a 25-year system performance warranty between the manufacturer and the Owner. An extended component warranty shall be provided which warrants functionality of all components used in the system for 25 years from the date of acceptance. The performance warranty shall warrant the installed 250 MHz horizontal copper, and both the horizontal and the backbone optical fiber portions of the cabling system. Copper links shall be warranted against the link performance minimum expected results defined in TIA/EIA-568-B.2-1 (latest draft). Fiber optic links shall be warranted

against the link and segment performance minimum expected results defined in TIA/EIA-568-B.1.

### **3.09 POST INSTALLATION MAINTENANCE**

- .1 The contractor shall furnish an hourly rate with the proposal submittal which shall be valid for a period of one year from the date of acceptance. This rate will be used when cabling support is required to affect moves, adds, and changes to the system (MACs). MACs shall not void the Contractor's nor manufacturer's warranty.

### **3.10 CABLING SYSTEM ACCEPTANCE**

- .1 The Customer's Technical Representative will make periodic inspection of the project in progress. One inspection will be performed at the conclusion of cable pulling, prior to closing of the false ceiling, to inspect the method of cable routing and support, and the firestopping of penetrations. A second inspection will be performed at completion of cable termination to validate that cables were dressed and terminated in accordance with TIA/EIA specifications for jacket removal and pair untwist, compliance with manufacturer's minimum bend radius, and that cable ends are dressed neatly and orderly.

### **3.11 TEST VERIFICATION**

- .1 Upon receipt of the test documentation, The Customer reserves the right to perform spot testing of a representative sample of the cabling system to validate test results provided in the test document. Customer testing will use the same method employed by the contractor, and minor variations will be allowed to account for differences in test equipment. If significant discrepancies are found the Contractor will be notified for resolution.

### **3.12 SYSTEM PERFORMANCE**

- .1 During the three week period between final inspection and delivery of the test and as-built documentation, the Customer will activate the cabling system. The Customer will validate operation of the cabling system during this period.

### **3.13 FINAL ACCEPTANCE**

- .1 Completion of: the installation; in-progress and final inspections; receipt of the test and as-built documentation; and successful performance of the system for a two week period will constitute acceptance of the system.

**END OF SECTION**





**PART 1 : GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- .1 Conform to General Conditions, Supplementary General Conditions and Sections of Division 01, as applicable.
- .2 Conform to General Electrical Provisions, Section 26 05 01 as applicable.
- .3 Related Work
  - .1 Submittals Section 26 05 02
  - .2 Basic Methods and Materials Section 26 05 03
  - .3 Signal, Communication Wires and Cables Section 28 05 13

**1.02 SYSTEM DESCRIPTION**

- .1 Work to be Supplied and Installed
  - .1 Provide a new fire alarm pull stations and horn/strobes where required to be compatible with existing fire alarm system.

**1.03 REFERENCES**

- .1 Requirements of Regulatory Agencies:
  - .1 CSA CAN4-S524-06 Standard for the Installation of Fire Alarm Systems.
  - .2 OBC Section 3.
  - .3 OESC Section 32.
  - .4 CSA CAN4-S537-04 Standard for the Verification of Fire Alarm Installation.
  - .5 CAN/ULC-S561-03 Installation and Services for Fire Signal Receiving Centres and Systems.

**1.04 SUBMITTALS**

- .1 Submit shop drawings for all fire alarm equipment prior to commencement of work.
- .2 Submit four copies of instruction sheets for servicing and operation of the equipment, including any schematic diagrams, prior to completion and acceptance of the system.
- .3 Submit operation and maintenance manuals in accordance with Section 26 05 02 Submittals, detailing the following additional information.
  - .1 Copy of verification certificate, verification report and any warranty certificates.

- .2 Name, address, and telephone number of service representative of manufacturer to be contacted during warranty.

## **PART 2 : PRODUCTS**

### **2.01 ACCEPTABLE MANUFACTURERS**

- .1 This specification is based on the Simplex Model 4007ES fire alarm system. If equipment of another manufacturer is submitted for approval, state what, if any specific points of system operation differ from the specified points of the system operation.
- .2 Supply all system components from the same manufacturer.
- .3 Addressable Device Types
  - .1 General

The system control panel, over its two wire multi-drop channel, must be capable of communicating with the types of addressable devices specified below. All devices shown on the drawings shall be addressable.
  - .2 Addressable Pull Stations (Manual Fire Alarm Boxes)
    - .1 Addressable single or double action type, red LEXAN with molded, raised letter operating instructions of contrasting colour. Station will mechanically latch upon operation and remain so until manually reset by opening with a key common with the controls.
    - .2 Protective Shield: Where required provide a tamperproof, clear LEXAN shield and red frame that easily fits over manual pull stations. When shield is lifted to gain access to the station, a battery powered piercing warning horn shall be activated. The horn shall be silenced by lowering and realigning the shield. The horn shall provide 85dB at 10 feet and shall be powered by a 9 VDC battery.
    - .3 The addressable manual station shall be Underwriters Laboratories Inc. Listed.
  - .3 Addressable Thermal Detector Head
    - .1 General: Comply with CAN/ULC-S529, "Standard for Smoke Detectors for Fire Alarm Systems." Include the following features:
      - .2 Thermal Sensor: Combination fixed-temperature and rate-of-rise unit with plug-in base and alarm indication lamp; 135-deg F fixed-temperature setting except as indicated.
    - .3 Thermal sensor shall be of the epoxy encapsulated electronic design. It shall be thermistor-based, rate-compensated, self-restoring and shall not be affected by thermal lag.
    - .4 Sensor fixed temperature sensing shall be independent of rate-of-rise

sensing and programmable to operate at 117-deg F, 135-deg F or 155-deg F. Sensor rate-of-rise temperature detection shall be selectable at the FACP for 3-deg C, 15-deg F or 20-deg F per minute.

- .5 Sensor shall have the capability to be programmed as a utility monitoring device to monitor for temperature extremes in the range from 32-deg F to 155-deg F.

- .4 Individual Addressable Module

- .1 Addressable Circuit Interface Modules: Arrange to monitor one or more system components that are not otherwise equipped for addressable communication. Modules shall be used for monitoring of waterflow, valve tamper, non-addressable devices, and for control of evacuation indicating appliances and AHU systems.

- .2 Addressable Circuit Interface Modules will be capable of mounting in a standard electric outlet box. Modules will include cover plates to allow surface or flush mounting. Modules will receive their operating power from the signaling line or a separate two-wire pair running from an appropriate power supply as required.

- .3 There shall be the following types of modules:

- 1. Type 1: Monitor Circuit Interface Module:

- For conventional 2-wire smoke detector and/or contact device monitoring with Class B or Class A wiring supervision. The supervision of the zone wiring will be Class B. This module will communicate status (normal, alarm, trouble) to the FACP.

- For conventional 4-wire smoke detector with Class B wiring supervision. The module will provide detector reset capability and over-current power protection for the 4-wire detector. This module will communicate status (normal, alarm, trouble) to the FACP.

- 2. Type 2: Line Powered Monitor Circuit Interface Module

- This type of module is an individually addressable module that has both its power and its communications supplied by the two wire multiplexing signaling line circuit. It provides location specific addressability to an initiating device by monitoring normally open dry contacts. This module shall have the capability of communicating four zone status conditions (normal, alarm, current limited, trouble) to the FACP.

- This module shall provide location specific addressability for up to five initiating devices by monitoring normally closed or normally open dry contact security devices. The module shall communicate four zone status conditions (open, normal,

abnormal, and short). The two-wire signaling line circuit shall supply power and communications to the module.

**3. Type 3: Single Address Multi-Point Interface Modules**

This multipoint module shall provide location specific addressability for four initiating circuits and control two output relays from a single address. Inputs shall provide supervised monitoring of normally open, dry contacts and be capable of communicating four zone status conditions (normal, open, current limited, and short). The input circuits and output relay operation shall be controlled independently and disabled separately.

This dual point module shall provide a supervised multi-state input and a relay output, using a single address. The input shall provide supervised monitoring of two normally open, dry contacts with a single point and be capable of communicating four zone status conditions (normal, open, current limited, and short). The two-wire signaling line circuit shall supply power and communications to the module.

This dual point module shall monitor an unsupervised normally open, dry contact with one point and control an output relay with the other point, using a single address. The two-wire signaling line circuit shall supply power and communications to the module.

**4. Type 4: Line Powered Control Circuit Interface Module**

This module shall provide control and status tracking of a Form "C" contact. The two-wire signaling line circuit shall supply power and communications to the module.

**5. Type 5: 4-20 mA Analog Monitor Circuit Interface Module**

This module shall communicate the status of a compatible 4-20 mA sensor to the FACP. The FACP shall annunciate up to three threshold levels, each with custom action message; display and archive actual sensor analog levels; and permit sensor calibration date recording.

- .4** All Circuit Interface Modules shall be supervised and uniquely identified by the control unit. Module identification shall be transmitted to the control unit for processing according to the program instructions. Modules shall have an on-board LED to provide an indication that the module is powered and communicating with the FACP. The LEDs shall provide a troubleshooting aid since the LED blinks on poll whenever the peripheral is powered and communicating.

.4 Alarm Signal Appliances (Horns)

- .1 Addressable Audible/Visible: Addressable combination Audible/Visible (A/V) Notification Appliances shall be listed to CAN/ULC-S525 and CAN/ULC-S526. The strobe device shall consist of a xenon flash tube and associated lens/reflector system, cover and mounting plate. For ease of installation audible/visible mounting plate shall mount directly to standard single gang, double gang or 4" square electrical box, without the use of special adapters or trim rings. The strobe shall provide multiple minimum flash intensities of 15cd. The Candela levels shall be settable from the fire alarm control panel or using a hardware selector on the appliance. The Horn shall support Temporal Code 3, March Time (20, 60, or 120 BPM), Continuous, and Temporal Code 4 coding patterns. The horn shall have a minimum sound pressure level of 83 or 89 dBA for steady or 79 or 85 dBA for coded operation. When the appliance is connected to an active circuit, the front cover of the appliance shall be removable without causing a trouble indication on the fire alarm control panel. Appliances shall be wired with UTP conductors, having a minimum of 3 twists per foot. The appliance shall be capable of two-wire synchronization with one of the following options:

- .1 Synchronized Strobe with Horn on steady.
- .2 Synchronized Strobe with Temporal Code Pattern on Horn.
- .3 Synchronized Strobe with March Time cadence on Horn.
- .4 Synchronized Strobe firing to NAC sync signal with Horn silenced.

- .4 Accessories: The contractor shall furnish the necessary accessories.

.5 End of Line Device

- .3 Mounted on painted red metal single gang plate with terminal strips providing four screw terminals at the rear of plate.

.6 Multiple Addressable Peripheral Network (MAPNET II®)

- .3 Communication with addressable devices: The system must provide communication with all initiating and control devices individually. All of these devices are to be individually annunciated at the control panel. Annunciation shall include the following conditions for each point:

- .1 Alarm
- .2 Trouble
- .3 Open
- .4 Short
- .5 Ground

- .6 Device Fail/or Incorrect Device
- .4 All addressable devices are to have the capability of being disabled or enabled individually.
- .5 Up to 254 addressable devices may be multi-dropped from a single pair of wires. Systems that require factory reprogramming to add or delete devices are unacceptable.
- .6 Format

The communication format must be a poll/response protocol to allow t-tapping of the wire to addressable devices and be completely digital. A high degree of communication reliability must be obtained by using parity data bit error checking routines for address codes and check sum routines for the data transmission protocol. Systems that do not utilize full digital transmission protocol (i.e. that may use time pulse width methods to transmit data etc.) will not be acceptable since they are considered unreliable and prone to errors.
- .7 Identification of Addressable Devices

Each addressable device must be uniquely identified by an address code entered on each device at time of installation. The use of jumpers to set address will not be acceptable due to the potential of vibration and poor contact.
- .8 Wiring Type, Distances, Survivability and Configurations

Wiring types will be approved by the equipment manufacturer. The system must allow up to 2,500 feet wire length to the furthest addressable device. To minimize wire routing and to facilitate future additions, t-tapping of the communications channel will be supported except where Class A wiring is required.

## **2.02 FIRE ALARM WIRES AND CABLES**

- .1 Audio/Visual Signal Circuit Wiring - solid copper conductors, type FAS105, rated 600Volt XLPE insulation in approved raceways. Minimum #14 AWG.
- .2 Addressable loops and Initiation Circuit Wiring – solid copper conductors, type FAS105, 300V PVC flame retardant jacket, shielded. Canada Wire - Securex. Minimum wire size shall be #18 AWG.
- .3 Coordinate and confirm fire alarm system wiring requirements with fire alarm system manufacturer.

## **PART 3 : EXECUTION**

### **3.01 INSTALLATION**

- .1 Wiring for fire alarm system shall be installed in metallic raceways (EMT conduit unless noted otherwise). Flexible metallic raceways may be utilized for drops to devices

- installed in drop ceilings (length not to exceed 3000mm).
- .2 Provide fire stop material around all exposed conduits which penetrate fire walls or fire separations.
  - .3 Install wiring for alarm initiating circuits in separate raceway system from the alarm signal circuits.
  - .4 Splicing of conductors is not permitted under any circumstances.
  - .5 Wire all alarm signals in accordance with requirements by manufacturer and operation. Install resistor for signal circuit in suitable box adjacent to last signal device. If diodes are used, install in outlet box of last signal device of signal circuit and indicate on signal.
  - .6 Provide required number of signal circuits and wire alternatively. Meaning that signals on same circuit shall not be horizontally adjacent to each other.
  - .7 Ensure continuity of ground through all raceways from ground buss in control panel to each device junction box.
  - .8 Clear all wiring of shorts, opens and grounds on completion of work.
  - .9 Mount detectors on ceiling as per CAN4-S524-M91 standard unless otherwise specified herein with minimum and maximum distances as required for respective type of detector, at highest point where variations in ceiling height exist. Do not mount detectors on sides, undersides, or less than 600 mm from walls, beams, joints, ducts, open web steel joists or any structure projecting below actual ceiling height and less than 900 mm from air handling or heating outlets (600 mm from air exhaust inlet).
  - .10 Should interference from obstruction, lamp positions, air outlets or heat radiating surfaces be encountered in locating any detector where shown, locate detector as near as possible to shown position, clear of obstacles, but maintain a clear space of 600 mm on ceiling, below and around.
  - .11 Identify signal circuit, alarm initiating circuit, auxiliary circuit and all other wiring at fire alarm control panel, annunciator, terminal boxes or elsewhere on completion of work with appropriate marking labels. Mark single conductors with suitable self adhesive type, indelible numbered markers, identify cables with a clear polyester tag, attaches with a self-locking TY-RAP.
  - .12 Provide, install and connect wiring and interconnecting wires and cables as specified herein, as required by control panel manufacturer and as shown on Drawings.

### 3.02 FIELD QUALITY CONTROL

- .1 Only directly prior to verification, all smoke detector protection shall be removed, and all smoke detectors shall be thoroughly cleaned.
- .2 Inspect and check each individual device in entire system for proper connection, supervision and function in accordance with CAN/ULC S537-97. Any detector, manual pull station and signal not installed within requirements of CAN/ULC-S524-01 shall be



identified in remarks column of verification report and be brought to the Consultant's attention prior to his acceptance test. Obtain a verification certificate and verification report from verifying agency showing each device checked, and that this work has been carried out. Utilize standard verification forms similar to Canadian Fire Alarm Association (C.F.A.A.) forms.

- .3 Inspection and checking shall include smoke testing of each ionization or photoelectric smoke detector when installed with similar material found in area protected. Submit smoke detectors sensitivity calibration reading, as read on place of installation as part of verification report.
- .4 Arrange with Consultant, manufacturer of control equipment and all other installers of related and connected equipment to have a final functional acceptance test, giving ample notice to all parties concerned to be present.
- .5 Tests may include:
  - .1 Spot check of devices to ensure proper connections and supervision.
  - .2 Operation of an alarm initiating device on each detection circuit to verify required operation of alarm devices, annunciator and other installations.
  - .3 Testing of all signal devices for correct operation and function.
  - .4 Testing of smoke detector with similar material found in area to be protected.
- .6 Provide two - 2.0 hour (4 hours total) familiarization and instruction period, to familiarize user and/or appointed representatives, with working and function of system and equipment.
- .7 All testing methods are to be ULC approved. Do not use open flame or methods which will damage detectors. All testing methods are to be approved by the engineer prior to actual testing.
- .8 Provide CAN/ULC-S561 fire alarm monitoring certificate.

**END OF SECTION**

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**31 23 10-Excavating, Trenching and Backfilling**

**GENERAL NOTE**

Comply with Instructions to Bidders, the General Conditions as amended and with Division 1 requirements.

**1.0 GENERAL**

**1.1 WORK INCLUDED BUT NOT LIMITED TO**

Excavation, trenching and backfilling shall include the furnishing of all labour, materials and equipment to perform the work as indicated on the drawings and briefly described as follows:

- .1 Protection and maintenance of existing services, buildings and property adjacent to and on the site.
- .2 Strip the site as required by the Work. Topsoil that is approved for reuse to be stockpiles for re-grading purposes. All topsoil, granular materials etc. not suitable for reuse shall be disposed of off the site by the contractor.
- .3 Excavating, loading and disposal of all materials as required by the work.
- .4 Excavations for foundations, footings, etc. Loading and disposal of all materials as required by work.
- .5 Placing and compacting of granular fill for interior and exterior building areas.
- .6 Placing and compacting fill of excavated areas around completed work to finish grades as indicated on drawings.
- .7 Trenching and excavation for Electrical trades outside the building and beyond the building foundations. Removal of all excavated material. Provide all new compacted granular fill at all trench locations.
- .8 Co-ordination of work to achieve completion of the project as contractually outlined.

**1.2 RELATED WORK**

- .1 Refer to Section 32 92 23 - Sod and seeding
- .2 Refer to Section 32 31 13 - Fencing
- .3 Refer to Section 32 11 23 - Aggregate Base Courses

**1.3 PROTECTION**

- .1 The Contractor shall protect existing buildings and adjacent property from any damage caused by his operation.

Note: Refer to “Instructions to Bidders”, “Examination of Site”.

#### **1.4 EXISTING UTILITIES, ETC.**

- .1 Prior to commencing any excavation work, the Contractor shall establish as near as possible the location and state of use of all buried utilities or services as shown on drawings or known to be in existence. The locations shall be clearly and unmistakably marked to prevent accidental disturbance during the work.

#### **1.5 PROTECTION FROM WEATHERING**

- .1 Protect excavated banks, floors, etc. against freezing. In cases where bearing earth is allowed to freeze, it shall be removed and replaced with approved fill.
- .2 Keep excavations free from water providing and operating pumps to conduct water a sufficient distance away to keep excavations dry. Do not allow water to wash freshly laid concrete or masonry.

#### **1.6 CO-OPERATION**

- .1 This Contractor shall make himself familiar with the work of other Contractors working in conjunction with his work and shall assist in such work as must be done together.

#### **1.7 LINES**

- .1 All lines and levels for the excavation will be furnished by the General Contractor.

### **2.0 PRODUCTS**

#### **2.1 GRANULAR FILL MATERIAL**

- .1 Type 'A' shall be granular 'A' material that meets Ontario Specifications 1010 for granular 'A' material.
- .2 Recycled Concrete – 0” to 2” or 0” to 3” recycled concrete aggregate, meeting the gradation of OPSS from Granular 'B', Type 2 material and meeting the physical requirements of OPSS 1010 for Granular 'A'.
- .3 Type 'C' shall be 19 mm clear stone material.

### **3.0 EXECUTION**

#### **3.1 EXAMINATION OF SITE**

- .1 Contractors shall visit the site to ascertain special conditions which affect his work.

### 3.2 EXCAVATION

- .1 Excavation shall be made to elevations and dimensions indicated or required by the work plus sufficient space to permit erection of forms, shoring and inspection of foundations, drains, pits, pads, etc.
- .2 All excavation shall be carried out with a smooth edge bucket.
- .3 All lines and levels for excavations will be furnished by the General Contractor. Co-ordinate with mechanical all interior trench elevations.
- .4 **Note:**
  - .1 *Excavate for all asphalt paving, walks, curbs, etc. as required and noted on drawings.*
  - .2 *Proof-roll sub grade under all building and paved areas with a non-vibratory steel roller.*
  - .3 *Excavating shall be done in a manner that will prevent any settlement or movement of banks.*
  - .4 *Excavate for exterior sewers, cleanouts, catch basins, manholes, waterlines, flagpole, curbs, all concrete platforms, footings, foundations, etc., and as noted on drawings.*
  - .5 *If footings are not completed as dig and pour install 2"± lean concrete mud mat over all excavations for footings after inspection by Geotechnical Engineer. Refer to Section 03 30 00.*
- .5 Footings to be placed on lean concrete mud mat over firm undisturbed approved earth. Excavations for all footings and foundations shall be carried to solid bottoms. If satisfactory load bearing solid is not reached at depths indicated, the excavations shall be extended deeper as directed by the Geotechnical Engineer. The additional work will be paid for through the Provisional Cash Allowance.

### 3.3 REMOVAL OF OBSTRUCTIONS

- .1 The Contractor shall remove all existing obstructions as required for new construction and all other obstructions of whatever nature encountered, (e.g.: trees, bush, existing roots, boulders, etc.) in the course of excavation.
- .2 Existing trees which are located on or in proximity of the Public Right of Way or the existing structures on site shall be removed by an insured professional tree service.
- .3 Root balls from removed trees shall be excavated out and backfilled in accordance with the requirements of fill placement in this Section.

### **3.4 UNAUTHORIZED EXCAVATION**

- .1 Excavations to a greater than required depth shall be corrected by the Contractor at own expense by use of concrete or by other means as directed by the Consultants after an inspection of the conditions.

### **3.5 NOTIFICATION OF AUTHORITIES**

- .1 The Contractor shall notify the Architect, Building Inspector and any other agency having jurisdiction that the excavation for foundations is ready for inspection. All approvals must be obtained before placing foundations.
- .2 Notify local Utilities Commission in advance of water main work.

### **3.6 PLACING AND COMPACTION OF FILL**

- .1 Exterior side foundation wall backfill under concrete walks, platforms, etc. other than paved areas to be backfilled with Recycled Concrete compacted to 100% of its Standard Proctor maximum dry density and have top 6" below slabs backfilled with Granular 'A' material, compacted to 100% standard Proctor density. Backfill under areas to be landscaped adjacent to foundations to be backfilled as for walls but the top 18" is to be filled with clean earth fill. At all paved areas backfilled with a sub-base of Recycled Concrete compacted to 100% of its Standard Proctor maximum dry density.

Refer to Section 23 11 23 for thicknesses of granular 'A' base and asphalt surface thicknesses.

- .3 All interior and exterior backfill of granular material shall be laid in maximum 12" loose lifts and layers compressed to 100% of optimum standard proctor density, except earth fill in landscaped areas to be 90% of optimum standard proctor maximum dry density.

Tamp all fillings in thin layers and take special care to tamp and puddle filling outside of enclosing walls and around edges of foundations mats and other foundations.

Where any excavation is necessary in close proximity to and below any footings, the Contractor shall backfill with 10 MPa concrete to the level of the top of the adjacent footing.

### **3.7 EXCESS MATERIAL**

- .1 All excess material not required for backfilling or grading shall be removed from the property.
- .2 Existing roads damaged by this operation shall be repaired and paid for by the Contractor. Permits, if required by local authority, shall be obtained by the Contractor.

### **3.8 MISCELLANEOUS EXCAVATION & BACKFILLING**

- .1 This Contractor shall do all excavating, backfilling, compaction, etc. for the following:
  - .1 Excavation for exterior fence posts and concrete piers.
  - .3 Excavate for Electrical.

### **3.9 CLEANING**

- .1 Contractor shall be responsible for good housekeeping during the work of this section. All refuse must be removed from the site at least on a weekly basis.
- .2 All municipal roads to be cleaned on a daily basis at a minimum. When weather and site conditions cause roads to be soiled, clean additionally as needed.

**END OF SECTION**



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**31 23 15-Site Grading And Topsoil**

**GENERAL NOTE**

Comply with Instructions to Bidders, the General Conditions as amended and with Division 1 requirements.

**1.0 GENERAL**

**1.1 WORK INCLUDED BUT NOT LIMITED TO**

Excavation, trenching and backfilling shall include the furnishing of all labour, materials and equipment to perform the work as indicated on the drawings and described as follows:

- .1 Protection and maintenance of existing services, buildings and property adjacent to and on the site.
- .2 Distribution of existing topsoil (if applicable) on the site as required by the Work.
- .3 Supply and install soil infill and topsoil as required to meet the intended grades as indicated on the documents.
- .4 Refer to the drawings, Site Plans, Grading/Drainage Plans, Landscape Plans as applicable to the documents for all finish grade elevations of the work.
- .5 Site Grading shall be completed in accordance with the intended final drainage and landscape requirement of the work.
- .6 Inspection and testing.

**1.2 RELATED WORK**

- .1 Refer to Section 32 92 23: Sod
- .2 Refer to Section 32 31 13: Fencing
- .3 Refer to Section 31 03 31: Soil Stripping and Stockpiling
- .4 Refer to Section 31 23 10: Excavation, Trenching and Backfill

**1.3 PROTECTION**

- .1 The Contractor shall protect existing buildings and adjacent property from any damage caused by his operation.

*Note: Refer to "Instructions to Bidders", "Examination of Site".*



#### 1.4 EXISTING UTILITIES, ETC.

- .1 Prior to commencing any excavation work, the Contractor shall establish as near as possible the location and state of use of all buried utilities or services as shown on drawings or known to be in existence. The locations shall be clearly and unmistakably marked to prevent accidental disturbance during the work.

#### 1.5 PROTECTION FROM WEATHERING

- .1 Protect excavated banks, floors, etc. against freezing. In cases where bearing earth is allowed to freeze, it shall be removed and replaced with approved fill.
- .2 Keep excavations free from water providing and operating pumps to conduct water a sufficient distance away to keep excavations dry. Do not allow water to wash freshly laid concrete or masonry.

#### 1.6 CO-OPERATION

- .1 This Contractor shall make himself familiar with the work of other Contractors working in conjunction with his work and shall assist in such work as must be done together.

#### 1.7 LINES

- .1 All lines and levels for grading will be furnished by the General Contractor.

### 2.0 PRODUCTS

#### 2.1 IMPORTED TOPSOIL

- .1 Topsoil to be friable natural loam with an acidity range from 6.0 pH to 7.5 pH: containing a minimum of 4% organic matter for clay loams and a minimum 2% for sandy loams, free of stone over 15mm diameter and roots 25mm diameter, vegetation, subsoil, clay clumps and other foreign materials.

### 3.0 EXECUTION

#### 3.1 EXAMINATION OF SITE

- .1 Contractors shall visit the site to ascertain special conditions which affect his work.

#### 3.2 PREPARATION OF SUBGRADES

- .1 Grade the sub-base to insure proper drainage.
- .2 Confirm sub-grade density requirements for paved areas are consistent with the requirements (geotechnical report if applicable) pavement design.

- .3 The sub-grade for paved areas to be sloped or crowned at a rate of 2% to the catch basin locations.
- .4 Cultivate entire area to receive topsoil, landscaping; sod and/or seed and planting etc. no less than 150mm (6"). Repeat cultivating in areas compacted by construction access and traffic.
- .5 Cultivate placed topsoil compacted by vehicle traffic to perform the work.

### 3.3 FINISH GRADING, TOPSOIL APPLICATION AND PLANTING AREAS

- .1 Spread topsoil after Consultant(s) have inspected sub-grades.
- .2 Place topsoil in loose lifts not exceeding 200mm (8") in depth. Allow for settlement and finish grade elevations.
- .3 Do not place frozen or wet topsoil. Do not place topsoil over frozen or excessively wet sub-grade.
- .4 Apply no less than following depths of topsoil:
  - .1 150mm (6") for sod or seed areas
  - .2 600 mm (24") for planting bed areas
- .5 Fine grade topsoil to remove rough areas and ensure proper drainage elevations.
- .6 Roll to consolidate topsoil to permit the activities of sod, seed and planting.
- .7 Remove excess material from the Place of the Work.

**END OF SECTION**



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**32 01 91-Tree And Shrub Preservation**

**GENERAL NOTE**

Comply with Instructions to Bidders, the General Conditions as amended and with Division 1 requirements.

**1.0 GENERAL**

**1.1 WORK INCLUDED BUT NOT LIMITED TO**

- .1 Protection and maintenance of existing tree, shrubs plant material etc.

**1.2 RELATED WORK**

- .1 Refer to Section 32 92 23: Sod
- .2 Refer to Section 32 31 13: Fencing
- .3 Refer to Section 32 11 23: Excavation, Trenching and Backfilling

**1.3 PROTECTION**

- .1 The Contractor shall protect existing buildings and adjacent property from any damage caused by his operation.

*Note: Refer to "Instructions to Bidders", "Examination of Site".*

**1.4 EXISTING UTILITIES, ETC.**

- .1 Prior to commencing any excavation work, the Contractor shall establish as near as possible the location and state of use of all buried utilities or services as shown on drawings or known to be in existence. The locations shall be clearly and unmistakably marked to prevent accidental disturbance during the work.

**1.5 CO-OPERATION**

- .1 This Contractor shall make himself familiar with the work of other Contractors working in conjunction with his work and shall assist in such work as must be done together.

**1.6 LINES**

- .1 All lines and levels for the excavation will be furnished by the General Contractor.

## **2.0 PRODUCTS**

### **2.1 MATERIALS**

- .1 Snow Fencing shall be standard 1200 mm (48") high orange safety fence, as manufactured by Dupont Ltd., Type L-60 or L-70 or approved equal.
- .2 T-rails, 37mm x 37mm x 5 mm steel stakes painted black in accordance with CGSB Specification 1-GP-181
- .3 Straw bales for soil stabilization and additional bails as required or directed by the Consultants.

## **3.0 EXECUTION**

### **3.1 EXAMINATION OF SITE**

- .1 Contractors shall visit the site to ascertain special conditions which affect his work.

### **3.2 TREE AND SHRUB PROTECTION**

- .1 Protect Trees, Shrubs and Vegetation from damage during the construction and make good and/or replace any damaged tree, shrub, vegetation etc. at no expense to the owner.
- .2 Confine the traffic pattern of the construction and storage of materials away from root systems of trees and vegetation.
- .3 Install snow fencing and straw bales to detour the construction activities away from the tree and plant material and root system.
- .4 Root systems that are exposed or damaged during stripping and/or excavation shall be treating with wound dressing by an experienced contractor. Backfill and protect the area of damage as directed.

### **3.3 CLEANING**

- .1 Upon completion of the work, remove all temporary snow fencing, bales etc. and make good all landscaping.

**END OF SECTION**

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**32 11 23-Aggregate Base Materials**

**GENERAL NOTE**

Comply with Instructions to Bidders, the General Conditions as amended and with Division 1 requirements.

**1.0 GENERAL**

**1.1 WORK INCLUDED BUT NOT LIMITED TO**

Excavation, trenching and backfilling shall include the furnishing of all labour, materials and equipment to perform the work as indicated on the drawings and briefly described as follows:

- .1 Protection and maintenance of existing services, buildings and property adjacent to and on the site.
- .2 Supply, installation and compaction of all aggregate materials.
- .3 Inspections and testing.
- .4 Co-ordination of work to achieve completion of the project as contractually outlined.

**1.2 RELATED WORK**

- .1 Refer to Section 31 23 10: Excavation, Trenching and Backfilling

**1.3 PROTECTION**

- .1 The Contractor shall protect existing buildings and adjacent property from any damage caused by his operation.

*Note: Refer to "Instructions to Bidders", "Examination of Site".*

**1.4 EXISTING UTILITIES, ETC.**

- .1 Prior to commencing any excavation work, the Contractor shall establish as near as possible the location and state of use of all buried utilities or services as shown on drawings or known to be in existence. The locations shall be clearly and unmistakably marked to prevent accidental disturbance during the work.

**1.5 PROTECTION FROM WEATHERING**

- .1 Protect excavated banks, floors, etc. against freezing. In cases where bearing earth is allowed to freeze, it shall be removed and replaced with approved fill.
- .2 Keep excavations free from water providing and operating pumps to conduct water a sufficient distance away to keep excavations dry. Do not allow water to wash freshly laid concrete or masonry.

## 1.6 CO-OPERATION

- .1 This Contractor shall make himself familiar with the work of other Contractors working in conjunction with his work and shall assist in such work as must be done together.

## 1.7 LINES

- .1 All lines and levels for the excavation will be furnished by the General Contractor.

## 2.0 PRODUCTS

### 2.1 GRANULAR FILL MATERIAL

- .1 Type 'A' shall be Granular 'A' material that meets Ontario Specifications 1010 for Granular 'A' material.
- .2 Recycled Concrete – 0" to 2" or 0" to 3" recycled concrete aggregate, meeting the gradation of OPSS from Granular 'B', Type 2 material and meeting the physical requirements of OPSS 1010 for Granular 'A'.
- .3 Type 'C' shall be 19 mm clear stone material.

## 3.0 EXECUTION

### 3.1 EXAMINATION OF SITE

- .1 Contractors shall visit the site to ascertain special conditions which affect his work.

### 3.2 PLACING AND COMPACTION OF GRANULAR

- .1 All interior wall side backfill, under floor slabs, etc. to be backfilled with a sub-base of Recycled Concrete compacted to 100% of its Standard Proctor maximum dry density and a top layer of 8" minimum well compacted granular Type 'A' material, all to O.P.S.S. 1010 compressed to 100% of its maximum Standard Proctor dry density.

Note: All interior trenches for mechanical shall be backfilled with Granular 'A' material.

- .2 Exterior side foundation wall backfill under concrete walks, platforms, etc. other than paved areas to be backfilled with Recycled Concrete compacted to 100% of its Standard Proctor maximum dry density and have top 6" below slabs backfilled with Granular 'A' material, compacted to 100% standard Proctor density. Backfill under areas to be landscaped adjacent to foundations to be backfilled as for walls but the top 18" is to be filled with clean earth fill.

At all paved areas backfilled with a sub-base of Recycled Concrete compacted to 100% of its Standard Proctor maximum dry density.

Refer to Section 02513 for thicknesses of granular 'A' base and asphalt surface thicknesses.

- .3 All interior and exterior backfill of granular material shall be laid in maximum 12" loose lifts and layers compressed to 100% of optimum standard proctor density, except earth fill in landscaped areas to be 90% of optimum standard proctor maximum dry density.

Tamp all fillings in thin layers and take special care to tamp and puddle filling outside of enclosing walls and around edges of foundations mats and other foundations.

Where any excavation is necessary in close proximity to and below any footings, the Contractor shall backfill with 10 MPa concrete to the level of the top of the adjacent footing.

### **3.3 INSPECTION AND TESTING**

- .1 A proctor test by an independent testing company approved by the Architect shall be taken on all interior fill at the rate of one for every 500 sf. of floor area.
- Results of all tests must be forwarded to the Architect for approval before construction can proceed on compacted areas.
- .2 All footing excavations shall be inspected by a Geotechnical Engineer prior to any placement of concrete in excavated areas.
- .3 This Contractor shall make all arrangements with testing company for tests and inspections. Payment by General shall be from Testing Allowance.
- .4 Granular bedding shall be uniformly compacted in layers not exceeding 6" in thickness. Compaction shall conform to the requirements of OPSS 501 with a density of 95 percent of the maximum dry density.

**END OF SECTION**





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**32 15 60-Roadway Dust Control**

**GENERAL NOTE**

Comply with Instructions to Bidders, the General Conditions as amended and with Division 1 requirements.

**1.0 GENERAL**

**1.1 WORK INCLUDED BUT NOT LIMITED TO**

- .1 The protection and maintenance of existing services, buildings and property adjacent to and on the site.
- .2 Provide all required labour, material and equipment to control and clean internal roadway and municipal roads dust and construction soil debris, dust from soil, granular and granular dust etc. caused by construction vehicles and related construction activities.

**1.2 RELATED WORK**

- .1 Refer to Section 32 12 18: Asphalt and curbs
- .2 Refer to Section: 32 92 23: Sod
- .3 Refer to Section 32 31 13: Fencing
- .4 Refer to Section 31 23 10: Excavation, Trenching and Backfill

**1.3 PROTECTION**

- .1 The Contractor shall protect existing buildings and adjacent property from any damage caused by his operation.
- .2 Refer to Execution Requirements and Examination of Site.

**END OF SECTION**



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**32 31 13-Chain Link Fencing And Gates**

**GENERAL NOTE**

Comply with Instructions to Bidders, the General Conditions as amended and with Division 1 requirements.

**1.0 GENERAL**

**1.1 WORK INCLUDED:**

- .1 The work involves the supply and installation of chain link fencing, including but not limited to, posts, rails, fabric, and gates, as per the drawings and specifications provided herein. All mesh to be galvanized and clear vinyl coated.

**1.2 RELATED SECTIONS:**

- .1 Section 03 30 00: Cast-in-Place Concrete.

**1.3 REFERENCES:**

- .1 CAN/CGSB-138.1-M80, Fence, Chain Link, Fabric.
- .2 CAN/CGSB-138.2-M80, Fence, Chain Link, Framework, Zinc-Coated, Steel.
- .3 CAN/CGSB-138.3-M80, Fence, Chain Link-Installation.
- .4 CAN/CGSB-138.4-M82, Fence, Chain Link, Gates.
- .5 CSA G164-M1981, Hot Dip Galvanizing of Irregularly Shaped Articles.
- .6 ASTM A90-81, Test Method for Weight of Coating on Zinc-Coated (Galvanized) Iron or Steel Articles.
- .7 ASTM A53-88a, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
- .8 CGSB 1-GP-181M-77, Coating, Zinc-Rich, Organic, Ready Mixed.

**2.0 PRODUCTS**

**2.1 MATERIALS**

- .1 All concrete work as per the Drawings and Specification, Section 03 30 00 Cast-in-Place Concrete.
- .2 Fencing: as indicated on Site Plan Drawings.
- .3 Chain-link fence fabrics: to CAN/CGSB-138.1.

- .1 All fencing fabric is to be Galvanized, Vinyl Coated, clear, commercial, heavy grade, and 6 gauge with 2" (50 mm) openings.
- .2 Install chain link fence in accordance with CAN/CGSB - 138.3-96 unless noted & otherwise specified.
- .4 Terminal posts – 3 ½" (89 mm) outside diameter standard butt welded schedule 40 galvanized pipe. Length 3'-6" (1066 mm) longer than height of fabric. Minimum weight per foot 3.42kg (7.55 pounds). Terminal posts shall be used for end, corner, and gate and straining posts.
- .5 Line posts - 2⅜" (60.3 mm) outside diameter standard butt welded galvanized schedule 40 pipe.
- .6 Top rails and mid-rails- 1 1/16" (42.8 mm) outside diameter standard butt welded Schedule 40 galvanized pipe. Galvanized couplings of the outside sleeve type at least 7" (177.8 mm) long will be used to join top rails. The top rail is to pass through the line posts and form a continuous brace for each stretch of fence. The top rail is to be secured to each terminal post with receptacle fittings.
- .7 Fabric Types & Locations
  - .1 Type 'A'
    - .1 Fabric 4'-0" (1220 mm) high galvanized wire, vinyl coated 6 gauge rated woven in a 2" mesh. Top and bottom selvage to have knuckled finish.
- .8 Fittings to be hot dipped galvanized pressed steel, aluminum or non-metallic moldings of sufficient strength to ensure the integrity of the installation.
- .9 Fabric Bands
  - .1 Fabrics shall be fastened to top rail and braces including bottom rail with galvanized tie wire approximately 18" (450mm) intervals between line posts. Fabric shall be secured to line posts at approximately 12" (300mm) intervals.
- .10 Tension bars 3/16" x ¾" (4.5 x 19 mm) galvanized steel.
- .11 Tension wire - No. 6 gauge single strand 2 ounce galvanized wire, stretched and fastened at intervals of 18" (450mm). Use tension wire for fence without bottom brace.

### 3.0 EXECUTION

#### 3.1 ERECTION OF FENCE

- .1 Refer to details shown on Drawings. Construct various fences as shown.

- .2 Erect fences along lines as indicated on the Site Plan and in accordance with CAN/CGSB-138.3.
- .3 Space line posts 8'-0" (2400 mm) maximum apart, measured parallel to ground surface.
- .4 Space straining posts at equal intervals not exceeding 500' if distance between end or corner posts on straight continuous lengths of fence over reasonably smooth grade if greater than 500'.
- .5 Install end posts at end of fence and at changes in fence alignment. Install gate posts on both sides of gate openings. Construct maze entrances to fenced areas at locations indicated.
- .6 Embed posts into concrete to depths indicated. Slope to drain away from posts. Brace to hold posts in plumb position and true to alignment and elevation until concrete has set.
- .7 Do not install fence fabric until concrete has cured a minimum of 5 days.
- .8 Install brace between end and gateposts and nearest line post, placed in centre of panel and parallel to ground surface. Install braces on both sides of corner and straining posts in similar manner.
- .9 Install rails between posts and fasten securely to terminal posts and secure waterproof caps.
- .10 Lay out fence fabric. Stretch tightly to tension, recommended by manufacturer and fasten to end, corner, gate and straining posts with tension bar secured to post with tension bar bands spaced at 12" (300 mm) intervals. Knuckled selvedge at top and bottom.
- .11 Provide clearances between bottom of fence and adjacent grade neither less than  $\frac{3}{4}$ " nor more than 1  $\frac{1}{2}$ ". The clearance under all rails is to be consistent.
- .12 Secure fabrics to rails and line posts with tie wires at every knuckle. Give tie wires a minimum of two twists.

### 3.2 TOUCH UPS

- .1 Clean damaged surfaces with wire brush removing loose and cracked coatings. Apply two coats of high gloss organic zinc-rich paint to damaged areas, allowing the manufacturer's recommended drying time between coats. Pre-treat damaged surfaces according to manufacturers' instructions for zinc-rich paint.
- .2 Wire brush, clean, and paint all welds with two coats of high gloss zinc rich paint.

### 3.3 PROTECTION

- .1 The Contractor is responsible for the protection of all existing facilities from damage as a result of the work. Protect all surfaces and walkways from disfiguration from the processes of the work.
- .2 Any damage must be repaired promptly and to the original condition of the facility prior to the damage. Acceptance of the repair is the sole discretion of the Consultant. All repairs must be completed and accepted prior to substantial completion.

### 3.4 CLEANING

- .1 Upon completion of the work, remove all containers, surplus materials, and installation equipment, excess material, and debris. Project area must be left in a clean and orderly condition.

**END OF SECTION**

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**32 92 23-Sodding**

**GENERAL NOTE**

Comply with Instructions to Bidders, the General Conditions as amended and with Division 1 requirements.

**1.0 GENERAL**

**1.1 WORK INCLUDED BUT LIMITED TO**

The work under this section of the specifications shall include all labour, equipment and materials required in the supply, installation, grading and preparation of topsoil, sod application as indicated on the drawings and as follows:

- .1 Preparation of sub grade, redistribution of topsoil and stockpiled topsoil.
- .2 Fine grading to grades and profiles indicated and specified.
- .3 Soil preparations.
- .4 Sod all areas indicated on drawings and/or effected by the work in the Place of the Work.
- .5 Maintenance.
- .7 Grade Prep all areas affected by the work.
- .8 Co-ordinate work with completion of project as stated in documents.

**1.2 RELATED WORK**

- .1 Site Grading and Topsoil. Refer to Section 31 23 15.

**1.3 PROTECTION**

- .1 Locate and identify all on site utilities and features.
- .2 Prevent damage to any fencing, trees, landscaping, natural features, bench marks, pavement, walks, surface or underground utility lines, etc. Make good any damage incurred during or as a result of the construction operation.

**1.4 QUALITY ASSURANCE**

- .1 Test site topsoil prior to stripping and stockpiling for N, P, K, Mg, Soluble Salts, pH, growth inhibitors and soil sterility.
- .2 Submit soil analyses to Consultant for review.



## **1.5 ACCEPTANCE**

- .1 The entire work shall be done in a manner such that the appearance on completion shall be as nearly as possible that of a good natural growth in place.
- .2 The contractor shall be responsible for the protection and care of all completed sod application for a period of up to the time of acceptance by the Consultant and the second complete grass cutting.
- .3 Sod areas will be accepted by Consultant provided that:
  - .1 Sod areas are properly established.
  - .2 Sod to be free of bare and dead spots and without weeds.
  - .3 No surface soil is visible when grass has been cut to a height of 38mm.
  - .4 Areas with sod application in fall will be accepted in following spring one month after start of growing season provided acceptance conditions (1) to (4) are fulfilled.

## **1.6 DELIVERY, STORAGE & HANDLING**

- .1 Cut, delivery and install sod within a 24 hour period.
- .2 Do not harvest or transport sod when moisture content may adversely affect sod survival.
- .3 Do not tear, stretch or drop sod during handling and installation.

## **2.0 PRODUCTS**

### **2.1 TYPE AND CONDITION OF SOD**

- .1 Sod shall be No. 1 Kentucky Bluegrass Sod grown solely from seed of a minimum of three cultivars of Kentucky Bluegrass. At time of sale, the sod should contain not less than 50% Kentucky Bluegrass cultivars licensed for sale in Canada by the Canadian Department of Agriculture.
- .2 Mosses and clovers shall not be apparent in the turf and no more than 2 broadleaf weeds or 10 other weeds per 40 square meters shall be present. Sod shall be of sufficient density that no surface soil will be visible if mowed to a height of 12 mm (0.5 in.).
- .3 The mowing height limit should be 40 to 60 mm (1.5 - 2.5 in.) and not more than one half of the blade shall be cut at any one mowing. The thickness of the soil portion of the sod should not exceed 15 mm (0.6 in.) unless otherwise specified. The sod should be in a good, health, weed free condition with no sign of decay and contain sufficient moisture to maintain its vitality during transportation and placing.

- .4 Sod may be rolled to facilitate handling and transportation and shall be in widths not less than 300mm or more than 450mm, in lengths not less than 400mm and thickness not less than 25mm.
- .5 Sod shall be of such a size and condition that each may be lifted and handled without breaking or tearing and without loss of soil.
- .6 All sod must be delivered to the job within 24 hours of being cut and shall be placed within 36 hours of being cut. Sod must not be allowed to dry out. Any sod permitted by the Contractor to dry out shall be rejected whenever in the judgment of the Consultant its survival after placing shall have been rendered doubtful.

## **2.2 FERTILIZER**

- .1 Commercial (8-32-16) fertilizer applied at a rate of 6 lbs. per 1000 sq. ft. (3 kg/100 m<sup>2</sup>).

## **3.0 EXECUTION**

### **3.1 PREPARATION**

- .1 Verify that rough grades are correct. If discrepancies occur notify Consultant and do not commence work until corrections, if required, are made.
- .2 Grade soil, eliminating uneven areas and low spots, ensuring positive drainage.
- .3 Remove debris, roots, branches, stones in excess of 50mm diameter and other deleterious material. Dispose of removed material.

### **3.2 TOPSOIL**

- .1 Make all final topsoil touch-ups prior to application of the sod.
- .2 Apply fertilizer at a rate of 6 lbs. per 100 sq. ft. (3 kg/m<sup>2</sup>) and work thoroughly into the upper 50mm of topsoil. All fertilizer to be applied by a licensed contractor in accordance with municipal and provincial guidelines and bylaws.
- .3 Roll to consolidate topsoil for areas to be sod application leaving surface smooth and uniform, firm against deep foot printing and with a fine loose texture to approval of the Consultant.

### **3.3 PLACING SOD**

- .1 The finished surface shall be smooth, firm against footprints, with a fine, loose texture. Obtain approval of topsoil grading and depth before sod is placed. Sod shall be laid closely knit together in such a manner that no open joints are visible or pieces are overlapping. Cut out irregular or thin sections with a sharp knife. Sod shall be laid smooth and flush with adjoining grass areas and paving and top surface of curbs. Joints in adjacent rows shall be staggered.

- .2 No sod shall be laid when in a frozen condition, nor upon frozen ground, nor under any other condition not favourable to transplanting or growth of the sod or when not allowed by the Consultant.
- .3 Provide close contact between sod and soil by light rolling. Use of heavy roller to correct irregularities in grade is not permitted.
- .4 Water sod immediately after laying to obtain moisture penetration into top 100mm of topsoil and as required for the sod to take root.

### **3.4 MAINTENANCE**

- .1 General: The turf shall be cut when it reaches a height of 63mm. The cutting height shall be 38mm. Water shall be applied using equipment acceptable to the Consultant and in a manner that the newly sod application surfaces shall not be eroded, washed out, or damaged in any way. During this period any break which may occur through slipping of sod, shall be repaired and any sod which is dead shall be removed and replaced by the contractor with fresh, live sod. Continue watering and cutting sod until acceptance.
- .2 Remove all grass clippings after each cut.

**END OF SECTION**

