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Waterloo Catholic District School Board

Bid Documents

Waterloo Catholic District School Board

Monsignor Doyle CSS Renovation
185 Myers Rd, Cambridge. ON
RFT No. 2024-01

Prepared by:

17|21 architects inc.
1065 Valetta Street, Suite A
London, Ontario
N6H 2Z9

February 15, 2024

Division 10 – Specialities
Section 10 28 13 – Washrooms Accessories 1 - 2

DRAWINGS

Architectural Drawings

A000 – Cover
D100 - Demolition Floor Plan, General Notes, Demolition Notes,
A100 – Enlarge Floor Plan, Floor Finish plans and Construction notes
A101 – Roof Plan, Details - Separate Price 1
A200 – Enlarge Floor Plans, Interior Elevations * Millwork details
A800 – Millwork Elevations, Sections and Door Elevations & details

ELECTRICAL DRAWINGS

E1 ELECTRICAL LEGEND AND SCHEDULE
E2 PARTIAL OFFICE, CORRIDOR & GYM - LIGHTING DEMO
E3 PARTIAL OFFICE, CORRIDOR & GYM - LIGHTING DEMO
E4 PARTIAL CLASSROOM ELECTRICAL PLAN - LIGHTING DEMO
E5 PARTIAL CLASSROOM ELECTRICAL PLAN - LIGHTING DEMO
E6 PARTIAL OFFICE, CORRIDOR & GYM - NEW LIGHTING
E7 PARTIAL OFFICE, CORRIDOR & GYM - NEW LIGHTING
E8 PARTIAL CLASSROOM PLAN - NEW LIGHTING
E9 PARTIAL CLASSROOM PLAN - NEW LIGHTING
E10 ELECTRICAL SPECIFICATIONS

MECHANICAL DRAWINGS

M1 SCHEDULES, LEGENDS & DETAILS - MECHANICAL
M2 GROUND FLOOR-REMOVALS & REVISIONS
M3 MECH, ROOM - REMOVALS & REVISIONS
M4 ENLARGED PLANS - MECHANICAL
M5 ENLARGED PLANS - MECHANICAL
M6 MECHANICAL SPECIFICATIONS
M6 MECHANICAL SPECIFICATIONS CONT'D

1.1 INVITATION

.1 Bid Call

.1 **REGISTERED SUPPLIERS/BIDDERS**

- All Bidders shall have a Bidding System Vendor account and be registered as a Plan Taker for this Bid opportunity, which will enable the Bidder to download the Bid Call Document, to receive Addenda email notifications and download all documents without the watermark "preview" on them.

- To ensure receipt of the latest information and updates via email regarding this bid, or if a Bidder has obtained this Bid Document from a third party, the onus is on the Bidder to create a Bidding System Vendor account and be register as a Plan Taker for the bid opportunity.

.2

ELECTRONIC BID SUBMISSIONS ONLY, shall be received by the Bidding System. Hardcopy submissions are not permitted.

Bidders are cautioned that the timing of their Bid Submission is based on when the Bid is RECEIVED by the Bidding System, not when a Bid is submitted, as Bid transmission can be delayed due to file transfer size, transmission speed, etc.

For the above reasons, it is recommended that sufficient time to complete your Bid Submission and to resolve any issues that may arise. The closing time and date shall be determined by the Bidding System's web clock.

Bidders should contact bids&tenders support listed below, at least twenty-four (24) hours prior to the closing time and date, if they encounter any problems. The Bidding System will send a confirmation email to the Bidder advising that their bid was submitted successfully. If you do not receive a confirmation email, contact bids&tenders support at support@bidsandtenders.ca.

Late Bids are not permitted by the Bidding System.

To ensure receipt of the latest information and updates via email regarding this bid, or if a Bidder has obtained this Bid Document from a third party, the onus is on the Bidder to create a Bidding System Vendor account and register as a Plan Taker for the bid opportunity.

Supplementary Form of Tender to be emailed to:
Stephen.butterworth@wcdsb.ca

.3 Submissions to the bidding system will be on or before **2:00:00pm March 7th, 2024,** local time and Followed by the Supplementary Form of Tender emailed to Stephen.butterworth@wcdsb.ca at **4:00:00 pm March 7th, 2024 local time**

.4 Instructions for tendering must be followed implicitly. Any Tender which does not comply with the *CCDC 2-2020 Stipulated Price Contract, Supplementary Conditions, as attached*, and the Instructions to Bidders may be declared informal and may not be considered.

.5 Stipulated sum tenders, submitted on the Form of Tender supplied, on the Work described in the following specifications and/or shown on the accompanying drawings, including all Addenda issued prior to the closing of Tender.

.6 ALL BLANKS IN THE FORM OF TENDER, INCLUDING SUPPLEMENTAL FORM OF TENDER, SHALL BE FULLY COMPLETED OR THE TENDER MAY BE INVALIDATED. TENDERS NOT COMPLETED IN FULL, MAY, AT THE DISCRETION OF THE BOARD, BE REJECTED. IF A BLANK IS DEEMED TO BE NOT REQUIRED BY THE BIDDER, COMPLETE WITH A "NOT APPLICABLE (N/A)", "OWN FORCES", ETC.

.7 Tenders shall be valid for sixty (60) Calendar Days from the date of closing above.

.8 Tenders must note, and include, on a separate form, any "Separate Prices" requested by the Consultant; any "Alternate Prices to the Base Bid" requested by the Consultant; any "Supplementary Alternate Prices" proposed by the Bidder; as well as all Unit Prices indicated on the *Supplementary Form of Tender.* Tender award to be based on low bid as specified.

.9 Tender award will be determined based on low Bid as specified.

1.2 INTENT

.1 Intent of this Bid call is to obtain an offer to perform work to complete the construction of **Monsignor Doyle CSS** located at **185 Myers Rd, Cambridge. ON** for a Stipulated Price contract, in accordance with Contract Documents.

1.3 CONTRACT/BID DOCUMENTS

.1 Agreement Form

.2 Definitions

.1 Contract Documents: Defined in the *CCDC 2-2020* Stipulated Price Contract, Definitions.

.2 Bid Documents: Contract Documents supplemented with Instructions to Bidders, Project Information, Soils Investigation Data, Form of Tender, and Supplementary Form of Tender identified herein.

.3 Bid, Offer, or Bidding: Act of submitting an offer under seal or signed under witness.

.4 Bid Price: Monetary sum identified in Bid Form as an offer to perform work.

.3 Availability

To obtain documents online please visit https://wcdsb.bidsandtenders.ca/. You can preview the bid documents with a Preview Watermark prior to registering for the opportunity.

.1 Documents are not provided in any other manner.

.2 Documents are made available only for purpose of obtaining offers for this project. Their use does not confer license or grant for other purposes.

.3 A copy of soils investigation report may be found in Bid Documents

.4 Examination

.1 Upon receipt of Bid Documents verify that documents are complete.

.2 Immediately notify, through the bidding system "Submit a Question", upon finding discrepancies or omissions in Bid Documents.

.5 Queries/Questions

.1 Questions related to this bid are to be submitted to the Purchasing representative through the Bidding System only by clicking on the "Submit a Question" button for this specific bid opportunity.

Purchasing Representative

Stephen Butterworth
Purchasing Officer
Waterloo Catholic District School Board

Email: Stephen.Butterworth@wcdsb.ca

Neither the Board nor the Board contact will be responsible for any verbal instructions or clarifications given during the Bidding process. As a result, verbal recollections of discussions, meetings, or telephone conversations will not be considered valid.

.6 Addendums

.1 Bidders shall acknowledge receipt of any addenda through the Bidding System by checking the box for each addenda and any applicable attachment.

It is the responsibility of the Bidder to have received all Addenda that are issued. Bidders should check online at https://wcdsb.bidsandtenders.ca/ prior to submitting their Bid and up until Bid closing time and date in the event additional addenda are issued.

If a Bidder submits their bid prior to the Bid closing time and date and addenda have been issued, the Bidding System shall WITHDRAW the Bid submission and the bid status will change to an INCOMPLETE STATUS and Withdraw the Bid. The Bidder can view this status change in the "MY BIDS" section of the Bidding System.

The Bidder is solely responsible to:

- make any required adjustments to their Bid; and
- acknowledge the addenda; and
- Ensure the re-submitted Bid is RECEIVED by the Bidding System no later than the stated bid closing time and date.

.2 Clarifications requested by bidders must be received by the bidding system, not less than nine (9) days before date set for receipt of Bids. Reply will be in form of an addendum, a copy of which will be forwarded to known bidders no later than seven (7) working days before receipt of Bids

.7 Product/System Options

.1 There are two opportunities for a Bidder to identify Alternates in the Bidder's Tender. The first method is to identify Alternates at the time of the Tender

submission on the *Supplementary Form of Tender* to be attached to the Form of Tender. This document is to be entitled ALTERNATE PRICES TO BASE BID:

.1 Wherever possible or practical, the specifications are written on a "Base Bid" principle. When "Base Bid" product or service is identified, a number of "alternates" have been listed. The Bidder must tender on the "Base Bid" and indicate, on a separate sheet, Alternates and a credit to the Contract if one of the specified alternate supplier/manufacturer/installer or material/method of construction is being proposed by the Bidder. Only those identified Alternates in the Specification may be listed on the *Supplementary Form of Tender*. If the Specification identifies a "Base Bid" with a number of Alternates and the Bidder does not identify on the *Supplementary Form of Tender* any of the indicated Alternates with a credit, then the Contractor shall provide, in all instances, the "Base Bid" supplier/manufacturer/installer or material/method of construction.

.2 The Contractor shall accept full responsibility that a proposed Alternate will not exceed space requirements as indicated on the drawings and that coordination of the Contractor's own and related work and cost of installation is included in the Contractor's work. Approved alternate products or assemblies shall comply with all technical and design requirements specified in the "Base Bid". (E.g. materials, gauge, finish, colour, size, fit, mounting, strength, durability, operation and warranty.) If any additional design fee, either Architectural or Engineering, is required due to a change or substitution requested by the Contractor, the cost of such fee must be paid by the Contractor.

.2 The second method is to identify alternates on the *Supplementary Form of Tender* and submitted, as requested by the Consultant, at the time of Tender. This document is to be entitled. SUPPLEMENTARY ALTERNATE PRICES:

.1 Mechanical and Electrical Alternates may be submitted on the Supplementary Form of Tender.

.2 If proposals for alternates (not already identified as alternates in the specification) are submitted by the Contractor to the Consultant during the tender period in sufficient time to allow for analysis and the issuance of an Addendum to include the proposals, then such proposal may be included in the Form of Tender under *Separate Prices*.

.3 Proposed alternates which are not covered by an Addendum and listed in the Form of Tender under *Separate Prices*, may be considered if the proposed entitled *Supplementary Alternate Prices* accompanies the Supplementary Form of Tender as a separate document on which the Alternate is completely specified and described, and on which is given the reason for substitution.

.4 Any proposed alternates or in lieu of prices will not necessarily be accepted.

.5 The Contractor shall accept full responsibility that a proposed Alternate will not exceed space requirements as indicated on the drawings and that coordination of his own and related work and cost of installation is included in his work. Approved alternate products or assemblies shall comply with all technical and design requirements specified in the "Base Bid". (E.g. materials, gauge, finish, colour, size, fit, mounting, strength, durability,

operation and warranty.) If any additional design fee, either Architectural or Engineering, is required due to a change or substitution requested by the Contractor, the cost of such fee must be paid by the Contractor.

.6 Unless substitutions are submitted in this manner and subsequently accepted, provide products as specified.

1.4 OWNER

.1 The Owner of the Project is:

WATERLOO CATHOLIC DISTRICT SCHOOL BOARD
35 Weber Street West, Unit A
Kitchener, Ontario N2H 3Z1
Phone: (519) 578-3660

1.5 CONSULTANT

The Architect on this Project is:

17\21 archtects inc.
1065 Valetta Dt, Unit A
London, ON. N6H 2Z9
519-439-0611
Sonia.d@1721atchitects.ca

1.6 SUB CONSULTANTS

.1 The Mechanical & Electrical Consultant on this Project is:

Callidus Engineering
1385 Routledge Park
Unit 9. London, ON N6H 5N5
Phone: 519-472-7640
jennifer@callidus.ca

1.7 PREQUALIFIED GENERAL CONTRACTORS AND SPECIFIC TRADES

.1 The following General Contractors and Specific Trades have been prequalified by the Board to bid on the work included in this Tender **as per the WCDSB – 2019-24 Mechanical, Electrical, and General Contractors.**

NOTE: This Tender can be tendered by **prequalified General Contractors and Specific Trades ONLY. Tenders received from non-prequalified General Contractors and Specific Trades will not be considered.**

GENERAL CONTRACTORS

CRD Construction	Nith Valley Construction
Gateman Milloy	Norlon Builders
Reid and Deleye	Golden Gate Contracting
Pre Eng Contractors	Brook Restoration
STM Construction	Harrington Construction
Melloul Blamey	Genpro Contracting
Gordner Construction	J.R. Certus
Dakon Construction	Harbridge and Cross
Elgin Contracting	Ritestart Ltd
TRP Construction	M J Dixon Construction
PM Contracting	AEC Developments
Devlan Construction	Renokrew
Tambro Construction	Zehr Levesque Inc.
Sax Construction	Aviero
Percon Construction	Hall Construction
Everstrong Construction	S.G. Cunningham
Spec Construction	

MECHANICAL TRADES

Aim Industrial Inc.	L.J. Barton Mechanical
Dependable Mechanical Sys.	Chamberlain Building Serv.
Arcadian Projects	Soan Mechanical
Jay Stewart Mechanical	Linde Mechanical
Conestoga Mechanical	JMR Electric
JTS Mechanical	Velocity Mechanical
Roberts Onsite	Brenner Mechanical
Dean Lane	Kittel Mechanical
CEC Mechanical	Superior Boiler Works

ELECTRICAL TRADES

Kraun Electric Inc.	Group L.J. Barton Mechanical
Aim Industrial Inc.	Energy Network Services
Powerserve Inc.	Superior Boiler Works
PHE Contractor	Chamberlain Building Serv.
Roberts Onsite	RBT Electrical
T. Lloyd Electric	CEC Services Ltd.
Juno Electric	JMR Electric
Comtrade Ltd	B Safe Electric Ltd
MJM Electric	Arcadian Projects
Trade Service Group	Millers Electric

1.8 SITE ASSESSMENT

.1 Site Examination

.1 Visit project site and surrounding area before submitting Bid.

.2 Notwithstanding the responsibility, a Site Visit to project site has been arranged for General Contractors and their sub-trades as follows:

.3 Non-mandatory Site visit on **February 22st at 3:00pm, at Monsignor Doyle CSS** located at **185 Myers Rd, Cambridge**

.4 Meet on **front entrance**

.5 Before tendering, the Bidder shall examine the site, and the Reports prepared by separately engaged Consultants, bound into the Specifications for reference only, and shall ascertain the extent and nature of the materials it may be necessary, and shall be sure that the Bidder's determinations are made in accordance with the drawings and specifications and the Reports.

.6 Proposals shall include the cost imposed by existing conditions and limitations of site and the accepted proposal shall be held to have included such costs. NO ALLOWANCE WILL BE MADE FOR FAILURE TO EXAMINE THE EXISTING SITE.

.7 The information shown on the drawings are furnished in good faith for the guidance of the Contractor, but shall in no way relieve the Contractor of the responsibility of ascertaining to the Contractor's own satisfaction the nature of all conditions at the site.

1.9 BID ENCLOSURES/REQUIREMENTS

.1 Security Deposit

.1 Each tender shall be accompanied by a Bid Bond and Agreement to Bond in the most recent form approved by the Canadian Construction Association from a Surety Company, acceptable to the Board. The Bid Bond shall be in the amount of […10% of Base Bid…], together with an Agreement to Bond. The Bid Bond must be valid for a minimum of sixty (60) Calendar Days from the closing date. Tenders not accompanied by a Bid Bond and Agreement to Bond will be declared informal.

.2 This Bid Bond shall be forfeited if the bidder declines to enter into a formal contract in the amount tendered, or as adjusted according to the separate prices included in the tender, and/or to furnish, when called upon to do so, a Performance Bond. This Bid Bond shall be accompanied by an Agreement from the Surety Company that a 50 % Performance Bond and a 50 % Labour and Material Payment Bond will be issued to the Bidder if the Bidder is awarded the contract. The cost of the Bonds shall be included in the amount of the Tender. Refer to the *CCDC 2-2020 Stipulated Price Contract and the Supplementary Conditions, as attached,* for further information.

.3 Retention and use of the Bid Bond, as outlined above, shall not be deemed a penalty, but a consideration to the Board for inviting and considering the Tender and as part payment for sustained damages and costs incurred by the Board, which shall be deemed to be the difference between the bid price of this Bidder and the bid price of the next lowest Bidder acceptable to the Board.

.4 A Performance Bond, equal to 50 % of the contract price, shall be furnished through a Surety Company or Insurance Company approved by the Consultant and the Board according to terms and conditions acceptable to the Board and the Consultant.

.5 On completion of the work, the Performance Bond shall remain in force as a MAINTENANCE BOND for a period of one (1) year from the date of acceptance of the building by the Board. It shall form a guarantee of workmanship and materials for the one (1) year period.

.6 Use latest edition CCDC approved bond forms.

.2 Performance Assurance

.1 The Bidder to whom the contract is awarded must properly sign the contract and furnish a satisfactory Performance Bond, Labour and Material Payment Bond, Insurance Certificate and Workers' Compensation Board Certificate within ten (10) Working Days of acceptance of the tender by the Board, or forfeit the Bid Bond.

.2 Labour and Material Payment Bond, equal to 50 % of contract, to be provided within ten (10) Working Days, stating that the Board will not be held responsible if payment to subcontractors, as certified due by the Consultant, is not made by the General Contractor when due.

.3 Tenders must include all costs involved in having the contract "Fit for Legal Occupancy and Substantial Performance" by **August 23th, 2024** and having the entire building Totally Completed by **August 30th, 2024**

.4 Persons or firms submitting tender proposals shall be actually engaged as their recognized business in the lines of work required by the specifications, and shall be able to refer to work of a similar character which has been satisfactorily performed by them.

.3 Fees for Changes in Work

.1 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 Contractor at the time of tender. 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 tender amount.

.2 The tender amount shall not include Harmonized Sales Taxes but shall include all other applicable excise taxes, custom duties, freight, exchange and all other charges in effect and known to come into effect during the construction work described in this Contract.

.3 Unit Prices are exclusive of Harmonized Sales Taxes.

.4 The successful Bidder must provide the Bidder's H.S.T. (Tax) Registration Number and each request for payment must show this number and the amount of H.S.T.(Tax) payable.

.5 At the time of tender submission, include *Separate Prices* listed in the Supplemental Form of Tender for the identified items. Express each In Lieu of Price as a Credit or an Extra to the amount tendered. Contract Amount will be adjusted consistent with their acceptance or rejection by the Board. Separate Prices DO NOT include H.S.T.

.4 Unit Prices

.1 UNIT PRICES FOR ADDITIONAL WORK SHALL NOT EXCEED UNIT PRICES FOR DEDUCTED WORK BY MORE THAN 20%.

.2 Unit prices must be submitted at time of Tender.

.3 The Board reserves the right to accept or reject any or all of the unit prices prior to entering into a contract.

.4 The Board reserves the right to negotiate any or all of the unit prices with the low Bid Contractor prior to signing a contract

.5 Refer to *CCDC 2-2020 Part 6 CHANGES IN THE WORK* regarding valuation of changes not covered by Unit Prices.

.5 Subcontractors

.1 Bidders are required to submit the list of subcontractors. The list is to be submitted with tender, on the *Supplemental Form of Tender* included in the Contract Documents. The Bidder shall name in these lists the subcontractors proposed to perform the work under the contract. No substitutions to these lists shall be made without the written approval of the Consultants.

.2 The selection of Subcontractors must be acceptable to the Board and to the Consultants. If the required substitution of a Subcontractor affects the sub-tender price, an adjustment will be made in the amount of the General Contract by the amount only of the difference in sub-tenders, without additional overhead or profit to the Contractor.

.3 If the Bidder proposes to do work with persons directly employed by the Bidder and not subcontract, then the Bidder shall insert the words *"Own Forces"* provided the Bidder can submit proof that the Bidder's forces have had previous experience in this field.

.4 Subcontractors shall be actually engaged as their own recognized business, in the line of work required by the specifications and shall carry out themselves the work which they are awarded by subcontract. They shall not be permitted to re-subcontract their work or portions thereof, to other contractors.

.6 Fair Wage and Labour

.1 Rate of wages, hours and conditions of work shall be in accordance with Provincial Codes and as generally recognized and accepted in the locality. Building mechanics and labourers resident in the district are to be employed where suitable.

.7 Discrepancies and Omissions

.1 Bidders, including subcontractors, finding specified items unavailable, finding discrepancies in, or omissions from, the drawings or specifications or other contract documents, or having any doubt as to the intent or meaning of any part thereof, shall at once notify the Consultant in writing, who will issue an Addendum to all bidders in explanation of the inquiry if necessary.

.2 All definitions, explanations, corrections or additional information will be issued by the Consultant during the time of bidding in the form of typewritten addenda and such addenda will be available to all Bidders. These shall become part of the contract documents and **must** be shown on the Form of Tender as having been received.

.3 NO ORAL INSTRUCTIONS WILL BE VALID.

.8 Bidding Assumptions

.1 All bids submitted, are assumed to be based upon the complete set of Bid Documents.

.9 Errors in Tender

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

.10 Building Permit

.1 Building Permit has been applied for by the Consultant and shall be paid for by the Board.

.2 The Contractor must, however, pay all other necessary fees, deposits and charges related to Municipal, Provincial and Federal Requirements. The General Contractor is responsible for determining the amounts of these permits, fees, etc.

.11 Contract Documents

.1 The Contract shall be subject to the Requirements of the *CCDC 2-2020* Stipulated Price Contract and the Supplementary Conditions, as attached. The successful Bidder must sign the *CCDC 2-2020* Stipulated Price Contract as amended by the Supplementary Conditions using this document and these specifications and drawings, within ten (10) Working Days of notification of award. Failure to do so may result in termination of the award. The Contractor shall not be entitled to any payment until this document is signed.

.2 All Contractors will be held to have examined and made themselves familiar with the various articles of these Standard Documents and shall be as binding for all sections of the following specifications as though written in full therein.

1.10 OFFER ACCEPTANCE/ REJECTION

.1 Privilege and Waiver of Non-Compliance

.1 Notwithstanding anything elsewhere herein set out, the lowest or any proposal will not necessarily be accepted by the Board, and the Board reserves the right in its sole discretion to reject any and all proposals at any time or to accept any proposal which is considered advantageous by the Board. Proposals which are non-compliant with the requirements of this Tender, or which contain qualifying conditions, may be disqualified or the Board may waive any non-compliance with the Tender documents, and in its sole discretion, retain for consideration proposals which are non-conforming or non-compliant.

.2 Acceptance of Offer

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

.3 No Change in Pricing

.1 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 Contractor at the time of tender. 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 tender amount for any reason, including acts of war or world events.

.4 Withdrawl of Bids.

.1 Bidders may edit or withdraw their Bid Submission prior to the closing time and date. However, the Bidder is solely responsible to ensure the re-submitted bid is received by the Bidding System no later than the stated closing time and date.

Bids by hardcopy, telephone, email, or fax will not be accepted.

1.11 SPECIFICATION MANUAL AND INSPECTIONS

.1 The Bidder must be aware that the Board has instructed the Consultant to prepare a painting specification based upon the *Painting Architectural Specification Manual* prepared by the Ontario Painting Contractors' Association**,** 211 Consumers Road, Suite 305, Willowdale, ON, M2J 4G8

.2 The Specification consists of three main components

.1 Evaluation and Choice of Systems – Surface Preparation

.2 Approved Product/Manufacture Listing – Specification Guide

.3 Inspection and Guarantee Program

.4 Refer to the specifications for the first two components listed above. The Inspection Procedure will be complied with in every respect by the successful General Contractor and the Painting Contractor as follows:

.1 Upon issuance of a subcontract to the Painting Contractor, the General Contractor shall fill out our "*Request for Assignment of an Inspector"* Form. The Inspection fee, which is a percentage charge of the painting subcontract price, will be paid from the *Allowances* identified in the General Instructions*.* Provide a copy of the properly executed Inspector Form to the Consultant and confirm the accuracy of the subcontractor's painting bid.

.5 The Form will contain the following information:

.1 Name of Contractor

.2 Name and Description of Project

.3 Name and Address of the Architect

.4 Job Location

.5 Project starting date

.6 Contract Price

.7 Commencement Date of painting.

.6 The Association will assign an Inspector to the project.

.3 The Painting Contractor must advise the Association office of the actual starting date of painting. Painting shall not commence until the Association has been notified and the Inspector makes the initial site visit.

.4 The Painting Contractor must supply the Inspector with a schedule of materials intended for use on the job at the commencement of the painting.

.5 During the painting application the frequency of inspections will be sufficient to ensure adequate Quality Control procedures in accordance with the Painting *Architectural Specification Manual* and the Specifications.

.6 The Inspector will use Interim Inspection Reports during the Project. One copy of each of these reports will be given to the Painting Contractor, one copy to the General Contractor, and two copies to the Association office, one of which will be forwarded to the Consultant. On completion of the job, the final Inspection Report will be made and routed as noted.

.7 The Inspector will be required to check for proper preparation of surfaces, specified number of coats, as specified in the Specifications and drawings.

.8 Any deficiencies must be corrected before the Guarantee is issued and final payment for painting made by the Board.

.9 The Guarantee must cover making good any defects in painting and decorating due to faulty workmanship or defective materials supplied by the Painting and Decorating Subcontractor which appear during a two year period, following “substantial” completion of the Contract or the date of “Fit for Occupancy”, whichever occurs first.

END OF SECTION

1.1 TENDER INFORMATION

NAME OF BIDDER: _____

TENDER CLOSE: **March 7th, 2024** at **2:00:00pm** local time

SUPPLEMENTAL TENDER FORM CLOSE:

March 7th, 2024 at **4:00:00pm** local time.

NAME OF PROJECT: **Monsignor Doyle CSS Renovation**

PROJECT NUMBER: **2024-01**

ELECTRONIC BID SUBMISSIONS ONLY, shall be received by the Bidding System.

Supplementary Form of Tender to be emailed to Stephen.butterworth@wcdsb.ca

1.2 ACKNOWLEDGEMENT RE EXAMINATION OF TENDER DOCUMENTS

.1 Having carefully examined all of the drawings (Architectural, Structural, Mechanical, Electrical, Site Servicing and Landscape) and having carefully examined the Instructions to Bidders, the requirements of the *CCDC 2-2020 Stipulated Price Contract, as amended by the Supplementary Conditions, as attached*, and all of the attached Specifications; (Architectural, Structural, Mechanical, Electrical, Site Servicing and Landscape) including Addenda numbered as follows:

Addenda #……to/and including Addenda #……

and, having visited the sites, investigated and examined all conditions affecting the Work, including soil reports and surveys, and other reports as included in the Tender Documents, the undersigned Bidder makes the offers set out below.

1.3 CASH ALLOWANCES

.1 All allowances specified under Section 01021 only amended as provided hereunder.

The Tender Amount includes the total Cash Allowance of **$442,200.00** not including Harmonized Sales Tax (HST). (*HST on Cash Allowance is not to be included in the Tender Amount*)

1.4 TENDER AMOUNT

.1 The undersigned Bidder hereby offers to furnish all materials, labour, plant and equipment and to perform all duties and services called for by the ENTIRE WORK INCLUDING ALL TRADES for the Project named above for the stipulated sum of:

……
(Written Value)

$.....
(Numeric Value)

in lawful money of Canada, excluding Harmonized Sales Tax, but including all other applicable Excise Taxes, Custom Duties, Insurance's, Freight, Exchange and all other charges.

1.5 TENDER VALIDITY

.1 The undersigned Bidder is hereby submitting a valid Tender and will enter into the *CCDC 2-2020 Stipulated Price Contract, as amended by the Supplementary Conditions*, *as attached*, if we are notified in writing of our Tender acceptance by THE BOARD within sixty (60) calendar days from the closing of the Tender.

1.6 BONDING

.1 The undersigned Bidder encloses a Bid Bond in the amount of [10]% made out in the name of WATERLOO CATHOLIC DISTRICT SCHOOL BOARD.

.2 It is a condition of this Agreement that if the above mentioned Tender is accepted, application for a 50% Performance Bond and a 50% Labour and Material Payment Bond must be completed with undersigned within ten (10) days of acceptance of the tender related thereto, otherwise this Agreement shall be null and void.

1.7 CONSTRUCTION SCHEDULE

.1 The undersigned Bidder solemnly undertakes, as an integral part of our proposal and tender to:

(a) Have the buildings "Fit for Occupancy" by **August 23th, 2024 ;**

(b) Have all buildings and site work completed by **August 23th, 2024** and

(c) Have the Contract completed in its entirety by **August 30th, 2024**

.2 The undersigned Bidder confirms that all appropriate costs, such as but not limited to winter heat, inclement weather protection and all overtime costs for all

trades to meet the aforementioned schedule, have been included in our tender price to achieve this date.

.3 The Bidder acknowledges and agrees that so long as a building permit is obtained and the Bidder is directed to commence Work within the sixty (60) calendar days following the Closing Date, even if such direction does not occur until the fifty-ninth (59^{th}) day following the Closing Date, the Bidder shall not be entitled to a delay claim.

.4 The undersigned Bidder acknowledges and agrees to comply with the terms and conditions of the Project Occupancy Requirements as outlined in the Supplementary Conditions, attached hereto

1.8 REQUIRED DOCUMENTS

.1 If notified of the acceptance of this Tender via a Letter of Intent issued by the Board, the undersigned Bidder agrees to provide the prerequisite documentation within ten (10) days.

1.9 FEES FOR CHANGES IN THE WORK

.1 The undersigned Bidder acknowledges and agrees that the fees referred to in *CCDC 2-2020 Stipulated Price Contract, as amended by the Supplementary Conditions*, *as attached*, will apply to changes in the Contract not covered by Unit Prices.

1.10 SUPPLEMENTARY FORM OF TENDER

.1 The undersigned Bidder agrees to submit the *SUPPLEMENTARY FORM OF TENDER*, as attached, at Tender close, which shall including the following:

- BID AND COST BREAKDOWN
- LIST OF SUBCONTRACTORS / SUPPLIERS / INSTALLERS
- SEPARATE PRICES - REQUESTED BY CONSULTANTS
- UNIT PRICES
- ITEMIZED PRICES - REQUESTED BY CONSULTANTS
- ALTERNATE PRICES TO BASE BID
- LIST OF ALTERNATIVE BIDS SUBMITTED FOR CONSIDERATION

1.11 DECLARATION OF NO CONFLICT

.1 The undersigned Bidder hereby declares that this Tender submission is made in good faith and without any connection, knowledge, comparison of figures, or arrangements with any other company, firm, or person making a Tender for the same work and is, in all respects, fair and without collusion with any other bidder for this Contract, and without fraud. The undersigned also represents 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 the Tender or performance of the Contract 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 Tender process. The undersigned understands that, for the purposes hereof, "conflict of interest" also includes:

(a) in relation to the Tender 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 proposal that is confidential to the Board and not available to other bidders;
communicating with any person with a view to influencing preferred treatment in the Tender process; or,
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 its contractual obligations in a Board contract, the undersigned's other commitments, relationships or financial interests:

(i) could or could not be perceived to exercise an improper influence over the objective, unbiased and impartial exercise of the Board's independent judgment; or,

(ii) could or could not be perceived to compromise, impair or be incompatible with the effective performance of the undersigned's contractual obligations.

1.12 MUNICIPAL FREEDOM OF INFORMATION AND PROTECTION OF PRIVACY ACT

.1 This Tender and supporting documentation shall become the property of the Board. Information in a Tender is subject to potential disclosure to third parties after the award, in accordance with the provisions of the Municipal Freedom of Information and Protection of Privacy Act, R.S.O. 1990 ("MFOIPOP"). The Bidder acknowledges that any personal or confidential information which Bidders provide is being collected and will be used exclusively for the purposes of analyzing, evaluating and assessing Tenders submitted. Any information a Bidder wishes to identify as proprietary and have maintained as confidential, excluding unit pricing information as well as the total dollar value of the Tender, must be clearly identified as such, and any proposed restrictions on disclosure specified. For the purposes of a report to the Trustees of the Board, pricing information as well as the total dollar value of the Tender may be reported in a public report and will not be considered confidential. In addition, the Board may be ordered by the Information & Privacy Commissioner under the provisions of MFOIPOP to disclose additional information identified by a Bidder as proprietary and confidential.

1.13 LIMITATION OF LIABILITY

.1 By submitting a Tender, the undersigned Bidder acknowledges and agrees that the Board will have no liability or obligation to any Tender except only that of the successful Bidder, if any, awarded the Contract by the Board, in its sole discretion. The Bidder also agrees that if the undersigned is not awarded the Contract, the Board shall be fully and forever released and discharged of all liability and obligations relating to this Request for Tender and all its submission procedures. All Bidders responding to this Request for Tender shall accept the decision of the Board as final and binding.

1.14 SIGNING OF TENDER

The undersigned Bidder is hereby submitting this Stipulated Sum Tender under a Corporate Seal or witnessed by an Individual.

PRINT COMPANY NAME: _____

PRINT ADDRESS OF COMPANY: _____

_____

_____

PRINT NAME OF CONTACT PERSON REGARDING THIS TENDER: _____

CONTACT PERSON'S EMAIL: _____

PHONE NUMBER OF COMPANY: _____

SIGNATURE OF SIGNING OFFICER: _____

DATE: _____

PRINT NAME OF SIGNING OFFICER: _____

PRINT TITLE OF SIGNING OFFICER: _____

SIGNATURE OF WITNESS: _____

PRINT NAME OF WITNESS: _____

AFFIX CORPORATE SEAL (If no individual Witness):

END OF SECTION

Submit this Supplementary Form of Tender at the close of General Tenders.

1.1 TENDER INFORMATION

TENDER CLOSE: **March 7th, 2024** at **2:00:00pm** local time

SUPPLEMENTAL TENDER FORM CLOSE:

March 7th, 2024 at **4:00:00pm** local time.

NAME OF PROJECT: **Monsignor Doyle CSS Renovation**

PROJECT NUMBER: **2024-01**

Submission Email Address: stephen.butterworth@wcdsb.ca

1.2 SUPPLEMENTARY LIST OF SUBCONTRACTORS

.1 I/We, the undersigned, propose to use the following Subcontractors and/or suppliers to perform work of this Contract, and I/we confirm that all have been investigated to confirm their reliability and competence to carry out the Work in accordance with the Contract Documents; and I/we agree that no changes from this may be made without the express written approval of the Board.

Extra costs to the Contract will not be considered for a Subcontractor/supplier substitution, regardless of the reason, except where a substitution is requested by the Owner.

Site Services _____

Asphalt Paving _____

Masonry _____

Structural Steel _____

Metal Fabrications _____

Cabinetwork _____

Sprayed Fireproofing _____

Roofing _____

Glazing _____

Gypsum Board and Acoustical Ceilings _____

Ceramic Tile _____

Resilient Flooring _____

Painting _____

Whiteboards and Tackboards _____

Gymnasium Equipment _____

Lift for Disabled _____

Electrical _____

Mechanical _____

1.3 SEPARATE PRICES

.1 Separate Price items do NOT replace or substitute items already in the Bid Documents. Accepted Separate Prices are to be in accordance with Section 002100 (Instructions to Bidders) excluding HST:

.1 Replacement of existing light fixtures in classrooms as described in the electrical drawings & specifications. $_____

1.4 ELECTRICAL UNIT PRICES:

.1 I/We enclose herewith Unit Prices, exclusive of applicable taxes, which are an integral part of the Bid. Unit prices are, in effect, for the duration of this Project's construction period, unit prices are exclusive of applicable taxes.

.2 The following unit costs will apply to all additional or deleted work from the Contract and should include their proportionate share of all labour equipment, materials, accessories, profits, overhead and taxes for a job completely installed. Applications of unit prices will be to the net difference of quantities of individual products and materials in each Proposed Change or Change Order.

.3 The unit prices will be used for additions and deletions. Credit rate for deletions shall be at 80% of original rates listed under sections 1.4, 1.5, 1.6, 1.7, 1.8, 1.9.

.4 Conduit and Cable:

Supply and install the following conduit and cables including fastenings, clips, connectors, coupling boxes, etc. as required based on length as shown.

		MORE WORK
.1	25MM EC/3500mm Length	$_____
.2	2 #12-12mm C/3500mm Length	$_____
.3	3 #12-12mm C/3500mm Length	$_____
.4	2 #10-19mm C/3500mm Length	$_____
.5	3 #10-19mm C/3500mm Length	$_____

.6 3 #8- 19mm C/3500mm Length $_____

.5 Receptacles:

Supply and installation of one duplex receptacle, shall include the receptacle box, cover plate, 5000mm of conduit and wiring, including connection to adjacent receptacle and/or outlet box.

MORE WORK

.1 Supply and installation of one duplex receptacle $_____

.6 Light Switches

Supply and installation of light switch shall include the switch box, cover plate, conduit, wiring and connection to box containing the lighting circuit.

MORE WORK

.1 Supply and installation of one 347 volt light switch. $_____

.7 Fire Alarm System:

MORE WORK

.1 Supply and installation of one fire alarm pull station, including conduits, wiring and connections to the nearest fire alarm pull station. (Base conduit and wiring on 1500mm length). $_____

.2 Supply and installation of one fire alarm cone speaker including conduit, wiring and connections to nearest fire alarm cone speaker. (Base conduit and wiring on 1500mm length). $_____

.8 Lighting Fixtures:

Supply and installation of the following lighting fixtures. The supply and installation of lighting fixtures shall include the fixtures, flexible conduit, wiring and connection to nearest outlet box containing 347 and/or 120 volt circuits and the supply and installation of the lamps. (Base conduit and wiring on 4500mm length).

MORE WORK

.1 Supply and installation of one type 'A' fixture $_____

.2 Supply and installation of one type 'B' fixture $_____

.3 Supply and installation of one type

'C' fixture $_____

.4 Supply and installation of one type 'E' fixture $_____

1.5 LABOUR RATES

I/We enclose herewith Labour Rates which are an integral part of the Tender. Labour rates are in effect for the duration of this Project's construction period. The Owner is not obligated to accept Labour rates indicated.

.1 Mechanical Labour Rates

Labour at the following rates should be applied for additions or deletions to the work not covered by unit prices. The prices consist of salary, all agreed local union benefits. The rate quoted represents the net cost to the Contractor, exclusive of overhead and profit and applicable taxes.

.1 Plumbing & Drainage Tradesmen $_____Per Hour

.2 HVAC Piping Tradesman $_____Per Hour

.3 Insulation Tradesmen $_____Per Hour

.4 Sheet Metal Tradesmen

.1 Shop $_____Per Hour

.2 Field $_____Per Hour

.5 (Other) $_____Per Hour

.6 Sprinkler Pipefitter & Installer $_____Per Hour

.7 Sprinkler Work Office/Engineer $_____Per Hour

1.6 SPRINKLER SUB-CONTRACTOR CASA MEMBERSHIP

Sprinkler Contractor shall be a paid member, and in good standing at time of Tender, of the Canadian Automatic Sprinkler Association. Attach membership certificate to this Supplementary Form of Tender.

.1 Labour at the following rates shall be applied for additions or deletions to the work not covered by unit prices. The prices consist of salary, all agreed local union benefits. The rate quoted represents the net cost to the Contractor, exclusive of overhead and profit and applicable taxes.

.1 Journeyman $_____ Per Hour

.2 Foreman $_____ Per Hour

1.7 MECHANICAL MANUFACTURERS AND SUPPLIERS:

I/We enclose herewith a list of Manufacturers and Suppliers to the Mechanical Building Services which is an integral part of the Tender. We hereby agree that the Owner may select from any substitutes that we have offered in our Tender. Our Tender Price is based on the equipment/manufacturers indicated hereunder and we hereby agree that we will not alter the indicated equipment/manufacturers unless specifically authorized by the Owner.

I/We, the undersigned, have inserted below proposed substitutions and prices for the Owner's consideration.

I/We agree that:

.1 all prices submitted take into consideration and allow for changes and adjustments in other work as may be necessary to provide a finished and functional result, unless specifically indicated otherwise;
.2 alternative prices are for work which is not included in the Tender price listed on Form of Tender but which may be substituted by the Owner for work which is included (no price listed shall mean no change in cost);
.3 and that the Board reserves the right to accept or reject any of the prices proposed hereunder;
.4 prices listed hereunder do not include HST

	Product/Equipment Specified	Proposed Substitution	Reduction in Contract Price
.1			$_____
.2			$_____
.3			$_____
.4			$_____
.5			$_____
.6			$_____

Attach additional sheets and supporting documentation, if necessary.

1.8 STANDARDS OF MECHANICAL MATERIALS

BASE BID ITEM	ACCEPTABLE BASIS OF DESIGN	ALTERNATE
Pipe Hangers	Grinnell	Crane, Flamco, Unistrut
Mechanical Grooved Joints	Victaulic	Coupco, Gruvlok
Unions	Crane	Grinnell, Dart
Expansion Joints	Flexonics	Amtrol, Hydroflex Tube Turn
Gate, Globe & Ball Valve	Crane	Jenkins, Toyo/R+W Kitz
Check Valves	Crane	Jenkins, Toyo/R+W Kitz
Plug Valves	DeZurick	NEO
Circuit Balancing Valves	Tour and Andersson	
Butterfly Valves	Crane	Jenkins, Centerline, Kitz,Toyo
Thermal Insulation	Fiberglas Canada	Manson, Knauf Johns-Manville
Pumps & Circulators (Except as noted)	S.A. Armstrong	ITT Fluids
Extended Shaft Coupling VIL Pumps	S.A. Armstrong	ITT Fluids
Strainers	Sarco	Crane, McAvity, Morrison Brass, Braukmann
Suction Guides	S.A. Armstrong	ITT Fluids, Victualic
Automatic Air Vents	Sarco	Amtrol, Braukmann S.A. Armstrong Trerice

BASE BID ITEM	ACCEPTABLE BASIS OF DESIGN	ALTERNATE
Backflow Preventors	Watts	Braukmann, Zurn-Wilkins
Make-Up Assemblies	Watts	S.A. Armstrong, Bell & Gossett, Mueller, Singer
Gauges, Thermometers	Trerice	Ashrcroft, Weiss Weksler, Winters, Wika
Finned Tube Radiation and Convectors	Sigma	Dunham-Bush, Trane Engineered Air
Hot Water Unit Heaters and Cabinet Heaters	Sigma	Dunham-Bush, McQuay, Trane, Engineered Air
Steam Humidifiers	Engineered Air	Dri Steem
Hot Water Boilers	Boderus	
Prefabricated Chimneys	Van-Packer	Metal-Fab, Selkirk, ICC
Water Treatment	Aqurian	Alchem, Mogul, Culligan, Finnan
Fire Dampers	Controlled Air	Air Balance, Canadian Advanced Air, Ruskin
Louvre Insulated Blank-off Panels	Construction Specialties	
Air Terminal Devices (Diffusers, Registers, Grilles By-Pass Boxes)	E.H. Price	Nailor, Kruger, Carnes, Titus Tuttle & Bailey
Air Handling Unit	Engineered Air	McQuay, Trane, Haakon

BASE BID ITEM	ACCEPTABLE BASIS OF DESIGN	ALTERNATE
Heat Recovery Unit	Engineered Air	McQuay, Trane, Haakon
Fan Coil Units	Enviro-Tech	Trane, York
Misc. Fans	Cook	Carnes, Greenheck, ACME, Jenn-Air
Air Filters	Farr	Cambridge, Airguard, Vibron, A.A.F.
Filter Gauges	Dwyer	Airflow Developments (Canada) Ltd.
Dampers (Except low leakage)	Tamco	Johnson, Powers, Kerr Hunt, Honeywell, Barber-Coleman
Low Leakage Dampers	Tamco Series 9000	
ElectricalStarters, Disconnects, MCC's, Alternator Panels	Square 'D'	Allen-Bradley, Klockner-Moeller
Noise and Vibration Control	Vibron	Korfund-Sampson, Vibro-Acoustics, Coolbreeze J.P. Environmental
Electric Pipe Tracing	Raychem	Serge-Baril
Trap Primers	PPP	
Plumbing Fixtures	American Standard	Crane, Kohler, Eljer
Floor Drains, Roof Drains, Cleanouts, Drainage Specialties	Zurn	Ancon J.R. Smith Mifab
Plumbing Trim	Chicago Faucets, Symmons	American Standard, Crane, Cambridge Brass

BASE BID ITEM	ACCEPTABLE BASIS OF DESIGN	ALTERNATE
Toilet Seats	Centoco	Beneke, Moldex, Olsonite
Domestic Water Heaters	Bradford-White	A.O. Smith, John Wood
Fire Extinguishers & Cabinets	National Fire Equipment	Wilson & Cousins
Washfountains	Bradley, Acorn	
S.S. Sinks	Aristaline	Kindred, Architectural Metal
Drinking Fountains	Haws	Sunroc
Emergency Eyewash	Haws	Bradley, Speakman
Mixing Valves	Symmons	Powers
Alarm Valves And Trim	Grinnell, Central	Reliable, Viking, Automatic, Victaulic
Siamese Connections	National Fire Equipment	Wilson & Cousins, Stelpro
Sprinkler Heads	Grinnell, Central	Reliable, Viking, Automatic, Victaulic
Equipment Cabinets	National Fire Equipment	Wilson & Cousins, Stelpro
Excess Pressure Pump	Albany	

1.9 ITEMIZED PRICES

These Itemized Prices will be used to identify the cost of components within the total Bid Sum required for the Owner's own internal auditing, exclusive of HST.

.1 Supply and installation of Fire Alarm System complete with associated components, conduit and wiring as shown on drawing and described in specification.

_____ Dollars ($_____)

.2 Supply and installation of Dimming System complete with associated components, conduit and wiring as shown on drawing and described in specification.

_____ Dollars ($_____)

.3 Supply and installation of Security System complete with associated components, conduit and wiring as shown on drawing and described in specification.

_____ Dollars ($_____)

1.10 SIGNING OF SUPPLEMENTARY FORM OF TENDER

PRINT COMPANY NAME: _____

PRINT NAME OF CONTACT PERSON REGARDING THIS TENDER: _____

PRINT ADDRESS OF COMPANY: _____

_____

_____

PHONE NUMBER OF COMPANY: _____

PRINT NAME OF CONTACT PERSON REGARDING THIS TENDER: _____

CONTACT PERSON'S EMAIL: _____

EMAIL ADDRESS SIGNING OFFICER: _____

SIGNATURE OF SIGNING OFFICER: _____

DATE: _____

PRINT NAME OF SIGNING OFFICER: _____

PRINT TITLE OF SIGNING OFFICER: _____

SIGNATURE OF WITNESS: _____

PRINT NAME OF WITNESS: _____

AFFIX CORPORATE SEAL (If no individual Witness):

END OF SECTION

Waterloo Catholic District School Board

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

(the "Supplementary Conditions")

AGREEMENT, DEFINITIONS, AND GENERAL CONDITIONS

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

AGREEMENT BETWEEN OWNER AND CONTRACTOR

SC1 ARTICLE A-1 – THE WORK

SC1.1	A-1.3	Amend Article A-1.3 by deleting all of the words after *"Contract Documents"* and replace them with the following" "attain .1 *Substantial Performance of the Work* by the __ day of _____ in the year 20__. .2 (if applicable) *Occupancy* by the __ day of _____ in the year 20__, and .3 *Ready-for-Takeover* by the __ day of _____ in the year 20__."

SC2 ARTICLE A-3 – CONTRACT DOCUMENTS

SC2.1	A-3.1	Add the following documents to the list of *Contract Documents* in Article A-3.1: • Waterloo Catholic District School Board's Supplementary Conditions & Amendments to Standard Construction Document CCDC2-2020 Stipulated Price Subcontract, May 2022 Version, including any Special Supplementary Conditions listed in Appendix 2 thereto • *Drawings* • *Specifications* • Performance Bond (Form 32 -Performance Bond under Section 85.1 of the *Act*) • Labour and Material Payment Bond (Form 31 – Labour and Material Payment Bond under Section 85.1 of the *Act*)

SC3 ARTICLE A-4 – CONTRACT PRICE

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

SC4 ARTICLE A-5 – PAYMENT

SC4.1	A-5.1	Delete Article A- 5.1 in its entirety including all subparagraphs and replace it with the following:

		"5.1 Subject to the provisions of the *Contract Documents* and the *Construction Act*, the *Owner* shall: .1 make progress payments to the *Contractor* on account of the *Contract Price* when due together with such *Value Added Taxes* as may be applicable to such payments, .2 upon *Substantial Performance of the Work* as certified by the *Consultant*, and on the 61st day after the publication of the certificate of *Substantial Performance of the Work*, in accordance with the *Construction Act*, there being no claims for lien registered against the title to the *Place of the Work* and no written notices of lien delivered to the *Owner*, pay the *Contractor* the unpaid balance of the holdback, together with such *Value Added Taxes* as may be applicable to such payment, less any amount stated in the *Owner's Notice of Non-Payment*. .3 after *Ready-for-Takeover* has been achieved in accordance with the *Contract Documents* and the *Work* is complete, there being no claims for lien registered against the title to the *Place of the Work* and no written notices of lien delivered to the *Owner*, pay the *Contractor* any unpaid balance of the *Contract Price* in accordance with GC 5.5 – FINAL PAYMENT, together with such *Value Added Taxes* as may be applicable to such payment."
SC 4.2	A-5.2.1	Delete subparagraph 5.2.1 in its entirety and replace it with the following: ".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 the prejudgment interest rate prescribed by the *Courts of Justice Act* (Ontario), as it may change from time to time."

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

SC5.1	A-9	Add new ARTICLE A-9 CONFLICT OF INTEREST as follows: "**ARTICLE A-9 CONFLICT OF INTEREST** 9.1 The *Contractor*, *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, OR TERMINATE THE CONTRACT, a breach of this Article A-9 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."

SC6 *NEW* ARTICLE A-10 TIME OF THE ESSENCE

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

SC7 DEFINITIONS

Revisions to Existing Definitions		
SC7.1	Consultant	Amend the definition of "Consultant" by adding the following to the end of the definition: "For the purposes of the *Contract*, the terms "*Consultant"*, "*Architect*" and "*Engineer*" shall be considered synonymous."

SC7.2	Payment Legislation/Construction Act	Delete the Definition of *Payment Legislation* and replace it with "Construction Act" as follows: "**Construction Act** *Construction Act* means the *Construction Act*, R.S.O. 1990, c. C.30, as amended, including all regulations passed under it that are enforceable as of the date of execution of this *Contract*. For certainty, the first procurement process for the *Project* (*i.e.*, the "improvement" as that term is defined in the *Construction Act*) was commenced on or after October 1, 2019."
SC7.3	Ready-for-Takeover	Amend the Definition of *Ready-for-Takeover* by deleting all the words after "as verified" and replacing them with "and approved by the *Owner*."
New Definitions		
SC7.4	Adjudication	Add the following definition: "**Adjudication** *Adjudication* means construction dispute interim adjudication as defined under the *Construction Act*."
SC7.5	Close-Out Documentation	Add the following new definition: "**Close-Out Documentation** *Close-Out Documentation* has the meaning given to it under GC 5.4.2."
SC7.6	Confidential Information	Add the following definition: "**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*."
SC7.7	Construction Schedule	Add the following definition: "**Construction Schedule** *Construction Schedule* means the schedule for the performance of the *Work* provided by the *Contractor*, and approved by the *Owner*, pursuant to GC 3.4.1, including any amendments to the *Construction Schedule* made pursuant to the *Contract Documents*."

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

SC7.14	Force Majeure	Add the following definition: "**Force Majeure** *Force Majeure* means any cause, unknown at the effective date of the *Contract* and beyond either party's control, other than financial difficulties, bankruptcy or insolvency, which prevents the performance by a party, or both, of any of their respective obligations under the *Contract* and the event of *Force Majeure* did not arise from a party's default and could not be avoided or mitigated by the exercise of reasonable effort or foresight. *Force Majeure* includes *Labour Disputes*; fire; unusual delay by common carriers or unavoidable casualties; delays in obtaining third-party licences, permits, agreements, or approvals (excluding approvals of any *Subcontractors* or *Suppliers* of any tier); civil disturbance; emergency acts, orders, legislation, regulations or directives of any government or other public authority; acts of a public enemy; war; riot; sabotage; blockage; embargo; lightning; earthquake; adverse weather conditions but only if substantially beyond the weather norms of the *Place of the* Work; acts of God; or declared epidemic or pandemic outbreak or other public health emergency (*e.g*. SARS, COVID-19)."
SC7.15	Install	Add the following definition: "**Install** *Install* means install and connect. *Install* has this meaning whether or not the first letter is capitalized."
SC7.16	Labour Dispute	Add the following definition: "**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*."
SC7.17	Notice of Non-Payment	Add the following definition: "**Notice of Non-Payment** *Notice of Non-Payment* means a notice of non-payment of holdback (Form 6) or a notice of non-payment (Form 1.1) under the *Act*, as applicable to the circumstances."
SC7.18	OHSA	Add the following definition: "**OHSA** *OHSA* means the *Occupational Health and Safety Act*, R.S.O. 1990, c. O.1, as amended, including all regulations thereto."
SC7.19	Overhead	Add the following definition: "**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."

SC7.20	Payment Period	Add the following definition: "**Payment Period** *Payment Period* has the definition given to it under GC 5.2.1."
SC7.21	Pre-Invoice Submission Meeting	Add the following definition: "**Pre-Invoice Submission Meeting** *Pre-Invoice Submission Meeting* has the definition given to it under GC 5.2.1."
SC7.22	Proper Invoice	Add the following definition: "**Proper Invoice** *Proper Invoice* means a "proper invoice" as that term is defined in Section 6.1 of the *Act*, including the minimum requirements set out in Appendix "1" of the Supplementary Conditions."
SC7.23	Proper Invoice Submission Date	Add the following definition: "**Proper Invoice Submission Date** *Proper Invoice Submission Date* has the definition given to it under GC 5.2.2.1."
SC7.24	Request for Information (RFI)	Add the following definition: "**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*."
SC7.25	Restricted Period	Add the following definition: "**Restricted Period** *Restricted Period* means the (inclusive) period of time between December 1 to January 8 and August 15 to September 15 of any given year throughout the duration of the *Contract*."

GENERAL CONDITIONS OF THE STIPULATED PRICE CONTRACT

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

PART 1 GENERAL PROVISIONS

SC8 GC 1.1 CONTRACT DOCUMENTS

SC8.1	1.1.3	Delete GC 1.1.3 in its entirety and replace it with the following: "1.1.3 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 GC 3.13.1. 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 GC 1.1.3, 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."
SC8.2	1.1.4	Delete GC 1.1.4 in its entirety and replace it with the following: "1.1.4 Except for the obligation to complete the review prescribed in GC 1.1.3, and report the results as set out in this GC 1.1.4, the *Contractor* is not responsible for errors, omissions or inconsistencies in the *Contract Documents*. If there are errors, omissions or inconsistencies discovered by or made known to the *Contractor* as part of its review under GC 1.1.3 or at any time during the performance 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 shall not proceed with the *Work* affected until the *Contractor* has received corrected or additional information from the *Consultant*. 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 care and skill described in GC 3.13."
SC8.3	1.1.5.1	Delete GC 1.1.5.1 and replace with the following: ".1 the order of priority of documents, from highest to lowest, shall be: .1 Supplementary Conditions; .2 the Agreement between the Owner and the Contractor; .3 the Definitions; .4 the General Conditions; .5 Division 01 of the *Specifications* .6 technical *Specifications;* .7 material and finishing schedules; and .8 the *Drawings*.
SC8.4	1.1.5.5	Delete GC 1.1.5.5 and replace with the following: ".5 Noted materials and annotations on the *Drawings* shall govern over the graphic representation of the *Drawings.*"
SC8.5	1.1.5.6 to 1.1.5.8	Add the following new GC 1.1.5.6 to 1.1.5.8 as follows: ".6 Finishes in the room finish schedules shall govern over those shown on the *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."

SC8.6	1.1.9	Add the following to the end of GC 1.1.9: "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, outlets and other elements. 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 proceeding with the *Work.* Where site conditions require reasonable minor changes where the change requires only the additional labour two hours 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 *Contract Documents*, wherever located and whenever issued, which compile information of similar content and may consist of drawings, tables and/or lists."
SC8.7	1.1.13	Add new paragraph 1.1.13 as follows: 1.1.13 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*."

SC9 GC 1.3 RIGHTS AND REMEDIES

SC9.1	1.3.2	In paragraph 1.3.2 delete the word "No" from the beginning of the paragraph and replace it with the words: "Except with respect to the requirements set out in paragraphs 6.4.1, 6.5.4, 6.6.1 and 8.3.2, no…"

SC10 *NEW* GC 1.5 EXAMINATION OF DOCUMENTS AND SITE

SC10.1	1.5	Add new GC 1.5 – EXAMINATION OF DOCUMENTS AND SITE as follows: "**GC 1.5 EXAMINATION OF DOCUMENTS AND SITE** 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 t*o be done, based on information generally available from a visit to the *Place of the Work* and to the standard set out under GC 3.14.1 and further represents and warrants and acknowledges that it considered and took into account in the *Contract Price* all reasonably known impacts and restrictions arising from the COVID-19 pandemic, including without limitation corresponding legislative changes that may impact performance of the *Project*, various weather conditions that may affect the *Work*, the availability of supplies and labour or other conditions or risks that the *Contractor* knew about or reasonably ought to have known about prior to the date of the *Contract.* The *Contractor* has assumed and does hereby assume all risk of known 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 prior to commencement of the *Work*, where in tendering for the *Work* and in entering into this *Contract*, the *Contractor* relied 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, the Contractor shall review to the standard specified in GC 3.14.1, the accuracy of the information furnished by the *Owner*. If a condition is materially different than what is stated in the information furnished by the *Owner*, the *Contractor* shall, no later than five (5) *Working Days* after the first observation of such condition(s), deliver to the *Owner* and to the *Consultant* a *Notice in Writing* specifying the materially different condition and the *Contractor* shall not proceed with the affected part of the Work until receiving written direction from the *Owner* or the *Consultant*. Where the *Contractor* fails to provide prompt *Notice in Writing* in accordance with this GC 1.5.2, the *Contractor* expressly waives and releases the *Owner* from all claims with respect to the said information with respect to the *Work*.

PART 2 ADMINISTRATION OF THE CONTRACT

SC11 GC 2.2 ROLE OF THE CONSULTANT

SC11.1	2.2.5	Delete paragraph 2.2.4 and replace it with the following: "2.2.4 Upon receipt of an application for payment that satisfies the requirement of a *Proper Invoice*, based on the *Consultant's* observations and evaluation of the *Contractor's* application for payment, the *Consultant* will determine the amounts owing to the *Contractor* under the *Contract* and will issue certificates for payment as provided in Article A-5 - PAYMENT, GC 5.3 - PAYMENT, GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK, and GC 5.5 - FINAL PAYMENT. If the *Consultant* determines that the amount payable to the *Contractor* differs from the amount stated in a *Proper Invoice*, the *Consultant* shall notify the *Owner* as provided in GC 5.3.1.2 and prepare a draft of the applicable *Notice of Non-Payment* for the amount in dispute."
SC11.2	2.2.6	In the first sentence of paragraph 2.2.6, delete the words "Except with respect to GC 5.1 – FINANCING INFORMATION REQUIRED OF THE OWNER".
SC11.3	2.2.12	At paragraph 2.2.12, insert the following at 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 2.2.12 shall be deemed an acceptance of the *Supplemental Instruction* by the *Contractor*, without any adjustment in the *Contract Price* or *Contract Time*."

SC12 GC 2.3 REVIEW AND INSPECTION OF THE WORK

SC12.1	2.3.2	Amend paragraph 2.3.2 by adding the words "and *Owner*" after the words "*Consultant*" in the second and third lines.
SC12.2	2.3.3	Delete paragraph 2.3.3 in its entirety and replace it with the following: "2.3.3 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*."

SC12.3	2.3.4	In paragraph 2.3.4 add the word "review" after the word "inspections" in the first and second lines of paragraph 2.3.4.
SC12.4	2.3.5	In paragraph 2.3.5 in the first line after the word "*Consultant*", add "or the *Owner*".
SC12.5	2.3.8	Add a new paragraph 2.3.8 as follows: "2.3.8 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*."

SC13 GC 2.4 DEFECTIVE WORK

SC13.1	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*".
SC13.2	2.4.1.1 to 2.4.1.2	Add new paragraphs 2.4.1.1 and 2.4.1.2 as follows: "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*."
SC13.3	2.4.2	Delete paragraph 2.4.2 in its entirety and replace it with the following: "2.4.2 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."
SC13.4	2.4.4	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."

PART 3 EXECUTION OF THE WORK

SC14 GC 3.1 CONTROL OF THE WORK

SC14.1	3.1.2	Amend paragraph 3.1.2 by inserting the words "Construction Schedule" after the word "sequences".
SC14.2	3.1.3 & 3.1.4	Add new paragraphs 3.1.3 and 3.1.4 as follows: "3.1.3 Prior to commencing individual procurement, fabrication and construction activities, the *Contractor* shall verify at the *Place of the Work*, all relevant measurements and

		levels necessary for proper and complete fabrication, assembly and installation of the *Work* and shall further carefully compare such field measurements and conditions with the requirements of the *Contract Documents*. Where dimensions are not included or exact locations are not apparent, the *Contractor* shall immediately notify the *Consultant* in writing and obtain written instructions from the *Consultant* before proceedings with any part of the affected *Work*. 3.1.4 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."

SC15 GC 3.2 CONSTRUCTION BY OWNER OR OTHER CONTRACTORS

SC15.1	3.2.2.1	Delete subparagraph 3.2.2.1 and replace it with "[Intentionally left blank]".
SC15.2	3.2.3.2	Delete subparagraph 3.2.3.2 and replace it with the following: ".2 co-ordinate and schedule the activities and work of other contractors and the *Owner's* own forces, including where other contractors or the Owner's own forces are used after the *Owner* and the *Contractor* cannot reach agreement on the value of a change, with the *Work* of the *Contractor* and connect as specified or shown in the *Contract Documents*."
SC15.3	3.2.3.4	Delete the period at the end of subparagraph 3.2.3.4 and replace it with a semi-colon.
SC15.4	3.2.3.5	Add new subparagraph 3.2.3.5 as follows: ".5 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 *OHSA*."

SC16 GC 3.3 TEMPORARY WORK

SC16.1	3.3.2	In paragraph 3.3.2, in the second line after the words "where required by law", insert "or by the *Consultant*".

SC17 GC 3.4 CONSTRUCTION SCHEDULE

SC17.1	3.4.1	Delete GC 3.4.1 in its entirety and replace it with the following: "3.4.1 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 approval, 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 such schedule and any successor or revised schedules in

		both original digital file format (*e.g.,* .mpp format for Microsoft Project), portable data file (PDF) format, and hard copy. Once accepted by the *Owner* and the *Consultant*, the construction schedule submitted by the *Contractor* shall become the baseline "**Construction Schedule**"; .2 provide the expertise and resources, such resources including manpower and equipment, as are necessary on a best efforts basis to maintain progress under the accepted baseline *Construction Schedule* or revised construction schedule accepted by the *Owner* pursuant to GC 3.4 CONSTRUCTION SCHEDULE, which includes without limitation, the *Contractor*'s use of all possible and, if necessary, extraordinary measures, to bring the progress of the *Work* into compliance with the *Construction Schedule*, such as (i) increasing the presence of its own forces at the *Place of the Work*; (ii) directing any *Subcontractors* or *Suppliers* to increase their labour forces and equipment; (iii) working overtime and extra shifts; and (iv) providing any additional supervision and coordination of the *Project*, all at the *Contractor's* own cost and expense save and except where GC 6.5.1, 6.5.2, or 6.5.3 apply; and, .3 monitor the progress of the *Work* on a weekly basis relative to the baseline *Construction Schedule*, or any revised *Construction Schedule* accepted by the *Owner* pursuant to GC 3.4 CONSTRUCTION SCHEDULE, deliver a *Construction Schedule Update* to the *Consultant* and *Owner* with each application for payment, at a minimum, or as may be reasonably 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 if after applying the expertise and resources required under paragraph 3.4.1.2, the *Contractor* forms the opinion that the slippage in schedule reported in paragraph 3.4.1.3 cannot be recovered by the *Contractor*, it shall, in the same notice provided under paragraph 3.4.1.3, indicate to the *Consultant* if the *Contractor* intends to apply for an extension of *Contract Time* as provided in PART 6 —CHANGES IN THE WORK; and, .5 ensure that the *Contract Price* shall include all costs required to phase or stage the *Work*."
SC17.2	3.4.2	Add new GC 3.4.2 and GC 3.4.3 as follows: "3.4.2 If, at any time, it should appear to the *Owner* or the *Consultant* that the actual progress of the *Work* is behind schedule or is likely to become behind schedule, or if the *Contractor* has given notice of such to the *Owner* or the *Consultant* pursuant to GC 3.4.1.3, the *Contractor* shall, either at the request of the *Owner* or the *Consultant*, or following giving notice pursuant to GC 3.4.1.3, take appropriate steps to cause the actual progress of the *Work* to conform to the schedule or minimize the resulting delay. Within 5 calendar days of the request by the *Owner* or the *Consultant* or the notice being given pursuant to GC 3.4.1.3, the *Contractor* shall produce and present to the *Owner* and the *Consultant* a plan demonstrating how the *Contractor* will recover the performance of the *Work* to align with the currently approved *Construction Schedule*. 3.4.3 The *Contractor* shall not amend the *Construction Schedule* without the prior written consent of the *Owner*.. Any revisions to the *Construction Schedule* approved by the *Owner* shall not be deemed to be an extension of the *Contract Time*. All requests by the Contractor for a revision to the Construction Schedule that include an extension to the *Contract Time* must be approved by the *Owner* through an executed *Change Order*."

SC18 GC 3.5 SUPERVISION

SC18.1	3.5.1	Delete GC 3.5.1 and replace it with the following:

		"3.5.1 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 the 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 and 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 GC 3.5.1 and other responsible persons who may be contacted for emergency and other reasons during non-working hours. ."
SC18.2	3.5.2	Delete GC 3.5.2 and replace it with the following: "3.5.2 The superintendent, and any project manager appointed by the *Contractor*, shall represent the *Contractor* at the *Place of the 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*."
SC18.3	3.5.3 to 3.5.6	Add new GC 3.5.3, 3.5.4, 3.5.5 and 3.5.6 as follows: "3.5.3 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*. 3.5.4 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 a minimum 5 years documented "Superintendent/Project Management" experience. 3.5.5 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*. 3.5.6 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*."

SC19 GC 3.6 SUBCONTRACTORS AND SUPPLIERS

SC19.1	3.6.1.1	In paragraph 3.6.1.1 add to the end of the second line the words "including any warranties and service agreements which extend beyond the term of the *Contract*."
SC19.2	3.6.1.2	In subparagraph 3.6.1.2 after the words "the *Contract Documents*" add the words "including any required surety bonding".
SC19.3	3.6.2	Delete paragraph 3.6.2. in its entirety and replace it with the following: "3.6.2 The 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."
SC19.4	3.6.7, 3.6.8, 3.6.9 & 3.6.10	Add new paragraphs 3.6.7, 3.6.8, 3.6.9, and 3.6.10 as follows: "3.6.7 The *Contractor* represents and warrants that it has confirmed the availability of its *Subcontractors* for the *Project* and, in particular, for the performance of their respective portions of the *Work* to ensure completion of the *Project* within the *Contract Price* and the *Contract Time*. 3.6.8 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*. 3.6.9 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. 3.6.10 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."

SC20 GC 3.7 LABOUR AND PRODUCTS

SC20.1	3.7.1	Amend paragraph 3.7.1 by adding the words, "…, agents, *Subcontractors* and *Suppliers*…" after the word "employees" in the first line.
SC20.2	3.7.2	Delete paragraph 3.7.2 and substitute with the following: "3.7.2 *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."
SC20.3	3.7.4 to 3.7.8	Add new paragraphs 3.7.4, 3.7.5, 3.7.6, 3.7.7, and 3.7.8 as follows:

		"3.7.4 Upon receipt of a *Notice in Writing* from the *Owner,* the *Contractor* shall immediately remove from the *Place of the Work*, tradesmen and labourers or anyone whose conduct jeopardizes the safety of the *Owner's* operations or who are considered by the *Owner* or the *Consultant* to be unskilled or otherwise objectionable. Immediately upon receipt of the request, the *Contractor* shall make arrangements to appoint an acceptable replacement. . 3.7.5 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.* 3.7.6 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*. 3.7.7 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. 3.7.8 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*."

SC21 GC 3.8 SHOP DRAWINGS

SC21.1	3.8.1	Delete paragraph 3.8.1 in its entirety and replace with the following: "3.8.1 The *Contractor* shall provide shop drawings as described in the *Contract Documents* and as the *Consultant* may reasonably request."
SC21.2	3.8.3	Delete paragraph 3.8.3 and replace it with the following: "3.8.3 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*."
SC21.3	3.8.5	Delete paragraph 3.8.5 in its entirety and substitute the following: "3.8.5 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."
SC21.4	3.8.8 to 3.8.12	Add new paragraphs 3.8.8, 3.8.9, 3.8.10, 3.8.11, and 3.8.12 as follows: "3.8.8 Reviewed *Shop Drawings* shall not authorize a change in the *Contract Price* and/or the *Contract Time*. 3.8.9 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*. 3.8.10 The *Contractor* shall not use the term "by others" on *Shop Drawings* or other submittals. The related trade, *Subcontractor* or *Supplier* shall be stated. 3.8.11 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*. 3.8.12 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."

SC22 *NEW* GC 3.9 USE OF THE WORK

SC22.1	GC 3.9	Add new GC 3.9 – USE OF THE WORK as follows: "**GC 3.9 USE OF THE WORK** 3.9.1 The *Contractor* shall confine *Construction Equipment*, *Temporary Work*, storage of *Products*, waste products and debris, and operations of employees and *Subcontractors* to limits indicated by laws, ordinances, permits, by the direction of the *Owner* or the *Consultant*, or the *Contract Documents* and shall not unreasonably encumber the *Place of the Work*. 3.9.2 The *Contractor* shall not load or permit to be loaded any part of the *Work* with a weight or force that will endanger the safety of the *Work*. 3.9.3 The *Owner* shall have the right to enter or occupy the *Place of 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* or in any way relieves the *Contractor* from its responsibility to complete the *Contract*."

"

SC23 *NEW* GC 3.10 CUTTING AND REMEDIAL WORK

SC23.1	GC 3.10	Add new GC 3.10 – CUTTING AND REMEDIAL WORK as follows: "**GC 3.10 CUTTING AND REMEDIAL WORK** 3.10.1 The *Contractor* shall perform the cutting and remedial work required to make the affected parts of the *Work* come together properly. Such cutting and remedial work shall be performed by specialists familiar with the *Products* affected and shall be performed in a manner to neither damage nor endanger the *Work*. 3.10.2 The *Contractor* shall coordinate the *Work* to ensure all cutting and remedial work required is kept to a minimum. 3.10.3 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.* 3.10.4 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."

SC24 *NEW* GC 3.11 CLEAN UP

SC24.1	3.11.1, 3.11.2, 3.11.3, 3.11.4, 3.11.5 & 3.11.6	Add new paragraphs 3.11.1, 3.11.2, 3.11.3, 3.11.4, 3.11.5, and 3.11.6 as follows: "3.11.1 The *Contractor* shall maintain the *Work* in a safe and tidy condition and free rom the accumulation of waste products and debris, other than that caused by the *Owner*, other contractors or their employees. 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*. 3.11.2 Before applying for *Substantial Performance of the Work*, the *Contractor* shall remove waste products and debris, other than that resulting from the work of the *Owner*, other contractors or their employees, and shall leave the *Place of the Work* clean and suitable for use or occupancy by the *Owner*. The *Contractor* shall remove products, tools, materials, *Construction Equipment,* and *Temporary Work* not required for the performance of the remaining work. 3.11.3 As a condition precedent to submitting its application for final payment, the *Contractor* shall remove any remaining products, tools, materials, *Construction Equipment*, *Temporary Work*, and waste products and debris, other than those resulting from the work of the *Owner*, other contractors or their employees. 3.11.4 The *Contractor* shall clean up garbage during and after construction and maintain the *Place of the Work* in a neat and orderly condition on a daily basis. Prior to leaving the *Place of the Work* and following completion of the *Work*, 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 *Place of the Work* in a clean and finished state; remove all *Construction Equipment* and materials; remove all paint, stains, labels, dirt, etc. from the *Place of the Work*; and touch up all damaged painted areas (if applicable). The *Contractor* shall be responsible for restoring those areas of the *Place of the Work*, impacted by the *Work*, to their original condition."

		3.11.5 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 *Place of the Work* by the *Contractor*, *Subcontractors* or *Suppliers,* if not repaired before final payment. 3.11.6 The *Contractor* shall dispose of debris at a location and in a manner acceptable to the *Owner* (and to the authorities having jurisdiction at the *Place of the Work* and at the disposal area) and the *Contractor* shall cover containers with tarpaulins."

SC25 *NEW* GC 3.12 EXCESS SOIL MANAGEMENT

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

SC26 *NEW* GC 3.13 CONTRACTOR STANDARD OF CARE

SC26.1	3.13	Add a new GC 3.13 – CONTRACTOR STANDARD OF CARE as follows: "**GC 3.13 CONTRACTOR STANDARD OF CARE** "3.13.1 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 interpreted in accordance with 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* or employ on the *Project*. 3.13.2 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*."

PART 4 ALLOWANCES

SC27 GC 4.1 CASH ALLOWANCES

SC27.1	4.1.3	In GC 4.1.3 delete the words "through the *Consultant*" and replace them with "in writing."
SC27.2	4.1.4	Delete GC 4.1.4 in its entirety and replace it with the following: "4.1.4 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, by the *Consultant* at the *Owner*'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.*"
SC27.3	4.1.7	Delete GC 4.1.7 in its entirety and replace it with the following: "4.1.7 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."
SC27.4	4.1.8 and 4.1.9	Add new GC 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* 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."*

PART 5 PAYMENT

SC28 GC 5.1 FINANCING INFORMATION REQUIRED OF THE OWNER

SC28.1	5.1	Delete GC 5.1 – FINANCING INFORMATION REQUIRED OF THE OWNER and all paragraphs thereunder, including any reference to GC 5.1 throughout the *Contract*.

SC29 GC 5.2 APPLICATIONS FOR PAYMENT

SC29.1	5.2.1	Delete GC 5.2.1 and replace it with the following: "5.2.1 Upon execution of the *Contract*, and in any event prior to the *Contractor* submitting its first application for payment, the *Owner* shall issue a purchase order to the *Contractor* for the performance of the *Contract*. The number indicated on such purchase order must be clearly identifiable on all applications for payment.

		Applications for payment shall be dated the last day of each month or an alternative day of each month agreed to in writing by the parties, with each month representing one payment period under the *Contract* (each a "**Payment Period**"). Within 3 calendar days of the end of each *Payment Period*, the *Contractor* will submit a draft application for payment to the *Owner* and the *Consultant*. Upon receipt of the draft application for payment, and within 7 calendar days, a representative of each of the *Contractor*, *Owner*, and the *Consultant* shall attend a meeting to discuss and review the work completed during the *Payment Period*, including quantities, if applicable (the "**Pre-Invoice Submission Meeting**"). In the event that the scheduled date for the *Pre-Invoice Submission Meeting* is not a *Working Day*, the *Pre-Invoice Submission Meeting* shall occur on the next *Working Day*. The *Contractor* shall bring with it to the *Pre-Invoice Submission Meeting* the following: .1 a copy of the draft application for payment; .2 any documents the *Contractor* is required to bring to the *Pre-Invoice Submission Meeting* as stipulated in the *Contract Documents* or as reasonably requested by the *Owner*; and .3 any other documents reasonably requested, in advance, by the *Owner* or the *Consultant*."
SC29.2	5.2.2	Delete GC 5.2.2 in its entirety and replace it with the following: "5.2.2 Applications for payment shall be given in accordance with the following requirements: .1 Within 5 calendar days following the *Pre-Invoice Submission Meeting*, the *Contractor* shall deliver its application for payment to the *Owner* and to the *Consultant* for *Work* performed during the *Payment Period* ("**Proper Invoice Submission Date**") subject to the following: .1 if the fifth calendar day following the *Pre-Invoice Submission Meeting*, to which an invoice relates falls on a day that is not a *Working Day*, the *Proper Invoice Submission Date* shall be deemed to fall on the next *Working Day*. .2 The application for payment must be delivered to the *Owner/WCDSB Lead* and to the *Consultant* in the same manner as a *Notice in Writing* during the hours of 9:00 am to 4:00pm (EST) on the *Proper Invoice Submission Date*. Delivery to the *Owner* shall be to the following email address: .3 If an application for payment is received after 4:00 p.m. (EST) on the applicable *Proper Invoice Submission Date*, the application for payment will not be considered or reviewed by the *Owner* and *Consultant* until the next *Proper Invoice Submission Date.* Notwithstanding the foregoing, the *Owner* in its sole and absolute discretion may elect to accept an application for payment submitted after 4:00 p.m. on the applicable *Proper Invoice Submission Date*; however, such acceptance shall not be construed as a waiver of any of its rights or waive or release the *Contractor*'s obligations to strictly comply with the requirements prescribed in this subparagraph 5.2.2.3. .4 No applications for payment shall be accepted by the *Owner* prior to the *Proper Invoice Submission Date*. .5 All applications for payment shall include all of the requirements for a *Proper Invoice* prescribed by the *Construction Act* and this *Contract* and be dated the last day of the applicable *Payment Period*;"

SC29.3	5.2.3	Delete GC 5.2.3 and replace it with the following: "5.2.3 The amount claimed shall be for the value, proportionate to the amount of the *Contract*, of *Work* performed and *Products* delivered and incorporated into the *Work* as of the last date of the applicable *Payment Period*. Materials may also be deemed to be supplied to an improvement, for payment purposes, when, in the *Owner's* opinion, they are placed and properly secured on the land on which the improvement is made, or placed upon land designated by the *Owner* or agent of the *Owner*, but placing the materials on the land so designated does not, of itself, make that land subject to a lien. No amount claimed shall include products delivered and incorporated into the work, unless the products are free and clear of all security interests, liens and other claims of third parties. No amount claimed shall include *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."
SC29.4	5.2.4	After the word "*Consultant*" in GC 5.2.4 add the words "and the *Owner*"
SC29.5	5.2.5	After the word "*Consultant*" in GC 5.2.5 add the words "or the *Owner*".
SC29.6	5.2.6	In GC 5.2.6, delete the word "*Consultant*" and replace it with "*Owner*".
SC29.7	5.2.9	Add new 5.2.9 as follows: "5.2.9 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 recommend to the *Owner* that the *Owner* retain a reasonable amount for the value of the as-built drawings not presented for review."

SC30 GC 5.3 PAYMENT

SC30.1	5.3.1	Delete GC 5.3.1 in its entirety, including all subparagraphs thereunder, and replace it with the following: "5.3.1 After receipt by the *Owner* and the *Consultant* of an application for payment submitted by the *Contractor* in accordance with GC 5.2 - APPLICATIONS FOR PAYMENT: .1 the *Consultant* will either: (a) issue to the *Owner* with a copy to the *Contractor*, a progress payment certificate in the amount applied for by the *Contractor* in the *Proper Invoice*, or (b) issue to the *Owner*, with a copy to the *Contractor*, a certificate for payment for an amount determined by the *Consultant* to be properly due to the *Contractor* after applying any credits, withheld amounts, or other set-offs which the *Consultant* has determined that the *Owner* is entitled to notwithstanding any notice of dispute or disagreement that the *Contractor* may have served, along with the *Consultant's* reasons why an amount other than what is claimed in the *Proper Invoice* is properly due to the *Contractor*, which finding the *Owner* may accept or amend prior to the *Owner* issuing a *Notice of Non-Payment*, if any, in accordance with GC 5.3.2;

		.2 the *Owner* shall make payment to the *Contractor* on account as provided in Article A-5 PAYMENT, (a) in the amount stated in the certificate for payment, or (b) in the amount stated in the certificate for payment less such amount stated in the *Owner's Notice of Non-Payment* issued pursuant to GC 5.3.3, on the 28th calendar day after receipt of a *Proper Invoice*, unless such 28th calendar day lands on a day that is other than a *Working Day*, in which case payment shall be made on the next *Working Day* after such 28th day."
SC30.2	5.3.2 to 5.3.7	Add new paragraphs 5.3.2, 5.3.3, 5.3.4, 5.3.4, 5.3.5, 5.3.6, and 5.3.7 as follows: 5.3.2 All payments to the *Contractor* shall be processed using electronic funds transfer ("**EFT**") and deposited directly to the *Contractor's* bank account unless agreed to otherwise by the *Contractor* and the *Owner* in writing. Prior to the *Contractor* submitting its first application for payment, the *Owner* and the *Contractor* shall exchange such information as is necessary to facilitate *EFT* payments. 5.3.3 In the event that the application for payment delivered by the *Contractor* pursuant to GC 5.2 - APPLICATIONS FOR PAYMENT does not include the requirements for a *Proper Invoice* or where the *Owner* disputes the amount claimed as payable in the *Proper Invoice*, then the *Owner* shall within 14 calendar days of receipt of the application for payment, issue a *Notice of Non-Payment* (Form 1.1). 5.3.4 Where the *Owner* has delivered a *Notice of Non-Payment*, the *Owner* and the *Contractor* shall first engage in good faith negotiations to resolve the dispute. If within 5 calendar days following the issuance of a *Notice of Non-Payment*, despite good faith efforts by both parties and the assistance of the *Consultant*, the *Owner* and the *Contractor* cannot resolve the dispute, either party may commence an *Adjudication* in accordance with the procedures set out in the *Construction Act.* Any portion of the *Proper Invoice* which is not the subject of the *Notice of Non-Payment* shall be payable within the time period set out in GC 5.3.1.2. 5.3.5 Provided that the *Owner* complies with its obligations under the *Construction Act*, and subject to any interim determination of an adjudicator in accordance with any *Adjudication*, and where applicable, a final determination made in accordance with the dispute resolution processes prescribed by this *Contract*, the *Owner* shall be entitled to claim in a *Notice of Non-Payment* a right to deduct from or, set off against, any payment of the *Contract Price*: .1 any amount expended by the *Owner* in exercising the *Owner's* rights under this *Contract* to perform any of the *Contractor's* obligations that the *Contractor* has failed to perform; .2 any damages, costs or expenses (including, without limitation, reasonable legal fees and expenses) incurred by the *Owner* as a result of the failure of the *Contractor* to perform any of its obligations under the *Contract*; .3 any other amount owing from the *Contractor* to the *Owner* under this *Contract*. 5.3.6 The amounts disputed and described under the *Notice of Non-Payment* shall be held by the *Owner* until all disputed amounts of the *Proper Invoice* have been resolved pursuant to PART 8 – DISPUTE RESOLUTION. 5.3.7 The *Contractor* represents, warrants, and covenants to the *Owner* that it is familiar with its prompt payment and trust obligations under the *Construction Act* and will

		take all required steps and measures to ensure that it complies with the applicable prompt payment and trust provisions under the *Construction Act* including, without limitation, section 8.1 of the *Construction Act*. Evidence of the *Contractor's* compliance under this GC 5.3.7, including evidence demonstrating that all *EFTs* by the *Owner* to the *Contractor* are kept in a bank account in the *Contractor's* name will be made available to the *Owner* within 5 *Working Days* following receipt by the *Contractor* of a *Notice in Writing* making such request."

SC31 GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK- AND PAYMENT OF HOLDBACK

SC31.1	GC 5.4	Delete GC 5.4 – SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK in its entirety and replace it with the following: "**GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK** 5.4.1 When the *Contractor* considers that *Substantial Performance of the Work* has been achieved, the *Contractor* shall prepare and submit to the *Consultant* and the *Owner* a comprehensive deficiency list of items to be completed or corrected, including any incomplete *Close-Out Documentation*, and apply for a review by the *Consultant* and the *Owner* to establish *Substantial Performance of the Work*. Failure to include an item on the list does not alter the responsibility of the *Contractor* to complete the *Contract*. 5.4.2 Prior to, or as part of its written application for *Substantial Performance of the Work* the *Contractor* shall submit to the *Consultant* submit to the *Consultant* all closeout documentation required by the *Contract Documents*, including but not limited to, warranties, manuals, guarantees, as-built drawings and all other relevant literature from suppliers and manufacturers including, but not limited to, where applicable (the "**Close-Out Documentation**"): .1 equipment, maintenance, and operations manuals; .2 equipment specifications, data sheets and brochures, parts lists and assembly drawings, performance curves and other related data; .3 line drawings, value charts and control sheets sequences with description of the sequence of operations; .4 warranty documents; .5 guarantees; .6 certificates; .7 service and maintenance reports; .8 *Specifications*; .9 *Shop Drawings*; .10 coordination drawings; .11 testing and balancing results and reports; .12 *Commissioning* and quality assurance documentation; .13 distribution system diagrams; .14 spare parts; .15 samples; .16 existing reports and correspondence from authorities having jurisdiction in the *Place of the Work*; .17 inspection certificates; .18 red-lined record drawings from the construction trailer in two copies and .19 other materials or documentation required to be submitted under the *Contract.* 5.4.3 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:

.1 prepare a final deficiency list incorporating all items to be completed or corrected, including any incomplete or unsubmitted *Close-Out Documentation*. Each item shall have an indicated value for correction or completion and the determination of the total value of such items shall be determined pursuant to GC 5.8 – DEFICIENCY HOLDBACK. The final deficiency list complete with values is to be included with the *Consultant's* draft verification and shall be reviewed with the *Owner* prior to the *Consultant* rendering a determination in accordance with GC 5.4.3.2

.2 having completed the requirements set out in GC 5.4.3.1,

(a) the *Consultant* shall advise the *Contractor* in writing that the *Work* or the designated portion of the *Work* is not substantially performed and give reasons why, or

(b) the *Consultant* shall 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.*

5.4.4 Following the issuance of the certificate of *Substantial Performance of the Work* referenced in subparagraph 5.4.3.2(b):

.1 The Contractor shall publish, in a construction trade newspaper in the area of the location of the Work, a copy of the certificate of S*ubstantial Performance of the Work* referred to in GC 5.4.2.2(b) within seven (7) calendar days of receiving a copy of the certificate signed by the *Consultant*, and the *Contractor* shall provide suitable evidence of the publication to the *Consultant* and the *Owner*. If the Contractor fails to publish such notice, the Owner shall be at liberty to publish said certificate and back-charge the Contractor its reasonable costs for doing so;

.2 The *Contractor* shall complete the *Work* within forty (40) calendar days of the date certified as the date of *Substantial Performance of the Work*;

.3 Notwithstanding any other provisions of the *Contract,* no payments will be processed between *Substantial Performance of the Work* and *Ready-for-Takeover*;

.4 The *Owner* reserves the right to contract out any or all unfinished *Work* if it has not been completed within forty (40) days of *Substantial Performance of the Work* using, without limitation, the funds retained in accordance with GC 5.8 - DEFICIENCY HOLDBACK, without prejudice to any other right or remedy and without affecting the warranty period. The cost to the *Owner* of completing the *Work* including *Owner* and *Consultant* wages and materials shall be deducted from the *Contract Price.*

5.4.5 After publication of the certificate of the *Substantial Performance of the Work*, and provided that the *Contractor* has completed performance of the *Work* within the 40 calendar days following certification of *Substantial Performance of the Work*, the *Contractor* may submit an application for payment of the outstanding *Construction Act* holdback amount, which application for payment shall:

.1 include all of the requirements listed in EXHIBIT "1" - PROJECT SPECIFIC REQUIREMENTS FOR A PROPER INVOICE, as applicable to the application for payment of the holdback amount; and

.2 include a statement that the *Contractor* has not received any written notices of lien or any claims for liens from any *Subcontractor* or *Supplier.*

		5.4.6 The *Construction Act* holdback amount shall become due and payable the day immediately following the expiration of the holdback period prescribed by the *Construction Act* (in most cases being the 61st calendar day following the publication of the certificate of *Substantial Performance of the Work* referred to in GC 5.4.4.1), subject to the occurrence of any of the following: .1 the preservation of a lien in respect of the *Project* that has not been satisfied, discharged or otherwise provided for in accordance with the *Construction Act*; .2 receipt by the *Owner* of a written notice of lien that has not been satisfied, discharged or otherwise provided for in accordance with the *Construction Act*; or .3 prior to the expiry of 40 calendar days following the publication of the certificate of *Substantial Performance of the Work,* the *Owner* publishes a *Notice of Non-Payment* of holdback in accordance with the *Construction Act* (Form 6), setting out the amount of holdback that will not be paid, which may include non-payment to secure the correction of deficiencies and/or the completion of the *Work*. 5.4.7 Notwithstanding the *Owner's* obligation to make payment of the holdback amount in accordance with GC 5.4.6, the processing of such payment remains subject to the *Owner's* internal *EFT* timing limitations. The *Owner* covenants, and the *Contractor* agrees, that payment of the holdback shall be made by *EFT* at the first opportunity during the *Owner's* normal processing of *EFTs* upon the holdback becoming due in accordance with GC 5.4.6..

SC32 GC 5.5 FINAL PAYMENT

SC32.1	GC 5.5	Delete GC 5.5 in its entirety, including all subparagraphs thereunder and replace it with the following: "5.5.1 When *Ready-for-Takeover* has been achieved in accordance with GC 12.1 – READY-FOR-TAKEOVER and the *Contractor* considers the *Work* is complete, and after the *Contractor*, the *Owner*, and the *Consultant* have attended a *Pre-Invoice Submission Meeting* analogous to the requirement in GC 5.2.1 (the "***Final Pre-Invoice Submission Meeting***"), the *Contractor* may submit an application for final payment to the *Owner* and to the *Consultant*, which application for payment shall: .1 include all of the requirements set out in GC 5.2.2, including without limitation those requirements listed in APPENDIX "1" - PROJECT SPECIFIC REQUIREMENTS FOR A PROPER INVOICE that are specific to an application for final payment; and .2 if applicable, (a) a certificate from the *Consultant* or written confirmation from the *Owner* that the deficiencies or incomplete *Work* waived by the *Owner* pursuant to GC 12.1.2 have been fully rectified as of the date of the *Contractor's* application for final payment, and/or (b) written confirmation, signed by the *Owner* and the *Contractor,* that the *Contract Price* has been reduced by a specified amount in exchange for the *Owner* releasing the *Contractor* of its obligation to rectify the certain outstanding deficiencies and/or incomplete *Work* waived by the *Owner* pursuant to GC 12.1.2, as detailed in such written confirmation.

5.5.2 No later than 5 calendar days prior to the *Final Pre-Invoice Submission Meeting*, the *Contractor* will, if not already provided, submit to the *Consultant* all *Close-Out Documentation*.

5.5.3 Delivery of all *Close-Out Documentation* is a requirement for the *Proper Invoice* for final payment.

5.5.4 After receipt by the *Owner* and the *Consultant* of an application for payment submitted by the *Contractor* that is a *Proper Invoice* and by no later than 10 calendar days after the receipt of the *Proper Invoice*:

.1 the *Consultant* will either:

(a) issue to the *Owner* with a copy to the *Contractor*, a progress payment certificate in the amount applied for by the *Contractor* in the *Proper Invoice*, or

(b) deliver a finding to the *Owner* with reasons why an amount other than what is claimed in the *Proper Invoice* is properly due to the *Contractor*, which finding the *Owner* may accept or amend prior to issuing a *Notice of Non-Payment* (Form 1.1), if any, in accordance with GC 5.5.2;

.2 the *Owner* shall make payment to the *Contractor* on account as provided in Article A-5 PAYMENT,

(a) in the amount stated in the certificate for payment, or

(b) in the amount stated in the certificate for payment less such amount stated in the *Owner's Notice of Non-Payment* issued pursuant to GC 5.5.5,

on the 28th calendar day after receipt of a *Proper Invoice*, unless such 28th calendar day lands on a day that is other than a *Working Day*, in which case payment shall be made on the next *Working Day* after such 28th day.

5.5.5 In the event that the application for final payment delivered by the *Contractor* does not include the requirements of GC 5.5.1 (including the requirements for a *Proper Invoice*) and GC 5.5.2 or where the *Owner* disputes the amount claimed as payable in the *Proper Invoice*, then the *Owner* shall within 14 calendar days of receipt of the application for payment, issue a *Notice of Non-Payment*. Where the *Owner* has delivered a *Notice of Non-Payment*, as specified under this GC 5.5.5, the *Owner* and the *Contractor* shall first engage in good faith negotiations to resolve the dispute. If within 5 calendar days following the issuance of a *Notice of Non-Payment*, despite good faith efforts by both parties with the assistance of the *Consultant*, the *Owner* and the *Contractor* cannot resolve the dispute, either party may commence an *Adjudication* in accordance with the procedures set out in the *Construction Act*. Any portion of the *Proper Invoice* which is not the subject of the *Notice of Non-Payment* shall be payable within the time period set out in GC 5.5.4.2.

5.5.6 Subject to the provisions of the *Construction Act* and any other rights conferred on the *Owner* at law or under this *Contrac*t to withhold payment or backcharge or set-off against payment, the *Owner* shall pay the amount payable under a *Proper Invoice* for final payment in accordance with the *Construction Act*.

5.5.7 When the *Consultant* issues certificate of completion in accordance with GC 5.5.4.1, the *Consultant* shall also issue a certificate for release of any holdback for finishing work amount. In accordance with the *Construction Act,* the *Owner* may retain any amounts which are required by law to satisfy any liens against the *Work*, in respect of any third party claims made to the *Owner* in respect of the *Contract* or the *Work*, and in respect of any claims the *Owner* may have against the *Contractor*. Subject to

		the foregoing, the *Owner* shall release the holdback in accordance with the *Construction Act.*"

SC33 GC 5.6 DEFERRED WORK

SC33.1	5.6.1	Delete paragraph 5.6.1 and replace with the following: "5.6.1 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, subject to its requirement to issue a *Notice of Non-Payment* under the *Construction Act*, 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. The remaining work shall be valued as deficient work as defined in GC 5.8.1."

SC34 *NEW* GC 5.8 DEFICIENCY HOLDBACK

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

PART 6 CHANGES IN THE WORK

SC35 GC 6.1 OWNER'S RIGHT TO MAKE CHANGES

SC35.1	6.1.2	Add the following to the end of GC 6.1.2:

		"This requirement is of the essence and it is the express intention of the parties that any claims by the *Contractor* for a change in the *Contract Price* and/or *Contract Time* shall be barred unless there has been strict compliance with PART 6 - CHANGES IN THE WORK. No verbal dealings between the parties and no implied acceptance of alterations or additions to the *Work* and no claims that the *Owner* has been unjustly enriched by any alteration or addition to the *Work*, whether in fact there is any such unjust enrichment or not, shall be the basis of a claim for additional payment under this *Contract,* an increase to the *Contract Price*, or a claim for any extension of the *Contract Time*."
SC35.2	6.1.3 to 6.1.8	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 only include *Direct Costs* and 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 shall include any *Direct 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, shall 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."

SC36 GC 6.2 CHANGE ORDER

SC36.1	6.2.1	In paragraph 6.2.1 after the last sentence in the paragraph add the following: "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.*"

SC36.2	6.2.3 to 6.2.5	Add new paragraphs 6.2.3, 6.2.4, and 6.2.5 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 *Direct Cost* to the *Owner,* such costs to be the actual cost after all credits included in the change have been deducted, plus the following ranges of mark-up on such costs: .1 for *Change Orders* with a value of $0 to $15,000 the total *Subcontractor/Supplier* mark-up including *Overhead* and profit shall be 10% and the total *Contractor* mark-up including overhead and profit shall be 5%. .2 for *Change Orders* in excess of $15,000, the total *Subcontractor/Supplier* mark-up including *Overhead* and profit shall be 5% and the total *Contractor* mark-up including *Overhead* and profit shall be 3%. 6.2.4 All quotations shall include *Direct Costs* and 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. 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.*"

SC37 GC 6.3 CHANGE DIRECTIVE

SC37.1	6.3.6.1	Amend paragraph 6.3.6.1 by deleting the final period and adding the following: ".1 Ten percent (10%) for profit plus five percent (5%) for overhead on work by the *Contractor's* own forces up to the value of $15,000 and five percent (5%) for profit plus three percent (3%) for *Overhead* on work by the *Contractor's* own forces in excess of $15,000 and, .2 Ten percent (10%) fee on amounts paid to *Subcontractors* or *Suppliers* under subparagraph 6.3.7.9 for changes up to the value of $15,000 and five percent (5%) on changes over $15,000. Unless a *Subcontractor's* or *Supplier's* price has been approved by the *Owner,* the *Subcontractor* or *Supplier* shall be entitled to its actual net cost as determined in accordance with paragraph 6.3.7, plus ten percent (10%) for profit and five percent (5%) for *Overhead* on such actual net cost for changes in the *Work*, up to the value of $15,000 and five percent

		(5%) for profit and three percent (3%) for overhead on such actual net cost changes in the *Work* in excess of $15,000."
SC37.2	6.3.6.2	Delete paragraph 6.3.6.2 and replace it with the following: ".2 If a change in the *Work* results in a net decrease in the *Contract Price*, the amount of the credit shall be the net cost, without deduction for *Overhead* or profit."
SC37.3	6.3.7.1(4)	Delete GC 6.3.7.1(4).
SC37.4	6.3.7.7	Amend GC 6.3.7.7 by deleting the words "described in paragraph 6.3.7.1" and replacing them with "approved by the *Owner* in writing and in advance of any such expenses being incurred;"
SC37.5	6.3.7.9	Amend GC 6.3.7.9 by adding the following to the end of the paragraph: "…when specifically requested by the *Owner* or as directed by the *Consultant*;".
SC37.6	6.3.7.10	Amend GC 6.3.7.10 by adding the following to the end of the paragraph: ", provided that such amounts are not caused by negligent acts, omissions, or default of the *Contractor* or *Subcontractor*;".
SC37.7	6.3.7.13	Delete GC 6.3.7.13.
SC37.8	6.3.7.15	Delete GC 6.3.7.15.
SC37.9	6.3.7.17	Delete GC 6.3.7.17 in its entirety including all subparagraphs.
SC37.10	6.3.11	Delete GC 6.3.11 and replace it with the following: "6.3.11 The value of the *Work* performed as a result of a *Change Directive* shall not be eligible to be included in progress payments until the amount, including the method for determining the amount, of such *Change Directive* has been determined."

SC38 GC 6.4 CONCEALED OR UNKNOWN CONDITIONS

SC38.1	6.4.1	Delete paragraph 6.4.1 in its entirety 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 insofar as the Place of Work was available for investigation and, in doing so, applied to that investigation the degree of care and skill required by paragraph 3.14.1 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*.
SC38.2	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." -and-

		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,".
SC38.3	6.4.3	Delete paragraph 6.4.3 in its entirety and substitute the following: "6.4.3 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*."
SC38.4	6.4.5	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."

SC39 GC 6.5 DELAYS

SC39.1	6.5.1	In paragraph 6.5.1 delete the words after the word "for" in the fourth line and replace them with 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)."
SC39.2	6.5.2	Delete GC 6.5.2 in its entirety and replace it with the following: "6.5.2 If the *Contractor* is delayed in the performance of the *Work* by a stop work order issued by a court or other public authority and providing that such order was issued on account of a direct breach, violation, contravention, or a failure to abide by any laws, ordinances, rules, regulations, or codes by the *Owner*, *Other Contractor(s)*, or the *Consultant*, and relating to the *Work* or the *Place of the Work*, then the *Contract Time* shall be extended for such reasonable time as the *Consultant* may determine. The *Contractor* shall be reimbursed by the *Owner* for 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)."
SC39.3	6.5.3	Delete paragraph 6.5.3 in its entirety and replace with the following: "6.5.3 If either party is delayed in the performance of their obligations under this *Contract* by *Force Majeure*, then the *Contract Time* shall be extended for such reasonable time as the *Owner* and the *Contractor* shall agree. The extension of time shall not be less than the time lost as a result of the event causing the delay, unless the parties agree to a shorter extension. Neither party shall be entitled to payment for costs incurred by such delays. Upon reaching agreement on the extension of the *Contract Time* attributable to the *Force Majeure* event, the *Owner* and the *Contractor* shall execute a *Change Order* indicating the length of the extension to the *Contract Time* and confirming that there are no costs payable by the either party for the extension of *Contract Time*. However, if at the time an event of *Force Majeure* arises a party is in default of its obligations under the *Contract* and has received a notice of default pursuant to PART 7 – DEFAULT NOTICE, this paragraph 6.5.3 shall not excuse a party from its obligation to cure the default(s). For greater certainty, the defaulting party, to the extent possible, must continue to address and cure the default notwithstanding an event of *Force Majeure*."
SC39.4	6.5.4	Delete paragraph 6.5.4 in its entirety and replace it 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."
SC39.5	6.5.6 to 6.5.8	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 (i) firstly, at its expense, and to the extent possible, the *Contractor* shall accelerate the work and/or provide overtime work to recover time lost by a delay arising under this paragraph 6.5.6, and (ii) secondly, where it is not possible for the *Contractor* to recover the time lost by implementing acceleration measures and/or overtime work, 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, Owner's staff costs, 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 by the *Contractor* and the *Contract Time* shall not be extended due to climatic conditions or arising from the *Contractor's* efforts to maintain the *Construction Schedule*."

PART 7 DEFAULT NOTICE

SC40 GC 7.1 OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK OR TERMINATE THE CONTRACT

SC40.1	7.1.2	In GC 7.1.2, delete the words "and if the *Consultant* has given a written statement to the *Owner* and *Contractor* which provides the detail of such neglect to perform the *Work* properly or such failure to comply with the requirements of the *Contract* to a substantial degree".
SC40.2	7.1.3.4	Add a new subparagraph 7.1.3.4 as follows: ".4 an "acceptable schedule" as referred to in subparagraph 7.1.3.2. means a schedule approved by the *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*."
SC40.3	7.1.4.1	Delete subparagraph 7.1.4.1 and replace it with the following: ".1 correct such default and deduct the cost, including *Owner's* expenses, thereof from any payment then or thereafter due the *Contractor*."
SC40.4	7.1.4.2	Delete subparagraph 7.1.4.2 and replace it with the following: ".2 by providing *Notice in Writing* to the *Contractor*, terminate the *Contractor's* right to continue with the *Work* in whole or in part or terminate the *Contract*, and publish a notice of termination (Form 8) in accordance with the *Act*."
SC40.5	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"
SC40.6	7.1.6 to 7.1.10	Delete GC 7.1.6 and replace it with new paragraphs 7.1.6, 7.1.7, 7.1.8, 7.1.9 and 7.1.10 as follows: "7.1.6 In addition to its right to terminate the *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, 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, 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*."

SC41 GC 7.2 CONTRACTOR'S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT

SC41.1	7.2.2	Delete paragraph 7.2.2 and replace it with the following: "7.2.2 If the *Work* is suspended or otherwise delayed for a period of 40 consecutive *Working Days* or more under a stop work order issued by a court or other public authority on account of a breach, violation, contravention, or a failure to abide by any laws, ordinances, rules, regulations, or codes directly by the *Owner*, the *Owner's* other contractor(s), or the *Consultant*, and relating to the *Work* or the *Place of the Work*, the *Contractor* may, without prejudice to any other right or remedy the *Contractor* may have, terminate the *Contract* by giving the *Owner* Notice in *Writing* to that effect."
SC41.2	7.2.3.1	Delete subparagraph 7.2.3.1 in its entirety.
SC41.3	7.2.3.2	Delete subparagraph 7.2.3.2 in its entirety.
SC41.4	7.2.3.4	In subparagraph 7.2.3.4, delete the words "except for GC 5.1 - FINANCING INFORMATION REQUIRED OF THE OWNER".
SC41.5	7.2.5	Delete paragraph 7.2.5 and replace it with the following: "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."
SC41.6	7.2.6 to 7.2.9	Add new paragraphs 7.2.6, 7.2.7, 7.2.8 and 7.2.9 as follows: "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. 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: .1 the *Contractor's* failure to pay all legitimate claims promptly, or .2 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 of this *Contract* by the *Contractor*. 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*."

PART 8 DISPUTE RESOLUTION

SC42 GC 8.1 AUTHORITY OF THE CONSULTANT

SC42.1	8.1.3	Delete paragraph 8.1.3 in its entirety and substitute as follows: "8.1.3 If a dispute is not resolved promptly, the *Consultant* will give such instruction as in the *Consultant's* opinion are necessary for the proper performance of the *Work* and to prevent delays pending settlement of the dispute. The parties shall act immediately according to such instructions, it being understood that by doing so neither party will jeopardize any claim the party may have."

SC43 GC 8.2 ADJUDICATION

SC43.13	8.2.2 to 8.2.7	Add new GC 8.2.2, 8.2.3, 8.2.4, 8.2.5, 8.2.6, and 8.2.7 as follows: "8.2.2 Save and except where the *Contractor* has given an undertaking, in accordance with the *Act*, to refer a dispute to *Adjudication*, prior to delivering a notice of *Adjudication* in a form prescribed by the *Act*, the parties agree to first address all disputes with at least one in-person meeting with the *Owner's* representative, the *Consultant's* representative, and the *Contractor's* representative. The parties agree that such steps will be taken to resolve any disputes in a timely and cost-effective manner. 8.2.3 Notwithstanding any other provisions in PART 8 DISPUTE RESOLUTION, the parties shall engage in *Adjudication* proceedings as required by, and in accordance with, the *Construction Act*. 8.2.4 The following procedures shall apply to any *Adjudication* the parties engage in under the *Construction Act*: .1 any hearings shall be held at a venue within the jurisdiction of the *Place of the Work* or such other venue as the parties may agree and which is acceptable to the adjudicator; .2 the *Adjudication* shall be conducted in English; .3 each party may be represented by counsel throughout an *Adjudication*; .4 there shall not be any oral communications with respect to issues in dispute that are the subject of an *Adjudication* between a party and the adjudicator unless it is made in the presence of both parties or their legal representatives; and .5 a copy of all written communications between the adjudicator and a party shall be given to the other party at the same time.

8.2.5 Any documents or information disclosed by the parties during an *Adjudication* are confidential and the parties shall not use such documents or information for any purpose other than the *Adjudication* in which they are disclosed and shall not disclose such documents and information to any third party, unless otherwise required by law, save and except the for the adjudicator.

8.2.6 If the *Contractor* fails to comply with any of the notice requirements set out in the *Contract*, including the time limits set out in any of the following:

.1 GC 6.4 – CONCEALED OR UNKNOWN CONDITIONS;
.2 GC 6.5 – DELAYS;
.3 GC 6.6 – CLAIMS FOR A CHANGE IN CONTRACT PRICE;
.4 PART 8 DISPUTE RESOLUTION
.5 GC 9.2 – TOXIC AND HAZARDOUS SUBSTANCES
.6 GC 9.3 – ARTIFACTS AND FOSSILS; or
.7 GC 9.5 - MOULD

in respect of any claim or dispute, the *Contractor* shall have no entitlement whatsoever (including to an increase in the *Contract Price*, or an extension of *Contract Time*) in the context of an *Adjudication* under the *Construction Act* and waives the right to make any such claims or disputes in an *Adjudication*. This GC 8.2.6 shall operate conclusively as an estoppel and bar in the event such claims or disputes are brought in an *Adjudication* and the *Owner* may rely on this GC 8.2.6 as a complete defence to any such claims or disputes.

8.2.7 The parties hereby acknowledge and agree,

.1 that counterclaims, claims of set-off or the exercise or use of other contractual rights that permit the *Owner* to withhold, deduct or retain from monies otherwise owed to the *Contractor* under the *Contract* may be referred to, and included as part of, *Adjudications* under the *Construction Act*;
.2 that disputes related to the termination or abandonment of the *Contract*, as well as any disputes that arise or are advanced following the termination or abandonment of the *Contract*, shall not be referred to *Adjudication* under the *Construction Act*;
.3 that notice(s) of *Adjudication,* with respect to any dispute or claim relating to the *Project,* shall not be given, and no *Adjudication* shall be commenced following *Contract* completion, *Contract* abandonment, or termination of the *Contract*;
.4 that any *Adjudication* between the *Contractor* and a *Subcontractor* or a supplier that relates to an *Adjudication* between the *Owner* and the *Contractor* shall be joined together to be adjudicated by a single adjudicator, provided that the adjudicator agrees to do so, and the *Contractor* shall include a provision in each of its contracts that contain an equivalent obligation to this GC 8.2.7.4; and
.5 that, other than where the *Contractor* is obliged to commence an *Adjudication* pursuant to an undertaking under the *Construction Act,* neither the *Owner* nor the *Contractor* shall commence an *Adjudication* during the *Restricted Period*.

8.2.8 The parties acknowledge and agree that no *Adjudication*, arbitration, action, suit or other proceeding may be brought by the *Contractor* against the *Owner* in respect of a claim for an increase to the *Contract Price* as set out in GC 6.6, before the *Consultant* has issued its findings in respect of same, pursuant to GC 6.6.5. For greater clarity and without limiting the foregoing, the amount applied for in each *Proper Invoice* shall not include any amounts pertaining to the *Contractor's* claim for an increase in *Contract Price* unless and until the *Consultant* has issued a written notice to the *Contractor* regarding the validity of such claim, as provided for in GC 6.6.5. However, nothing in this GC 8.2.8 shall prevent a *Contractor* from commencing an *Adjudication* where, pursuant to the *Construction Act*, the *Contractor* is required

		to give an undertaking to a *Subcontractor* to commence an *Adjudication* following delivery of a *Notice of Non-Payment*."

SC44 GC 8.3 NEGOTIATION, MEDIATION AND ARBITRATION

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

PART 9 PROTECTION OF PERSONS AND PROPERTY

SC45 GC 9.1 PROTECTION OF WORK AND PROPERTY

SC45.1	9.1.1.1	Delete subparagraph 9.1.1.1 in its entirety and substitute the following: ".1 errors in the *Contract Documents* which the *Contractor* could not have discovered applying the standard of care described in paragraph 3.14.1;"
SC45.2	9.1.2	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."
SC45.3	9.1.5	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."

SC46 GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES

SC46.1	9.2.1	Amend GC 9.2.1 by inserting the following to the end of the paragraph: "For the purposes of GC 9.2 – TOXIC AND HAZARDOUS SUBSTANCES, *Excess Soil* shall not be considered a 'toxic and hazardous substance'."
SC46.2	9.2.5.5	Add a new subparagraph 9.2.5.5 as follows: ".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."
SC46.3	9.2.6	Amend GC 9.2.6 by adding the following words 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,".
SC46.4	9.2.8	Amend GC 9.2.8 by adding the following words 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,".
SC46.5	9.2.10	Add new paragraph 9.2.10 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*."

SC47 GC 9.4 CONSTRUCTION SAFETY

SC47.1	9.4.1	Delete GC 9.4.1 in its entirety and replace it with the following:

		"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 *OHSA*, including, but not limited to those of the "constructor", and shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the *Work*. The *Contractor*'s health and safety program documentation shall be made available for review by the *Owner* or *Consultant* immediately upon request. Without limiting the foregoing, the *Contractor* shall be solely responsible for construction safety in respect of the *Consultant*, *Subcontractors* and *Suppliers*, the *Owner's* own forces, *Other Contractors*, and all persons attending the *Place of the Work* during the course of the *Project*."
SC47.2	9.4.2	Amend GC 9.4.2 by adding the following words after "and the *Contractor*": ", *Subcontractors* and *Suppliers*".
SC47.3	9.4.3	Amend GC 9.4.3 by adding the following words after "and the *Contractor*": ", *Subcontractors* and *Suppliers*".
SC47.4	9.4.4	Delete GC 9.4.4 and replace it with the following: "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."
SC47.5	9.4.5	Delete GC 9.4.5 in its entirety and replace it with the following: "9.4.5 Prior to the commencement of the *Work*, the *Contractor* shall submit to the *Owner*: .1 a current WSIB clearance certificate; .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 a copy of the Notice of Project filed with the Ministry of Labour naming itself as "constructor" under the *OHSA*; and . 5 copies of any documentation or notices to be filed or delivered to the authorities having jurisdiction for the regulation of occupational health and safety at the *Place of the Work*;"
SC47.6	9.4.6 to 9.4.12	Add new GC 9.4.6, 9.4.7, 9.4.8, 9.4.9, 9.4.10, 9.4.11, and 9.4.12 as follows: "9.4.6 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 *OHSA* and any other occupational health and safety legislation in force at the *Place of the Work* including the payment of legal fees and disbursements on a solicitor and client basis. Such indemnity shall apply to the extent to which the *Owner* is not covered by insurance. 9.4.7 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. 9.4.8 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*. 9.4.9 Unless otherwise provided in the *Contract Documents*, the *Contactor* 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*. 9.4.10 The *Contractor* shall provide a copy of the safety program described in GC 9.4.9 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. 9.4.11 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 inured person to a hospital or a doctor's care. 9.4.12 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."."

PART 10 GOVERNING REGULATIONS

SC48 GC 10.1 TAXES AND DUTIES

SC48.1	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*."
SC48.2	10.1.3	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."

SC49 GC 10.2 LAWS, NOTICES, PERMITS, AND FEES

SC49.1	10.2.5	Amend paragraph 10.2.5 by adding the words "Subject to paragraph 3.4" at the beginning of the paragraph. -and- 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*."
SC49.2	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*."
SC49.3	10.2.7	Amend paragraph 10.2.7 by inserting the words "which changes were not, or could not have reasonably been known to the *Owner* or to the *Contractor*, as applicable, at the time of bid closing and which changes did not arise as a result of a public emergency or other *Force Majeure* event" to the second line, after the words "authorities having jurisdiction".
SC49.4	10.2.8	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."

SC50 GC 10.4 WORKERS' COMPENSATION

SC50.1	10.4.1	Delete paragraph 10.4.1 and replace with the following: "10.4.1 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."

SC51 GC 11.1 INSURANCE

SC51.1	11.1	Delete entirety of GC 11.1 and replace with the following: "**GC 11.1 INSURANCE**

11.1.1 Without restricting the generality of GC 12 – INDEMNIFICATION, the *Contractor* shall provide, maintain, and pay for the insurance coverages specified in GC 11.1 – INSURANCE. Unless otherwise stipulated, the duration of each insurance policy shall be from the date of commencement of the *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 insureds, with limits of not less than $10,000,000.00 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 *Ready-for-Takeover*, as set out in the certificate of *Ready-for-Takeover,* on an ongoing basis for a period of 6 years following *Ready-for-Takeover*. 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 limits of not less than $5,000,000.00 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 **Aircraft and Watercraft Liability Insurance**

Where determined necessary by the *Contractor*, acting reasonably, aircraft and watercraft liability insurance will be obtained in accordance with the provisions of paragraph 11.1.3. Aircraft and watercraft liability insurance with respect to owned or non-owed aircraft and watercraft if used directly or indirectly in the performance of the *Work*, including use of Additional premises, shall be subject to limits of not less than $2,000,000.00 inclusive per occurrence for bodily injury, death and damage to property, including loss of use thereof and limits of not less than $2,000,000.00 for aircraft passenger hazard. Such insurance shall be in a form acceptable to the *Owner*. The policies shall be endorsed to provide the *Owner* with not less than 30 days' notice, in writing, in advance of cancellation, change or amendment restricting coverage.

.4 Property and Boiler and Machinery Insurance

(1) Builder's Risk property insurance shall be in the name of the *Contractor* with the *Owner* and the *Consultant* named as Additional insureds. The policy shall

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

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

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

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

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

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

.5 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*."

SC52 *NEW* GC 11.2 CONTRACT SECURITY

SC52.1	GC 11.2	Add new GC 11.2 – CONTRACT SECURITY as follows: "**GC 11.2 CONTRACT SECURITY** 11.2.1 The *Contractor* shall, prior to the execution of the *Contract*, furnish a performance bond and labour and material payment bond which meets the requirements under paragraph 11.2.2. 11.2.2 The performance bond and labour and material payment bond shall: .1 be issued by a duly licensed surety company, which has been approved by the *Owner* and is permitted under the *Construction Act*, .2 be issued by an insurer licensed under the *Insurance Act* (Ontario) and authorized to transact a business of suretyship in the Province of Ontario; .3 shall be in the form prescribed by the *Construction Act*; .4 have a coverage limit of at least 50 per cent of the *Contract Price*, or such other percentage of the *Contract Price* as stated in the *Contract Documents*; .5 extends protection to *Subcontractors*, *Suppliers,* and any other persons supplying labour or materials to the *Project*; and .6 shall be maintained in good standing until the fulfillment of the *Contract*, including all warranty and maintenance periods set out in the *Contract Documents.*. 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 Without limiting the foregoing in any way, the bonds shall indemnify and hold harmless the *Owner* for and against costs and expenses (including legal and *Consultant* services and court costs) arising out of or as a consequence of any default of the *Contractor* under this *Contract*. 11.2.4 The *Contractor* shall be responsible for notifying the surety company of any changes made to the *Contract* during the course of construction. 11.2.5 The premiums for bonds required by the *Contract Documents* shall be included in the *Contract Price*. 11.2.6 Should the *Owner* require additional bonds by the *Contractor* or any of his *Subcontractors*, after the receipt of bids for the *Work*, the *Contract Price* shall be increased by all direct costs attributable to providing such bonds. The *Contractor* shall promptly provide the *Owner*, through the *Consultant*, with any such bonds that may be required."

PART 12 OWNER TAKEOVER

SC53 GC 12.1 READY-FOR-TAKEOVER

SC53.1	12.1.1	Delete GC 12.1.1 in its entirety and replace it with the following: "12.1.1 *Ready-for-Takeover* shall be achieved when all of the following has occurred, as verified and approved by the *Owner*: .1 *Substantial Performance of the Work* has been achieved, as certified by the *Consultant*; .2 a permit for occupancy of the *Place of the Work* has been obtained from the authorities having jurisdiction; .3 the *Work* to be performed under the *Contract* has satisfied the requirements for deemed completion in accordance with Section 2(3) of the *Construction Act*, .4 final cleaning and waste removal, as required by the *Contract Documents*; .5 the *Contractor* has delivered to the *Consultant* and the *Owner* all inspection certificates from authorities having jurisdiction with respect to any component of the *Work* which has been completed; .6 subject only to GC 12.1.2, the entire *Work* has been completed to the requirements of the *Contract Documents*, including completion of all items on the punch list prepared at the time of *Substantial Performance of the Work* and the *Work* is being used for its intended purpose, and is so certified by the *Consultant*; .7 subject only to GC 12.1.2, the *Contractor* has submitted to the *Owner* and the *Consultant* in a collated and organized matter, all *Close-Out Documentation* and any other materials or documentation required by the *Contract Documents*; .8 subject only to GC 12.1.2, all *Products*, systems and components of the *Project* have been commissioned and certified for operation and accepted by the *Owner* and *Consultant*, and

		9 subject only to GC 12.1.2, the *Contractor* has submitted to the *Owner* and the *Consultant* full and complete as-built drawings and *Specifications* revised by the *Contractor* to reflect the as-built state of the *Work*, clearly showing changes to the *Drawings* and *Specifications* from the original *Contract Documents*, all of which have been approved by the *Owner* acting reasonably."
SC53.2	12.1.2	Delete GC 12.1.2 in its entirety and replace it with the following: "12.1.2 The *Owner* may, in its sole, absolute, and unfettered discretion, waive compliance with a requirement, or a part thereof, for achieving *Ready-for-Takeover* set out in GC 12.1.1.6 to 12.1.1.9 (inclusive). Where the *Owner* exercises the discretion afforded under this GC 12.1.2, the *Contractor* shall be required to comply with GC 5.5.1.2 as part of its application for final payment and the *Owner* and the *Contractor*, in consultation with the *Consultant*, shall establish a reasonable date for completing the *Work*."
SC53.3	12.1.3	Delete GC 12.1.3 in its entirety and replace it with the following: "12.1.3 When the *Contractor* considers the *Work Ready-for-Takeover*, it shall submit a written application to the *Owner* and the *Consultant* for review."
SC53.4	12.1.4	In GC 12.1.4, delete the words "list and" from the second line.
SC53.5	12.1.5	Delete GC 12.1.5 in its entirety and replace it with the following: "12.1.5 Following the confirmation of the date of *Ready-for-Takeover* by the *Consultant* and as confirmed by the *Owner*, the *Contractor* may submit a final application for payment in accordance with GC 5.5 – FINAL PAYMENT."
SC53.6	12.1.6	Delete GC 12.1.6 in its entirety.

SC54 GC 12.2 EARLY OCCUPANCY

SC54.1	GC 12.2	Delete GC 12.2 – EARLY OCCUPANCY BY THE OWNER in its entirety, including all subparagraphs thereunder and replace it with the following: "12.2.1 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 have reached Substantial Performance of the Work, provided that such taking possession and use will not unduly 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 Project nor shall it relieve the Contractor of any of its obligations under the Contract. 12.2.2 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 this 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."

SC55 GC 12.3 WARRANTY

SC55.1	12.3.2	Delete from the first line of paragraph 12.3.2 the word "The" and replace it with the words "Subject to GC 1.1.3, the…"
SC55.2	12.3.7 to 12.3.12	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 "*Ready-for-Takeover*" 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 in Writing* 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 INDEMNIFICATION AND WAIVER

SC56 GC 13.1 INDEMNIFICATION

SC56.1	GC 13.1	Delete GC 13.1 – INDEMNIFICATION in its entirety and replace it with the following: "13.1.1 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). 13.1.2 The *Owner* shall indemnify and hold the *Contractor*, its agents and employees harmless from and against claims, demands, losses, costs, damages, actions, suits or proceedings arising out of the *Contractor's* performance of the *Contract* which are attributable to a lack of or defect in title or an alleged lack of or defect in title to the *Place of the Work*. 13.1.3 The provisions of GC 13.1 - 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 13.1 13.1.4 Notwithstanding the provisions of GC1.1 - CONTRACT DOCUMENTS, GC 1.1.6, GC13.1 - INDEMNIFICATION shall govern over the provisions of GC 1.3.1 of GC1.3 – RIGHTS AND REMEDIES."

SC57 GC 13.2 WAIVER OF CLAIMS

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

SC57.19	13.2.3	Delete paragraph 13.2.3 in its entirety.
SC57.20	13.2.4	Delete paragraph 13.2.4 in its entirety.
SC57.21	13.2.5	Delete paragraph 13.2.5 in its entirety.
SC57.22	13.2.6	In paragraph 13.2.6 change the word “claim” to “Claim” in all instances in the paragraph.
SC57.23	13.2.8	In paragraph 13.2.8 change “The party” to “The *Contractor* -and- change the word “claim” to “Claim” in all instances in the paragraph.
SC57.24	13.2.9	In paragraph 13.2.9 delete the words “under paragraphs 13.2.1 or 13.2.3” and replace them with “under paragraph 13.2.1” -and- change both instances of the words “the party” to “the *Contractor*”. Change the word “claim” to “Claim” in all instances in the paragraph.

SC58 *NEW* PART 14 OTHER PROVISIONS

SC58.1	14.1	Add new PART 14 – OTHER PROVISIONS as follows: “**PART 14 OTHER PROVISIONS** **GC 14.1 OWNERSHIP OF MATERIALS** 14.1.1 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*.”
SC58.2	14.2	Add new GC 14.2 – CONSTRUCTION LIENS as follows: **“GC 14.2 LIENS** 14.2.1 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, subject to the *Owner*’s requirement to issue a *Notice of Non-Payment* (Form 1.1) 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 by a *Subcontractor* or a *Supplier* that has not been vacated or discharged by the *Contractor* in accordance with the requirements of this *Contract*, or .2 if the *Owner* or a mortgagee of the *Project* lands has received a written notice of a lien that has not been resolved by the *Contractor* through the posting of security or otherwise. 14.2.2 In the event a construction lien arising from the performance of the *Work* is registered or preserved against the *Project* lands by a *Subcontractor* or a *Supplier*, or a written notice of a lien is given or a construction lien action is commenced

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

APPENDIX 1
to the Supplementary Conditions

Project-specific requirements for a "*Proper Invoice*"

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

.1 the written bill or request for payment must be in writing;

.2 the *Contractor*'s name and current address;

.3 the *Contractor*'s HST registration number;

.4 the date the application for payment was prepared by the *Contractor*;

.5 the period of time in which the services or materials were supplied to the *Owner*;

.6 the purchase order number provided by the *Owner*;

.7 reference to the provisions of the *Contract* under which payment is being sought (e.g. GC 5.3 –PAYMENTS for progress payments, GC 5.4 – SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK GC 5.5 – FINAL PAYMENT for final payment, etc.);

.8 a description, including quantities where appropriate, of the services or materials, or a portion thereof, that were supplied and form the basis of the *Contractor's* request for payment;

.9 the amount the *Contractor* is requesting to be paid by the *Owner*, set out in a statement based on the schedule of values approved under GC 5.2.4, separating out any statutory or other holdbacks, set-offs and HST;

.10 a sworn Statutory Declaration in the form CCDC 9A-2018, only for second and subsequent progress payments;

.11 a current Workplace Safety Insurance Board clearance certificate;

.12 a pre-approved schedule of values, supplied by the *Contractor*, for Divisions 1 through 14 of the *Specifications* (or equivalent Construction Specifications Institute Masterformat) of the *Work*, aggregating the total amount of the *Contract Price*, including all supporting invoicing;

.13 a separate pre-approved schedule of values, supplied by each *Subcontractor*, for each of Division 15, 16, and 17 of the *Specifications* (or equivalent Construction Specifications Institute Masterformat) of the *Work*, aggregating the total amount of the *Contract Price*, including all supporting invoicing;

.14 invoices and other supporting documentation for all claims against the cash allowance;

.15 a current, acceptable, and up to date *Construction Schedule Update*;

.16 if requested by the *Owner*, a current and valid certificate(s) of insurance as required under GC 11.1 – INSURANCE;

.17 the name, title, telephone number and mailing address of the person at the place of business of the *Contractor* to whom payment is to be directed;

.18 a current, up to date, and approved *Shop Drawing* log;

.19 in the case of the *Contractor's* application for final payment, in addition to the foregoing requirements (as applicable):

(a) any *Close-Out Documentation*, together with complete and final as-built drawings;

(b) the *Contractor's* written request for release of the deficiency holdback, including a statement that no written notices of lien have been received by it;

(c) the *Contractor's* written certification that there are no outstanding claims, pending claims or future claims from the *Contractor* or their *Subcontractors* or *Suppliers*; and

(d) sufficient evidence of the *Contractor's* compliance with GC 3.11.

APPENDIX 2
to the Supplementary Conditions

SPECIAL SUPPLEMENTARY CONDITIONS

The Standard Construction Document CCDC 2 2020 for a Stipulated Price Contract, English version, consisting of the Agreement Between *Owner* and Contractor, Definitions and General Conditions of the Stipulated Price Contract, Parts 1 to 12 inclusive, governing same, together with the changes with the new Construction Act is hereby made part of these Contract Documents, with the following amendments, additions and modifications:

SC59 ARTICLE A-10 TIME OF THE ESSENCE

SC59.1	Article A-10	Delete the header for Article A-10 being "ARTICLE A-10 TIME OF THE ESSENCE" and replace it with the following: "**ARTICLE A-10 TIME OF THE ESSENCE/LIQUIDATED DAMAGES**".
SC59.2	Articles 10.3 to 10.7	Insert the following new Articles 10.3 to 10.7 as follows: "10.3 The *Contractor* further acknowledges that it understands that the *Owner* is responsible and must account to the students and staff of Waterloo Catholic District School Board. A failure by the *Contractor* to attain *Ready-for-Takeover* within the time prescribed in the Contract could result in damages to the *Owner* and to the students and staff of the Waterloo Catholic District School Board, which would be difficult or impractical to quantify but would nevertheless have a significant negative impact on the *Owner* and its ability to provide services the *Owner* is obliged to provide to the students and staff of the Waterloo Catholic District School Board. 10.4 Given the significance of the requirement for the Contractor to achieve *Ready-for-Takeover*, as described in Article A-10.3, without limiting the *Owner's* entitlement to any additional or other damages, if the *Contractor* fails to achieve *Ready-for-Takeover* by the time prescribed in Article A-1, the *Owner* will incur substantial damages and the extent of such damages shall be incapable or very difficult to accurately measure. Nonetheless, the parties acknowledge that as of the effective date of this *Contract*, the amount of liquidated damages set forth in Article A-10.5 below represents a good faith estimate on the part of the parties as to the actual potential damages that the *Owner* would suffer as a result of late completion of the *Project*. The amount of such liquidated damages does not include any penalty. Notwithstanding the foregoing, the *Owner* shall be entitled to the greater of (i) the liquidated damages as calculated pursuant to Article A-10.5, or (ii) in the event that the *Contractor* claims that this liquidated damages provision is invalid or unenforceable and the *Contractor* prevails on such a defence, the damages arising from the delay suffered by the *Owner* including, without limitation, consequential, special, incidental, and indirect damages, costs and expenses incurred or suffered by the *Owner*. 10.5 The *Contractor* shall pay to the *Owner* (or have deducted from *Contract* payments) liquidated damages of **$**_____ **[NTD: Include per diem rate]** for each calendar day of delay beyond the prescribed date for *Ready-for-Takeover*, until *Ready-for-Takeover* is achieved and certified pursuant to the terms of the *Contract*. Liquidated damages will be assessed as incurred and reflected as deductions from amounts that may be due under any applications for payment pending at the time that such liquidated damages are assessed. 10.6 All liquidated damages that have not been deducted from payments prior to final payment shall be deducted from the final payment to be made by the *Owner* to the *Contractor* pursuant to GC 5.5 FINAL PAYMENT, and any amount of liquidated

		damages in excess of the final payment amount, shall be paid by the *Contractor* to the *Owner*, within 30 calendar days following a written demand by the *Owner* for such payment. 10.7 The liquidated damages payable under this Article A-10 are in addition to and without prejudice to any other remedy, action or any other alternative claim that may be available to the *Owner.*"

END OF AMENDMENTS TO CCDC 2 - 2020

Monsignor Doyle Catholic Secondary School

Limited Designated Substance Audit Report

Project Location:
185 Meyers Road, Cambridge, ON

Prepared for:
Waterloo Catholic District School Board
35 Weber Street West, Kitchener, ON

Prepared by:
MTE Consultants Inc.
520 Bingemans Centre Drive
Kitchener, ON N2B 3X9

February 5, 2024

MTE File No.: 32961-960

Engineers, Scientists, Surveyors.

Contents

Appendices

1.0 INTRODUCTION

1.1 Authorization

MTE Consultants Inc. (MTE) was retained by Waterloo Catholic District School Board (WCDSB) to conduct a Limited Designated Substance Audit for the Monsignor Doyle Catholic Secondary School located at 185 Meyers Drive in Cambridge, Ontario.

The purpose of the audit was to identify the presence of Designated Substances within the building(s) in accordance with Section 30 of the Occupational Health & Safety Act (OHSA), in advance of building renovation. This report meets the requirements of Section 30 of the OHSA and the requirements of Ontario Regulation (O. Reg.) 278/05.

2.0 SCOPE OF WORK

As requested by the Client, this assessment was limited to selected doors outlined in the structural drawings provided by the client. These areas are referred to in the following sections as the “Subject Areas”.

The Scope of Work for this assessment was completed by MTE and included the following activities:

- Review of existing or historical reports and documentation pertaining to Designated Substances within the buildings.
- Visual inspection of accessible locations within the Subject Area to identify the following suspect Designated Substances and Hazardous Building Materials:
  - Asbestos;
  - Lead;
  - Mercury;
  - Silica;
  - Mould; and
  - Polychlorinated Biphenyls limited to fluorescent light ballasts.
- The following Designated Substances are not expected to be present due to the building use or in a form that is hazardous: Acrylonitrile, Arsenic, Benzene, Coke Oven Emissions, Ethylene Oxide, Isocyanates, and Vinyl Chloride.
- Collection of bulk building material samples suspected to contain asbestos.
- Collection of paint scrape samples suspected to contain lead.
- Submission of samples to an accredited and/or qualified laboratory.
- Interpretation of laboratory results.
- Preparation of this report of findings and recommendations.

3.0 METHODOLOGY AND ASSESSMENT CRITERIA

This audit was conducted using visual and laboratory identification methods for the assessment of materials outlined in Section 2.0 and their corresponding location and use. Materials that are determined to be asbestos-containing materials (ACM) are further classified by their friability and condition. The areas outlined in Section 2.0 were inspected and limited to building components, materials and service connections. Notwithstanding that reasonable attempts were made to identify all Designated Substances, the possibility of concealed substances and material exists and may not become visible until substantial demolition has occurred and therefore are currently undocumented. All work was conducted in accordance with industry accepted methods and MTE Standard Operating Procedures and did not include the following:

- Materials indicated in this report as “Potentially Concealed”;
- Locations that may be hazardous to the surveyor (located at heights, electrical equipment, confined spaces);
- Where invasive inspection could cause consequential damage to the property or impair the integrity of the equipment, such as exterior finishes, underground services or components of mechanical equipment;
- Locations concealed by building finishes that require substantial demolition or removal for access or determination of quantities (plumbing or electrical lines);
- Non-permanent items or personal contents, furnishings; and
- Settled dust or airborne agents unless otherwise stated.

4.0 ASSESSMENT AND RESULTS

An inspection of the building was conducted by MTE on January 30, 2024.

The proposed renovation project is expected to disturb selected doors and windows throughout the building.

A description of the building and assessed finishes is provided below. Refer to Section 4.1 for a summary of findings.

Building Element	Description
Construction Date	1976
Addition Date(s)	1995, 2006
Size	154,591 square feet (14,362 square metres)
Levels	1
Exterior Finishes	Not inspected
Building Structure	Not inspected
Building Insulations	Not inspected
Mechanical Systems/Insulations	Not inspected
Electrical/Plumbing Systems	Not inspected
Floor Finishes	Not inspected

Building Element	Description
Wall Finishes	Concrete Block Drywall
Ceiling Finishes	Not inspected

4.1 Findings and Analytical Results

A summary of sampling locations and analytical results are included in **Appendix A**.

Laboratory certificates of analysis are included in **Appendix B**.

A detailed summary of findings and recommended actions is provided in **Table 4.3 of Appendix A.**

4.1.1 Asbestos

Asbestos was used in building materials throughout the years with a peak usage in the 1950s and 1960s. While the manufacture of most ACM was banned in the 1970s, buildings constructed in the 1980s have the potential for ACM as well. In 1986, legislation limiting the use of asbestos in consumer products was introduced.

As part of this inspection, a total of 12 bulk samples of suspect ACM were submitted for asbestos analysis with a total of 10 analyses being performed. The difference between the number of samples submitted and the number of samples analysed can be a function of either the stop-positive method or the requirement of analyzing multiple layers, performed by the laboratory, from a single sample reported as additional samples or subsets of a sample.

Bulk samples were submitted for asbestos analysis to Paracel Laboratories Ltd. (Paracel), in Mississauga, Ontario. Paracel is certified under the Canadian Association of Laboratory Accreditation to perform asbestos analysis of bulk samples (accreditation number A3762). Laboratory analysis was conducted in accordance with the United States Environmental Protection Agency (USEPA), Test Method EPA/600-R-93/116: Method for the Determination of Asbestos in Bulk Building Materials, June, 1993 by Polarized Light Microscopy (PLM) as prescribed by O. Reg. 278/05.

Due to the selective nature of the upcoming renovations, an inspection for vermiculite loose-fill insulation was not conducted in order to avoid aesthetic damage to building finishes. However, based on the building construction date and presence of concrete block walls, invasive inspection should be conducted prior to any further renovations that disturb concrete block walls.

Based on the laboratory results and visual identification, ACM was confirmed present at the time of the inspection. In addition, suspect ACM was either observed or may potentially be concealed by building finishes.

4.1.2 Lead

Lead was historically used in mortar pigments, ceramic glazing; plumbing solder, electrical equipment and electronics solder, in pipe gaskets as packing in cast iron bell and spigot joints of sanitary drains, flexible plumbing connections, flashing panels, acoustical dampeners, phone cable casing and some architectural applications. In buildings constructed after 1990, these applications are no longer applicable outside of specialized uses (shielding for medical imaging etc.).

Paint scrape samples were not collected during this limited DSA as walls are unlikely to be disturbed during the proposed renovation activities. Any further renovations that may disturb paints on various surfaces should be investigated for lead content.

Suspected lead pipe gaskets were visually identified at the time of the inspection.

Based on the visual identification, no lead-containing materials were confirmed present at the time of the inspection. However, lead-containing solder on copper pipe connections or lead pipe gaskets may potentially be concealed in buried lines or wall cavities.

4.1.3 Mercury

Mercury is typically used in building service applications such as fluorescent light tubes, compact fluorescent bulbs, metal halide (sodium halide) lamp bulbs, and neon lights as a vapour. Mercury may exist in thermostats and pipe or mechanical equipment thermometers as a liquid. Mercury is presumed to be present in the above materials.

Mercury-containing materials were visually identified at the time of the inspection.

4.1.4 Silica

Silica is present in rock, stone, soil, and sand. Masonry products such as concrete block, brick, and mortar, as well as concrete and associated products contain silica. Due to its ubiquitous nature, silica was historically used in a wide variety of building materials and is still used today in new construction.

Building materials that are presumed to contain silica were visually identified at the time of the inspection.

4.1.5 Mould

No water damaged or mould growth impacted building materials were observed during the inspection.

4.1.6 Polychlorinated Biphenyls (PCB)

Suspect PCB-containing light ballasts were visually identified during the inspection. All live electrical equipment that could not be properly and safely de-energized was not assessed, therefore light ballasts were not inspected. Light ballasts which were not accessed, will require additional investigation to determine their PCB content when removed from service.

4.2 Conclusions and Recommendations

A detailed summary of recommended actions is provided in **Table 4.3 of Appendix A**.

In accordance with Section 30 of OHSA and Section 8 of O. Reg. 278/05, the Owner must provide a copy of this report to all contractors doing work at the building. The Owner must also provide a copy of this report to all prospective contractors.

Should any additional suspect Designated Substances be discovered during building renovation demolition, work in the vicinity should cease and the materials should not be disturbed until proper notification, testing and abatement instructions are provided. All waste generated as a result of any and all work at the Site must be handled, transported and disposed of in accordance with Ontario Regulation 347 made under the Environmental Protection Act and local by-laws. Based on the assessment findings and analytical results, the following abatement measures are presented. It should be noted that the recommended actions are the minimum

required actions, as prescribed by the appropriate Acts, regulations, guidelines, standards, codes and general best practice measures.

4.2.1 Asbestos

ACMs were identified during the assessment. If these materials, including those deemed or suspected, will be disturbed, or will likely be disturbed, during building maintenance, renovations, construction, or demolition activities, they must be handled and disposed of in accordance with the procedures prescribed by O. Reg. 278/05.

At the time of the audit, all ACM at the building was noted to be in good condition and no abatement action is required at this time.

All asbestos work must be conducted by contractors who are trained in the type of asbestos operations required, and should be overseen by a qualified third party Health, Safety and Environmental professional. In order to conduct Type 3 asbestos operations, contractors must be certified as Asbestos Abatement Workers AAW (Trade code 253W) and Asbestos Abatement Supervisors AAS (Trade code 253S) by The Ministry of Training, Colleges and Universities (Ministry of Advanced Education and Skills Development) as prescribed by Section 20 of O. Reg. 278/05. Suspect or visually confirmed ACM must be deemed to be asbestos-containing and treated as if they contain a type of asbestos other than Chrysotile.

ACM may be present in concealed locations and if construction, renovation, alteration, or maintenance activities are planned, invasive inspections of concealed locations for potential ACM must be performed prior to such activities.

Should any suspect ACM be discovered during the course of construction, renovation, alteration, or maintenance activities, work which disturbs the material must cease immediately. Suspect ACM must be treated as asbestos-containing or sampled prior to disturbance to assess the presence of asbestos.

There are no requirements under current legislation to remove ACM from a building simply because it is present. However, O. Reg. 278/05 requires that an Asbestos Management Program be implemented and maintained by the owner/employer where ACM is identified or suspected present.

4.2.2 Lead

No lead-containing materials were confirmed present during the assessment, however, low level lead-containing paint is potentially present and the following general procedures are recommended as a precautionary measure as per the Environmental Abatement Council of Canada's (EACC) *Lead Guideline for Construction, Renovation, Maintenance or Repair (October 2014)*:

- General dust control;
- The washing of hands and face at on-site facilities;
- No smoking, eating, chewing gum or drinking in the work area; and,
- No removal of painted surfaces by means of abrasive blasting.

4.2.3 Mercury

Mercury-containing materials were identified. All mercury containing materials or sources should be removed, intact, prior to any work which may disturb or damage them and cause worker exposure to mercury liquid and/or vapour.

On-site crushing of mercury-containing materials should not occur. Care should be taken to ensure safe storage of the above until recycling or disposal can be coordinated. Under current legislation, mercury waste requires handling and disposal in accordance with Ontario Regulation 490/09 of the OHSA and Ontario Regulation 347 of the Environmental Protection Act.

4.2.4 Silica

Silica is presumed to be present; therefore, special requirements for management and handing are required. The contractor should also consult MOL Occupational Health and Safety Branch's Guideline: *Silica on Construction Projects* (April 2011) for the procedures and methods required to remove and dispose of silica-containing materials.

4.2.5 Mould

No water damage or suspect mould growth was observed during the assessment therefore no special management and handling requirements are warranted.

4.2.6 Polychlorinated Biphenyls (PCB)

Suspect PCB-containing fluorescent light ballasts were identified but could not be conclusively classified as PCB-containing or non-PCB-containing.

It is the responsibility of the owner to inspect or ensure the inspection of all light ballasts as they are removed from service to make certain they are properly classified as PCB-containing or non-PCB containing. Fixtures will require dismantling to access date stamps (located on the back of the ballast) in order to be correctly classified in accordance with Environment Canada's document "*Identification of Lamp Ballasts Containing PCBs, Report EPS 2/CC/2 (revised), August 1991"*.

Statutory Orders and Regulations (SOR)/2008-273, the *PCB Regulations*, made under the *Canadian Environmental Protection Act,* permits continued use of in-service PCB-containing light ballasts until the end of service life or until December 31, 2025.

5.0 LIMITATIONS

Services performed by **MTE Consultants Inc.** (MTE) were conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the Environmental Engineering & Consulting profession. No other representation expressed or implied as to the accuracy of the information, conclusions or recommendations is included or intended in this report.

This report was completed for the sole use of MTE and the Client. It was completed in accordance with the approved Scope of Work referred to in Section 2.0. As such, this report may not deal with all issues potentially applicable to the site and may omit issues that are or may be of interest to the reader. MTE makes no representation that the present report has dealt with all-important environmental features, except as provided in the Scope of Work. All findings and conclusions presented in this report are based on site conditions, as they existed during the time period of the investigation. This report is not intended to be exhaustive in scope or to imply a risk-free facility.

Any use which a third party makes of this report, or any reliance on, or decisions to be made based upon it, are the responsibility of such third parties. MTE accepts no responsibility for liabilities incurred by or damages, if any, suffered by any third party as a result of decisions made or actions taken, based upon this report. Others with interest in the site should undertake their own investigations and studies to determine how or if the condition affects them or their plans.

It should be recognized that the passage of time might affect the views, conclusions and recommendations (if any) provided in this report because environmental conditions of a property can change. Should additional or new information become available, MTE recommends that it be brought to our attention in order that we may re-assess the contents of this report.

All of which is respectfully submitted,

MTE Consultants Inc.

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Appendix A

Tables

TABLE 4.1: BULK ASBESTOS SAMPLING SUMMARY					
Sample #	**Location**	**Material Description**	**Asbestos Content (%)**	**Fibre Type**	**Is Material ACM**
2012 - Limited Designated Substance Update					
32961-500-S01A	Custodial	2'x4' Short Fissure Random Pinhole (Orange Backing)	ND	-	No
32961-500-S01B	Custodial	2'x4' Short Fissure Random Pinhole (Orange Backing)	ND	-	No
32961-500-S01C	Custodial	2'x4' Short Fissure Random Pinhole (Orange Backing)	ND	-	No
32961-500-S02A	Room 86	1x1 Acoustic Wall Tiles	ND	-	No
32961-500-S02B	Room 86	1x1 Acoustic Wall Tiles	ND	-	No
32961-500-S02C	Room 86	1x1 Acoustic Wall Tiles	ND	-	No
32961-500-S03A	Co-op	Drywall Joint Compound	ND	-	No
32961-500-S03B	Co-op	Drywall Joint Compound	ND	-	No
32961-500-S03C	Music Room Hall	Drywall Joint Compound	ND	-	No
32961-500-S04A	Corridor	2'x4' Textured Ceiling Tile	ND	-	No
32961-500-S04B	Corridor	2'x4' Textured Ceiling Tile	ND	-	No
32961-500-S04C	Corridor	2'x4' Textured Ceiling Tile	ND	-	No
32961-500-S05A	Corridor	2'x4' Short Fissure Random Pinhole	ND	-	No
32961-500-S05B	Corridor	2'x4' Short Fissure Random Pinhole	ND	-	No
32961-500-S05C	Corridor	2'x4' Short Fissure Random Pinhole	ND	-	No
32961-500-S06A	Exterior	Grey/White Building Caulking	ND	-	No
32961-500-S06B	Exterior	Grey/White Building Caulking	ND	-	No
32961-500-S06C	Exterior	Grey/White Building Caulking	ND	-	No
32961-500-S07A	Exterior	Red Building Caulking	ND	-	No
32961-500-S07B	Exterior	Red Building Caulking	ND	-	No
32961-500-S07C	Exterior	Red Building Caulking	ND	-	No
32961-500-S01A	Custodial	2'x4' Short Fissure Random Pinhole (Orange Backing)	ND	-	No
32961-500-S01B	Custodial	2'x4' Short Fissure Random Pinhole (Orange Backing)	ND	-	No
32961-500-S01C	Custodial	2'x4' Short Fissure Random Pinhole (Orange Backing)	ND	-	No
2014 - Limited Designated Substance Update					
S01A	Room 9	12" x 12" Pink Dense Fleck Vinyl Floor Tiles	Tile: ND	-	No
			Mastic: ND	-	No
S01B	Room 9		Tile: ND	-	No
			Mastic: ND	-	No
S01C	Room 9		Tile: ND	-	No
			Mastic: ND	-	No
S02A	Room 8	12" x 12" Pink with White/Grey Streak Vinyl Floor Tiles	Tile: ND	-	No
			Mastic: ND	-	No
S02B	Room 8		Tile: ND	-	No
			Mastic: ND	-	No
S02C	Room 8		Tile: ND	-	No
			Mastic: ND	-	No
S03A	Room 11	Drywall Joint Compound	ND	-	No
S03B	Room 8		ND	-	No
S03C	Room 9a		ND	-	No
S04A	Room 8	Window Caulking	ND	-	No
S04B	Room 8		ND	-	No
S04C	Room 8		ND	-	No
S05A	**Room 82a**	**Beige and Brown Pebble Vinyl Sheet Flooring**	Sheet: <MDL	-	No
			Paper: 37.14	**Chrysotile**	**Yes**
S05B	**Room 82a**		Sheet: <MDL	-	No
			Paper: NA	**Chrysotile**	**Yes**
S05C	**Room 82a**		Sheet: <MDL	-	No
			Paper: NA	**Chrysotile**	**Yes**

TABLE 4.1: BULK ASBESTOS SAMPLING SUMMARY					
Sample #	**Location**	**Material Description**	**Asbestos Content (%)**	**Fibre Type**	**Is Material ACM**
2016 - Asbestos Audit Update					
S01A	89	12x12 Beige with Black Dot	Tile: ND	-	No
			Mastic: ND	-	No
S01B			Tile: ND	-	No
			Mastic: ND	-	No
S01C			Tile: ND	-	No
			Mastic: ND	-	No
S02A	89	12x12 Pink with Black Dot VFT	ND	-	No
S02B			ND	-	No
S02C			ND	-	No
S03A	89	12x12 Grey with Black Dot	ND	-	No
S03B			ND	-	No
S03C			ND	-	No
S04A	20	12x12 Beige Dense Fleck	Tile: ND	-	No
			Mastic: ND	-	No
S04B			Tile: ND	-	No
			Mastic: ND	-	No
S04C			Tile: ND	-	No
			Mastic: ND	-	No
S05A	86	12x12 Light Grey Dense Fleck	ND	-	No
S05B			ND	-	No
S05C			ND	-	No
S06A	86	12x12 Dark Grey Dense Fleck	Tile: ND	-	No
			Mastic: ND	-	No
S06B			Tile: ND	-	No
			Mastic: ND	-	No
S06C			Tile: ND	-	No
			Mastic: ND	-	No
2017 Designated Substance Audit					
S01A	Roof C	4 Ply, Mastic on Cellulose, Mastic on Drywall	ND	-	No
S01B	Roof E	4 Ply, Mastic on Cellulose, Mastic on Drywall	ND	-	No
S01C	Roof G	4 Ply, Mastic on Cellulose, Mastic on Drywall	ND	-	No
S02A	Roof I	4 Ply, Mastic on Cellulose, Mastic on Fibreglass, Mastic on Drywall	ND	-	No
S02B	Roof M	4 Ply, Mastic on Cellulose, Mastic on Fibreglass, Mastic on Drywall	ND	-	No
S02C	Roof L	4 Ply, Mastic on Cellulose, Mastic on Fibreglass, Mastic on Drywall	ND	-	No
S02D	Roof K	4 Ply, Mastic on Cellulose, Mastic on Fibreglass, Mastic on Drywall	ND	-	No
S02E	Roof H2	4 Ply, Mastic on Cellulose, Mastic on Fibreglass, Mastic on Drywall	ND	-	No
2023 - Asbestos Audit Update - Portables					
S03A	ESL-13	12”x12” Vinyl Floor Tile – Grey with Dark Grey Fleck	ND	-	No
S03B	ESL-13	12”x12” Vinyl Floor Tile – Grey with Dark Grey Fleck	ND	-	No
S03C	ESL-13	12”x12” Vinyl Floor Tile – Grey with Dark Grey Fleck	ND	-	No
2024 February 5 - Designated Substance Audit					
S01A	**Corridor M**	**Door Window Pane Sealant (1 Small Panel)**	**2**	**Chrysotile**	**Yes**
S01B	**Corridor M**	**Door Window Pane Sealant (1 Small Panel)**	**NA**	**Chrysotile**	**Yes**
S01C	**Corridor M**	**Door Window Pane Sealant (1 Small Panel)**	**NA**	**Chrysotile**	**Yes**
S02A	Corridor M	Door Window Pane Sealant (2 Big Panels)	ND	-	No
S02B	Corridor M	Door Window Pane Sealant (2 Big Panels)	ND	-	No
S02C	Corridor M	Door Window Pane Sealant (2 Big Panels)	ND	-	No
S03A	Corridor L	Door Window Pane Sealant (2 Small Panels)	ND	-	No
S03B	Corridor L	Door Window Pane Sealant (2 Small Panels)	ND	-	No
S03C	Corridor L	Door Window Pane Sealant (2 Small Panels)	ND	-	No
S04A	Room 87	Door Window Pane Sealant (1 Big Panel)	ND	-	No
S04B	**Room 87**	**Door Window Pane Sealant (1 Small Square)**	**2**	**Chrysotile**	**Yes**
S04C	Room 64C	Door Window Pane Sealant (1 Small Panel Brown Trim)	ND	-	No

NA: Not Analyzed due to stop positive method **ND**: No asbestos fibres detected above the laboratory minimum detection limit

A bulk material sample containing 0.5% or more asbestos therefore establishes that material as asbestos-containing. In accordance with Table 1 of O. Reg. 278/05, a minimum number of samples for the material to be classified as non asbestos. A homogeneous material is defined by O. Reg. 278/05 “as material that is uniform in colour and texture”. Homogeneous samples are identified by an alphabetical suffix to sample names to represent multiple samples of a homogeneous material. When a homogeneous material is analysed it is determined to be asbestos-containing upon the first positive detection of asbestos equal to or greater than 0.5%. Subsequent samples of the same material are therefore not analysed. Some bulk samples are comprised of multiple layers and as such will require multiple analysis. In such cases each layer is isolated at the laboratory and analysed individually to determine asbestos content. As a result the laboratory may report additional samples beyond the submitted number of samples or include multiple analyses as subsets within a sample.

TABLE 4.2: PAINT SAMPLE LOCATIONS AND ANALYTICAL SUMMARY

Sample Name	Room/Location	Painted Surface/ Material	Paint Colour	Lead Content ug/g	Lead Based
32961-500-L01	Music Rooms	Wall	Grey	207	No
32961-500-L02	Music Rooms	Wall / Door Trim	Red	<8	No
32961-500-L03	Music Rooms	Wall	White/Beige	27	No

- Shaded rows indicate positive results and paint classification as lead-containing.
- ND – Non-Detect: No lead detected above laboratory method detection limits.

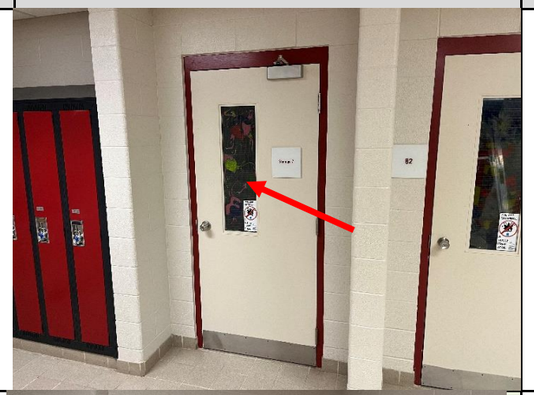
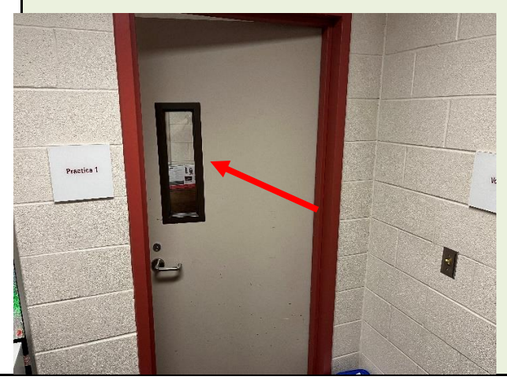
Table 4.3 - Summary of Designated Substances and Recommended Actions					
Monsignor Doyle Catholic Secondary School / 185 Meyers Road, Cambridge, ON					
Material	**Location(s)**	**Material Description**	**Approximate Quantity**	**Photograph**	**Recommended Actions Prior to and During Demolition**
Asbestos Non-Friable	Corridor M, Door Window, Interior of Building	Interior Black Sealant on Door Window Pane	~1m per door (20 doors total)		Removal in accordance with O. Reg. 278/05 as a Type 1 Operation
Asbestos Non-Friable	Room 87, Door Window, Interior of Building	Interior Black Sealant on Door Window Pane	<1m per door (2 doors total)		Removal in accordance with O. Reg. 278/05 as a Type 1 Operation
Suspected Asbestos Non-Friable	Rom 64C, (Non sampled location)	Interior Black Sealant on Door Window Pane	<1m per door (1 door total)		Sample prior to removal to confirm ACM content or assume ACM Removal in accordance with O. Reg. 278/05 based on Sample results as a Type 1 Operation

Table 4.3 - Summary of Designated Substances and Recommended Actions					
Monsignor Doyle Catholic Secondary School / 185 Meyers Road, Cambridge, ON					
Material	**Location(s)**	**Material Description**	**Approximate Quantity**	**Photograph**	**Recommended Actions Prior to and During Demolition**
Potentially Concealed Asbestos	Concealed by Floor/Wall/Ceiling Finishes	Insulation on Pipe Fittings	-	-	Invasive sampling prior to demolition or disposal activities, if sampling confirms as ACM, removal in accordance with O. Reg. 278/05
Potentially Concealed Asbestos	Concealed Beneath Flooring Finishes	Floor Paper, Mastics and Levelling compounds	-	-	Invasive sampling prior to maintenance/renovations/construction/demolition activities, if sampling confirms as ACM, removal in accordance with O. Reg. 278/05
Potentially Concealed Asbestos	Doors Throughout Building	Door Core Insulation	-	-	Invasive inspection prior to demolition/disposal activities, if present and sampling confirms as ACM, removal in accordance with O. Reg. 278/05
Potentially Concealed Asbestos	Wall Cavities, Attic Spaces, Chimney Liners	Vermiculite Loose-Fill Insulation	-	-	Invasive inspection prior to demolition activities, if present and sampling confirms as ACM, removal in accordance with O. Reg. 278/05
Potentially Concealed Asbestos	Concealed by Wall/Ceiling/Exterior Finishes	Asbestos Cement (Transite) Sheets	-	-	In place management in accordance with O. Reg. 278/05
Potentially Concealed Asbestos	Underground Piping Systems	Asbestos Cement (Transite) Pipe	-	-	Invasive sampling prior to demolition or disposal activities, if sampling confirms as ACM, removal in accordance with O. Reg. 278/05

Table 4.3 - Summary of Designated Substances and Recommended Actions					
Monsignor Doyle Catholic Secondary School / 185 Meyers Road, Cambridge, ON					
Material	**Location(s)**	**Material Description**	**Approximate Quantity**	**Photograph**	**Recommended Actions Prior to and During Demolition**
Potentially Concealed Lead	Concealed on Sanitary/Waste Lines	Lead Packed Pipe Gaskets	-	-	Invasive inspection prior to demolition activities. If confirmed present, removal in accordance with EACO's Lead Guideline as a: Class 1 Operation
Mercury	Throughout Interior of Building in Light Fixtures	Fluorescent Light Tubes in Light Fixtures	-	-	Prior to demolition, intact removal and storage with no on-site crushing and disposal of materials to a licensed facility
Mercury	Throughout Interior of Building in Light Fixtures	Compact Fluorescent Bulbs Metal Halide (sodium halide) Lamp Bulbs Neon Lights	-	-	Intact removal and storage with no on-site crushing and disposal of materials to a licensed facility
Silica	Throughout Interior and Exterior of Building	Brick and Mortar, Terrazzo, Stucco, Refractory Brick; Concrete, Ceramic Tile and Grout, Granite, Sandstone, Quartzite and Slate, Fill and Hardscaping	-	-	Conduct any work during renovation, demolition activities in accordance with the Ministry of Labour Guideline Silica on Construction Projects
PCBs	Light Fixtures Throughout	Fluorescent Light Ballasts in Light Fixtures	-	-	Removal to demolition work and assess each ballast upon removal, ensure appropriate storage and disposal of any PCB-containing ballasts in accordance with SOR/2008-273 and O. Reg. 362

Notes:
1) A copy of this report should be provided to all prospective contractors prior to quotation, in accordance with Section 30 of the Occupational Health and Safety Act.
2) Recommended actions are the minimum required actions, as prescribed by the appropriate Acts, regulations, guidelines, standards, codes and general best practice measures. Prior to demolition, the Contractor may choose to alter the approach and combine or break out sections of work. This is acceptable provided that the appropriate Acts, regulations, guidelines, standards and codes are followed and afford protection for the health and safety of workers, occupants and the public that is at least equal to the protection that would be provided by complying with the minimum requirements.
3) All waste generated is subject to characterization and disposal in accordance with Ontario Regulation 347.

Appendix B

Laboratory Certificates of Analysis

PARACEL LABORATORIES LTD.
TRUSTED. RESPONSIVE. RELIABLE.

15 - 6800 Kitimat Rd
Mississauga, ON, L5N 5M1
1-800-749-1947
www.paracellabs.com

Certificate of Analysis

MTE Consultants Inc. (Kitchener)

520 Bingemans Centre Dr.
Kitchener, ON N2B 3X9
Attn: Paul Semeniuk

Client PO: 32961-960
Project: 32961-960 Monsignor Doyle CSS DSA
Custody:

Report Date: 5-Feb-2024
Order Date: 1-Feb-2024

Revised Report

Order #: 2405401

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
2405401-01	S01A
2405401-02	S01B
2405401-03	S01C
2405401-04	S02A
2405401-05	S02B
2405401-06	S02C
2405401-07	S03A
2405401-08	S03B
2405401-09	S03C
2405401-10	S04A
2405401-11	S04B
2405401-12	S04C

Approved By:

Emma Diaz

Senior Analyst

Certificate of Analysis

Report Date: 05-Feb-2024

Client: MTE Consultants Inc. (Kitchener)

Order Date: 1-Feb-2024

Client PO: 32961-960

Project Description: 32961-960 Monsignor Doyle CSS DSA

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel ID	Sample Date	Colour	Description	Asbestos Detected	Material Identification	% Content
2405401-01	30-Jan-24	Black	Sealant	**Yes**	**Client ID: S01A**	
					Chrysotile	2
					Non-Fibers	98
2405401-02	30-Jan-24	Black	Sealant		**Client ID: S01B**	
					not analyzed, positive stop	
2405401-03	30-Jan-24	Black	Sealant		**Client ID: S01C**	
					not analyzed, positive stop	
2405401-04	30-Jan-24	Grey	Sealant	No	**Client ID: S02A**	
					Non-Fibers	100
2405401-05	30-Jan-24	Grey	Sealant	No	**Client ID: S02B**	
					Non-Fibers	100
2405401-06	30-Jan-24	Grey	Sealant	No	**Client ID: S02C**	
					Non-Fibers	100
2405401-07	30-Jan-24	Grey	Sealant	No	**Client ID: S03A**	
					Non-Fibers	100
2405401-08	30-Jan-24	Grey	Sealant	No	**Client ID: S03B**	
					Non-Fibers	100
2405401-09	30-Jan-24	Grey	Sealant	No	**Client ID: S03C**	
					Non-Fibers	100
2405401-10	30-Jan-24	Grey	Sealant	No	**Client ID: S04A**	
					Non-Fibers	100
2405401-11	30-Jan-24	Black	Sealant	**Yes**	**Client ID: S04B**	
					Chrysotile	2
					Non-Fibers	98

PARACEL LABORATORIES LTD.

Order #: 2405401

Certificate of Analysis

Report Date: 05-Feb-2024

Client: MTE Consultants Inc. (Kitchener)

Order Date: 1-Feb-2024

Client PO: 32961-960

Project Description: 32961-960 Monsignor Doyle CSS DSA

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel ID	Sample Date	Colour	Description	Asbestos Detected	Material Identification	% Content
2405401-12	30-Jan-24	Black	Sealant	No	**Client ID: S04C**	
					Cellulose	5
					Non-Fibers	95

** Analytes in bold indicate asbestos mineral content.

Analysis Summary Table

Analysis	Method Reference/Description	Lab Location	Lab Accreditation	Analysis Date
Asbestos, PLM Visual Estimation	AppE to SubE of 40CFR Part763 and EPA/600/R-93/116	1 - Mississauga	CALA 3762	2-Feb-24

Mississauga Lab: 15 - 6800 Kitimat Rd Mississauga, Ontario, L5N 5M1

Work Order Revisions | Comments

REVISION 1 - This report includes additional analysis as per the client.

PARACEL LABORATORIES LTD

2405401

ad Office
0-2319 St. Laurent Blvd.
tawa, Ontario K1G 4J8
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paracel@paracellabs.com

Chain of Custody
(Lab Use Only)

Page 1 of 1

Client Name:	MTE Consultants Inc.	Project Reference:	Monsignor Doyle CSS DSA
Contact Name:	Paul Semeniuk	Quote #:	22-084 MTE Standing Offer
Address:	520 Bingmans Centre Drive Kitchener ON N2B 3X9	PO #:	32961-960
Telephone:	519-743-6500	Email Address:	jscozzafava@mte85.com psemeniuk@mte85.com zhopkins@mte85.com

Turnaround Time:

- ☐ Immediate
- ☐ 4 Hour
- ☐ 8 Hour
- ☐ 1 Day
- ☒ 2 Day
- ☐ 3 Day
- ☐ Regular

Date Required: EOD Friday Feb 2/24

ASBESTOS & MOLD ANALYSIS

Matrix: ☐ Air ☒ Bulk ☐ Tape Lift ☐ Swab ☐ Other **Regulatory Guideline:** ☒ ON ☐ QC ☐ AB ☐ SK ☐ Other:

Analyses: ☐ Microscopic Mold ☐ Culturable Mold ☐ Bacteria GRAM ☐ PCM Asbestos ☒ PLM Asbestos ☐ Chatfield Asbestos ☐ TEM Asbestos

Paracel Order Number: 2405401

	Sample ID	Sampling Date	Air Volume (L)	Analysis Required	Asbestos - Bulk: Identify Distinct Building Materials to Be Analyzed (if not specified, all materials identified will be analyzed) *	Positive Stop?
1	Please see attached					☐
2						☐
3						☐
4						☐
5						☐
6						☐
7						☐
8						☐
9						☐
10						☐
11						☐
12						☐

* If left blank, all distinct materials identified in the samples will be analyzed and reported separately as per EPA 600/R-93/116. Additional charges will apply.

Comments:

Method of Delivery: Purolator

Relinquished By (Sign):	Received at Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Zack Hopkins			
Date/Time: Jan 31/24 11:30am	Date/Time:	Date/Time: Feb 1/24	Date/Time: Feb 1/24

12.20 1223

PARACEL LABORATORIES LTD. ASBESTOS ANALYSIS						
Sample ID	Location	Matrix Description	Sampling Date	Positive Stop (Y/N)	Layered? (Y/N)	Layer Descriptions
S01A	Corridor M	Door Window Pane Sealant (1 Small Panel)	1/30/2024	y	n	
S01B	Corridor M	Door Window Pane Sealant (1 Small Panel)	1/30/2024	y	n	
S01C	Corridor M	Door Window Pane Sealant (1 Small Panel)	1/30/2024	y	n	
S02A	Corridor M	Door Window Pane Sealant (2 Big Panels)	1/30/2024	y	n	
S02B	Corridor M	Door Window Pane Sealant (2 Big Panels)	1/30/2024	y	n	
S02C	Corridor M	Door Window Pane Sealant (2 Big Panels)	1/30/2024	y	n	
S03A	Corridor L	Door Window Pane Sealant (2 Small Panels)	1/30/2024	y	n	
S03B	Corridor L	Door Window Pane Sealant (2 Small Panels)	1/30/2024	y	n	
S03C	Corridor L	Door Window Pane Sealant (2 Small Panels)	1/30/2024	y	n	
S04A	Room 87	Door Window Pane Sealant (1 Big Panel)	1/30/2024	y	n	
S04B	Room 87	Door Window Pane Sealant (1 Small Square)	1/30/2024	y	n	
S04C	Room 64C	Door Window Pane Sealant (1 Small Panel Brown Trim)	1/30/2024	y	n	

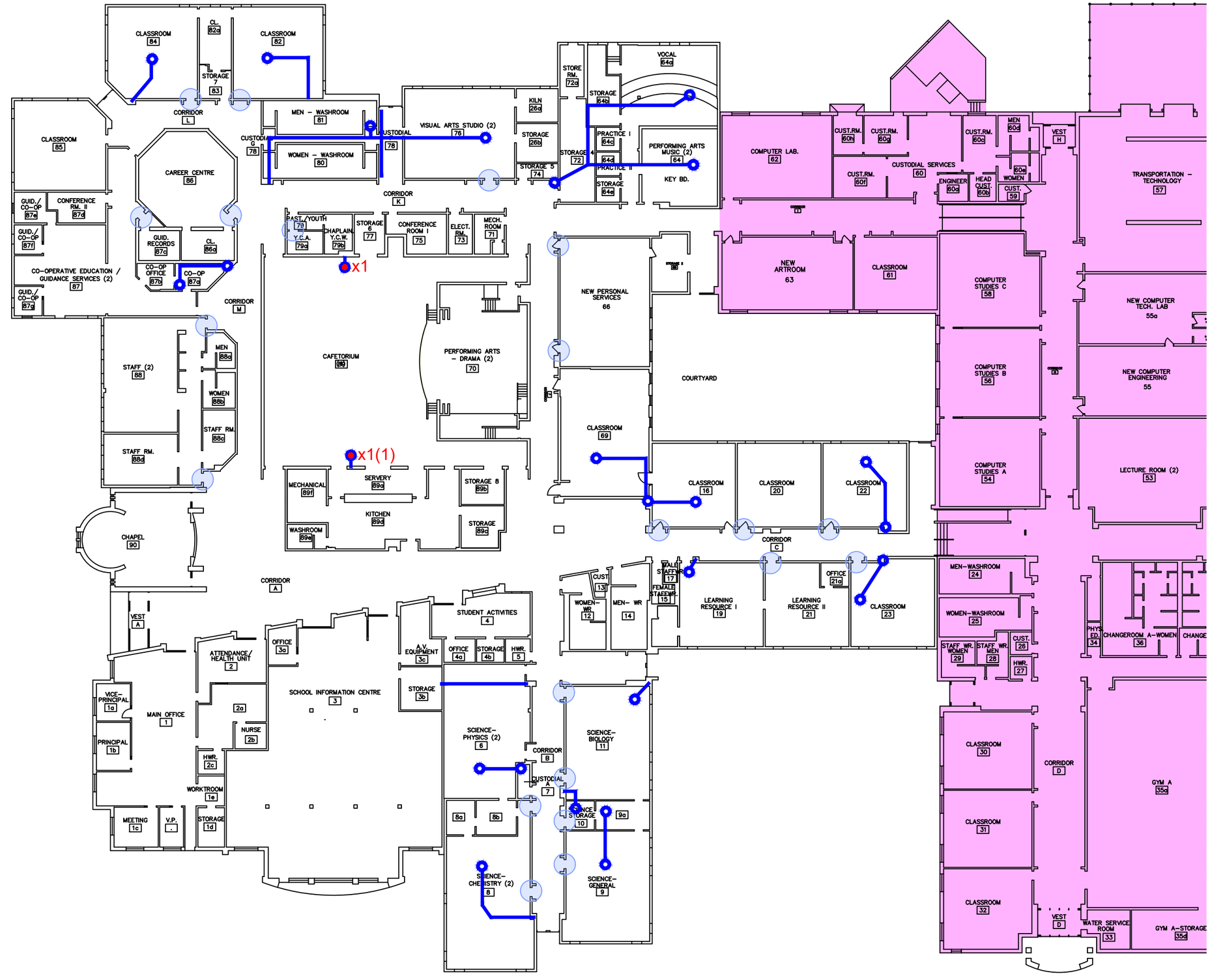
Feb 1/24 12-20

Feb 1/24 12 23

Paracel ID: 2405401

Appendix C

Figures



NOTES:

ALL DRAWINGS TO BE REFERENCED WITH THE ASSOCIATED REPORT, LOCATIONS AND QUANTITIES ARE APPROXIMATE.

ALL KNOWN OR SUSPECT ASBESTOS-CONTAINING MATERIALS ARE NOT DEPICTED ON THIS DRAWING. REFER TO THE REPORT FOR A COMPLETE LIST OF IDENTIFIED MATERIALS.

THIS FIGURE IS COLOUR DEPENDENT, PHOTOCOPIES MAY ALTER INTERPRETATION OF THE FIGURE. ALWAYS REFER TO ORIGINAL DRAWINGS AND REPORT.

Legend

- 13 Location Number
- No Access
- Post 1995 Construction

Asbestos-Containing Materials (ACM):

- Floor Tile
- Rolled Flooring
- Ceiling Tile
- Friable Soft Textured Ceiling
- Non-Friable Hard Textured Ceiling
- Spray-On Fire Proofing
- Transite (Asbestos Cement) Paneling
- Duct Insulation
- x2(1) Pipe Fitting Insulation w Quantity (Brackets Indicate # of Damaged Fittings)
- Pipe Insulation (Vertical and Horizontal)
- Transite (Asbestos Cement) Pipe (Vertical and Horizontal)
- x2(1) Duct Expansion Joints w Quantity (Brackets Indicate # of Damaged Joints)
- Friable Debris
- Door Window Pane Sealant

MTE
Ph. (519) 743-6500 www.mte85.com

CLIENT
WATERLOO CATHOLIC DISTRICT SCHOOL BOARD

PROJECT
2024 LIMITED DESIGNATED SUBSTANCE AUDIT

DRAWING
MONSIGNOR DOYLE CATHOLIC SECONDARY SCHOOL (Cambridge)

FIRST LEVEL

Project Manager	PXS	Date	February 2024
Design By	WCDSB	Project No.	32961-960
Drawn By	SGL	Drawing No.	1.0
Scale	N.T.S.		

Project Name:	Monsignor Doyle CSS Renovation	**MTE File No.:**	32961-960
Client:	Waterloo Catholic District School Board	**Date:**	February 9, 2024

Asbestos Abatement

1.0 General

1.1 General Requirements

1.1.1 Read this section in conjunction with all other sections so as to conform to Division 1, and the General Requirements of the project.

1.1.2 Inform all sub-trades of the presence of Asbestos Containing Materials identified in the documents.

1.1.3 The Contractor involved directly or indirectly with the removal, handling, management, transportation and disposal of Asbestos Containing Materials and Asbestos Waste in any and all aspects shall take all reasonable precautions, due care and diligence to prevent asbestos from becoming airborne and shall take all reasonable precautions to control and prevent the spread of airborne asbestos in the event of an incident, accidental release or loss of containment. Cost of additional work by the Contractor and/or Consultant to rectify unsatisfactory conditions, shall be charged to the Contractor.

1.1.4 No allowance will be made for any difficulties encountered or any expenses incurred on account of any conditions of the site or any item existing thereon that is visible or known or can be reasonably anticipated.

1.1.5 The Contractor shall be prepared to respond throughout the duration of the project in order to repair, encapsulate remove or otherwise manage additional asbestos as required. The abatement contractor shall provide an emergency contact phone number and be on call to provide emergency services.

1.1.6 The abatement contractor shall control all water migration (including leakage and spillage) from the abatement work area to areas below/adjacent. It is the responsibility of the contractor to protect all items from damage caused by water used in the abatement work area(s). The abatement contractor must immediately mitigate any and all damage to the satisfaction of the owner and Consultant resulting from water used in the abatement work area(s) at their own expense. No allowances shall be made as a result of lost time, resources, materials or equipment.

1.1.7 It is the Contractor's responsibility to ensure all construction aspects of the project are conducted in accordance with applicable construction safety legislation, regulations and general approved practice. This includes, but is not limited to; all means, methods, techniques, sequences, procedures, safety programs and precautions used.

1.2 Definitions

"Asbestos Containing Material": Materials that contain 0.5 percent or more asbestos by dry weight.

"Asbestos Waste": is material that contains asbestos in more than a trivial amount or proportion as defined by Ontario Regulation 347 as amended by Ontario Regulation 558/00 and includes the following:

a) Solid or liquid waste that results from the removal of asbestos-containing construction or insulation materials and contains asbestos;

b) Commercial waste and/or domestic waste that contains asbestos;

c) Non-hazardous solid industrial waste that contains asbestos; and

d) Materials determined or deemed contaminated with asbestos.

"Authorized Visitors": The Consultant or their representative, Architect, Owner's representatives, and persons representing regulatory agencies.

"The Consultant and their representatives

"Consultant": Owner's Representative providing inspection and air monitoring.

MTE Consultants Inc., 520 Bingemans Centre, Kitchener, Ontario

Phone: (519) 743-6500 Fax: (519) 743-6513

Contacts: Jason Scozzafava(cell #226-755-3383)

"Contractor": Contractors or Sub-Contractor performing work included in this specification.

"Encapsulation": refers to the application of canvas and lagging paste to asbestos containing materials.

"Friable material": means material that:

(a) When dry, can be crumbled, pulverized or powdered by hand pressure or

(b) Is crumbled, pulverized or powdered.

"TWAEV": Refers to the Time Weighted Average Exposure Value of 0.1 fibres per cubic centimetre of air (fibres/cc) of any form of asbestos whether individually or collectively as stated in Ontario Regulation 837/90 as amended by Ontario Regulation 386/00.

"HEPA or P 100": High Efficiency Particulate Aerosol filter that is at least 99.97 per cent efficient in collecting and retaining a 0.3 micrometer aerosol and includes N 100, R 100, P100, HE or HEPA filters.

2.0 Scope of Work

2.1 Reports

2.1.1 Refer to the following documents regarding Designated Substances within the work areas. The survey and documentation of Designated Substances is required by Section 30 of the Occupational Health and Safety Act.

2.1.2 "Limited Designated Substance Audit Report – Monsignor Doyle Catholic Secondary School, 35 Weber Street West, Kitchener, Ontario" dated February 5, 2024, prepared by MTE Consultants Inc.

2.2 Summary of Materials

2.2.1 Refer to Figure 1.0 included as an attachment to this document for locations of asbestos-containing materials (ACM) within the work area (s). Quantities and locations of ACM shown on the drawing are estimates only and have been provided as a courtesy.

2.2.2 Asbestos cement (Transite) roof drains are present within ceiling spaces of the school interior. If this material will be disturbed by the planned work, follow Type 1 procedures for any impacts or removal requirements.

2.2.3 Materials to be removed within the work area(s) comprises of, but may not necessarily be limited to the following:

Table 1: Summary of Materials to be Removed

Location	Asbestos-Containing Material	Asbestos Operation	Asbestos Operation
Corridor M Interior of Building	Interior Black Sealant on Door Windowpane	Type 1	Removal using non-powered hand tools in conjunction with dust suppression.
Room 87, Door Window, Interior of Building	Interior Black Sealant on Door Windowpane	Type 1	Removal using non-powered hand tools in conjunction with dust suppression.
Room 64C, (Non sampled location)	Interior Black Sealant on Door Windowpane	Type 1	Material is suspected to be asbestos. Additional sampling could be conducted to determine Asbestos content for remediation requirements. Assume the material is ACM unless sampled. Removal using non-powered hand tools in conjunction with dust suppression.

ACM may be present in concealed locations and become apparent during construction, renovation, alteration, or maintenance activities. Should any suspect ACM be discovered during the course of regular construction, renovation, alteration, or maintenance activities, work should cease and the materials should not be disturbed. Suspect ACM must be treated as asbestos-containing or sampled and proven to not contain asbestos. Any activities that require disturbance of ACM must be performed in accordance with Ontario Regulation 278/05. It is the responsibility of the constructor to provide supervision and training and undertake due care and diligence in situations where such discoveries can and would occur.

2.2.4 Upon discovery of suspect or known ACM not identified or referred to in Section 2.0 or the reports referenced, the constructor shall immediately notify, orally and in writing; an inspector at the office of the Ministry of Labour nearest the workplace, the owner/representative, the Contractor and the joint health and safety committee or the health and safety representative, if any, for the workplace. The written notice shall include the following:

a) The name and address of the person giving the notice;

b) The name and address of the owner of the place where the work will be carried out;

c) The municipal address or other description of the place where the work will be carried out sufficient to permit the inspector to locate the place, including the location with respect to the nearest public highway;

d) A description of the work that will be carried out;

e) The starting date of the work that will be carried out; and

f) The name and address of the supervisor in charge of the work.

2.2.5 No work that is likely to involve handling, dealing with or disturbing or removing the discovered materials shall be done unless it has been determined whether the material is asbestos-containing; or, the work is performed in accordance to Ontario Regulation 278/05 as though the materials were asbestos-containing materials and, in the case of sprayed-on friable material, as though it contained a type of asbestos other than Chrysotile.

2.3 Scheduling

2.3.1 Schedule to be determined by Owner

2.4 Inspection

2.4.1 From project set-up to completion of clean-up, the Asbestos Abatement Consultant will be present on both inside and outside of the work area.

2.4.2 Inspections will be conducted to confirm the Contractor's compliance. Failure to comply with the specified requirements may result in a stoppage of work at no additional cost to the Owner.

2.4.3 Promptly notify the Consultant of any ACM or potential ACM discovered during the work and not apparent in the audit, specifications or site meeting(s). DO NOT disturb such material until given direction by the Consultant. Assume such material to contain asbestos of a type other than Chrysotile until proven otherwise. Failure to notify the Consultant of ACM prior to removal will result in the dispute of payment of fees for any extra work performed.

2.4.4 The following inspections will be conducted at the Contractor's/Owner's cost. Provide Consultant with minimum of 24 Hours verbal notice:

2.4.5 Final Visual Clearance: conducted after removal of all ACM, and application of lock down agent to confirm cleanliness. Additional labour or materials expended by the Asbestos Abatement Contractor to provide satisfactory performance to the level specified shall be at no additional cost.

2.5 Submittal Section

2.5.1 Refer to the requirements include in the Front End document

2.5.2 Submit to the Consultant upon request:

- AAW and AAS certification and relevant training for all workers/supervisors on-site and involved in the project;
- Names, credentials and contact information of Site superintendent and shift supervisors;
- All necessary permits, certificates, and documents for all aspects of the work to be completed;

- Ministry of Labour Notice of Project if applicable;
- Certificate of Approval for transportation of asbestos waste;
- Negative air unit performance leak tests;
- HEPA/P100 filtered vacuum performance leak tests; and
- Any and all proposed changes, alterations, deviations intended to be made in scope, procedures and/or measures from these specifications or associated regulations, guidelines and standards.

2.5.3 The contractor shall have all asbestos waste transported under a current and valid Certificate of Approval or Provisional Certificate of Approval that specifically authorizes the transportation of asbestos waste in bulk. A copy of the Certificate of Approval will be maintained on-site and within the transport vehicle(s) and will be provided to the Consultant upon request.

2.6 Permits and Regulations

2.6.1 Comply with all federal, provincial and local requirements, Regulations and Acts as well as client/owner corporate policies and procedures pertaining to asbestos and health and safety, provided that in any case of conflict among these requirements or with these specifications the more stringent requirements shall apply.

2.6.2 Comply will all aspects of the Occupational Health and Safety Act Revised Statues of Ontario, 2005.

2.6.3 Comply with Ontario Regulation 278/05 “Asbestos on Construction Projects and in Buildings and Repair Operations”, made under the Occupational Health and Safety Act.

2.6.4 Comply with “Handling, Transportation and Disposal of Asbestos Waste’ in accordance with Ontario Regulation 347 as amended by Ontario Regulation 558/00, under the Environmental Protection Act (General-Waste Management), June 1992.

2.6.5 Before varying a measure or procedure described in Ontario Regulation 278/05, or these specifications, the contractor/constructor must ensure that the varied measure(s) and/or procedure(s), affords protection for the health and safety of workers and building occupants that is at least equal to the protection that would be provided by complying with Ontario Regulation 278/05. Written notice of the varied measure(s) and/or procedure(s) shall be given in advance to the joint health and safety committee and safety representative, if any, for the workplace. Such notice shall also be provided to the Consultant.

2.7 Instruction and Training

2.7.1 It shall be the responsibility of the Constructor to inform all workers involved in this project of the hazards in regard to the work to be performed and ensure appropriate training has been provided to all workers

2.7.2 Every worker shall be properly trained in accordance with Section 19 of Ontario Regulation 278/05 in the removal/management of asbestos as a Type 1, Type 2 and Type 3 Operation and have had instruction and training in:

a) Asbestos awareness;

b) The hazards of asbestos exposure;

c) Personal hygiene and work practices;

d) The use, cleaning, maintenance, selection and disposal of respirators and protective clothing; and

e) The measures and procedures prescribed by Ontario Regulation 278/05.

2.7.3 Instruction and training related to personal protective equipment and hygiene shall include but shall not necessarily be limited to:

a) Limitations of the equipment;

b) Inspection and maintenance of the equipment;

c) Fitting of the equipment; and

d) Disinfecting and decontamination of the equipment.

2.7.4 The abatement contractor shall ensure that every worker/supervisor involved in a Type 3 operation meets the training and certification requirements of Section 20 of Ontario Regulation 278/05.

2.8 Worker Protection

2.8.1 All personal protective equipment shall be used and maintained in accordance to the manufactures specifications and/or federal, provincial, local regulations and Acts and any corporate policies and procedures.

2.8.2 All Personal protective equipment shall be of a nature that can be readily and effectively decontaminated or shall be of a disposable type.

2.8.3 Damaged, deteriorated or defective personal protective equipment shall be repaired or replaced immediately and the worker shall not continue with their duties until such damages, deterioration or defects have been corrected.

2.8.4 All personal protective equipment shall be durable enough and otherwise suitable to withstand the nature of the work being performed and the environmental conditions present within the work area(s).

2.8.5 The contractor shall provide all workers with personally issued respirators suitable for protection against asbestos and acceptable to the Ministry of Labour.

2.8.6 It shall be the responsibility of the contractor/constructor to ensure that all procedures for the use of respiratory equipment in accordance with Ontario Regulation 278/05 and manufacturers requirements are complied with. This shall include but shall not necessarily be limited to:

- The worker being physically able to perform the required duties while wearing the respirator;
- Respirators must be fit checked by qualitative or quantitative fit testing. Instruction must be provided as defined by the Occupational Health and safety Act;
- Air purifying respirators will be equipped with Ministry of Labour and NIOSH approved N 100, P 100, R 100 or HEPA hard exterior cassette style filters and shall be fitted so that an effective seal exists between the respirator and the workers face;
- Supplied air respirators will have supply air meet the Canadian Standards Association (CSA) standard Z180.1-00, Compressed Breathing Air and Systems (March 2000)
- Cleaning and disinfecting of respirator(s) after each use or more often if needed;
- Inspection of respirator(s) and/or respiratory equipment before each use;

- The proper storage in a clean, dry and sanitary location when respirator(s) are not in use; and
- The development of written procedures regarding selection, use and care of respirators.

2.8.7 For Type 1 Operations, where respiratory protection is not required, because concentrations of airborne asbestos fibres are less then the TWAEV, but is requested by the worker(s); the contractor shall provide a NIOSH-approved respirator in accordance to Table 2 of Ontario Regulation 278/05 to the workers and the worker(s) shall use the respirator.

2.8.8 Protective Clothing: The contractor shall provide every worker who enters the work area with disposable coveralls and gloves which:

- Shall be made of a material that does not readily retain nor permit the penetration of asbestos fibres;
- Shall consist of head covering and full body covering that fits snugly at the ankles, wrists and neck, in order to prevent asbestos fibres from reaching the garment and skin under the protective clothing;
- Shall include suitable footwear; and
- Shall be repaired or replaced if torn or damaged.

2.8.9 The contractor shall provide worker(s) with Canadian Standards Association approved head, hearing and foot protection for the work being performed and as required by applicable construction safety regulations.

2.9 Authorized Visitor Protection

2.9.1 The contractor shall provide all prescribed personal protective equipment to authorized visitors to the work area(s).

2.9.2 Ensure authorized visitors have received required training prior to entry to the work areas.

2.9.3 Instruct authorized visitors in all relevant procedures to be followed while in and around the work area(s).

3.0 Approved Products

3.1 Materials and Equipment

Amended Water: Water with a surfactant agent added to reduce water tension for thorough wetting of fibres.

Decontamination Shower: For the purpose of worker decontamination, a portable self-contained shower equipped with the following shall be utilized:

- Hot and cold water connections;
- Interior hot and cold fixtures that can be controlled by the person using the shower; or provide a constant water temperature of not less the 40□ Celsius but not greater 50□ Celsius;
- A containment basin of sufficient capacity to collect and contain the quantity of water required for at least one worker to properly decontaminate; and
- Shall be supplied with soap and clean towels.

Drop Sheets: Fire retardant Polyethylene: 0.15 mm (6 mil) minimum thickness or Fire Retardant Fibre Reinforced (FR) polyethylene: 0.15 mm (6mil) minimum thickness. New Materials Only.

Exhaust Ducting: For use with Negative Air Unit(s) shall be flexible reinforced heavy duty type duct and be free of tears, punctures and damage and be otherwise suitable for the conditions of the work area(s). The cross sectional area of the ducting shall be maintained during the operation of the Negative Air Unit(s). And reasonable care shall be taken to ensure the ducting does not become damaged.

Micronic Water Filter: Shall be used to filter contaminated water that is to be discharged to local sanitary sewers. Contaminated water includes but is not necessarily limited to wash down water and decontamination shower water. The filter shall be equipped with a secondary 5 micrometer filter. As an alternative to filtration, contaminated water may be collected in appropriate waste containers for off-site disposal.

Negative Air Units: Shall be equipped with HEPA/P100 filters and shall have performance leak testing to verify efficiency of filters. Copies of filter tests shall be provided to the consultant upon request.

Power Tools: used in the cutting, grinding, drilling, abrading, sanding, vibrating or removal of Asbestos Containing Material, as a Type 2 Operation, shall be equipped with an effective dust collection device with a HEPA/P100 filtration system capable of capturing all debris and dust generated by the tool. All tools and assemblies of dust collection and filtration equipment will be subject to approval and testing by the Consultant as seen fit prior to use.

Pressure Differential Measuring Device: shall be capable of measuring pressure differential of 0.02 inches of water column and shall otherwise measure pressure differential in an appropriate range and interval. The device shall be dedicated to the site/work area, properly calibrated, installed and maintained throughout the duration of work to measure pressure differential between the enclosed removal area and the occupied area and shall be acceptable to the consultant. Daily records shall be kept by the contractor, on site, and made available to the consultant.

Sealant: A suitable water based post-removal sealer appropriate for the lock-down and sealing of asbestos fibres to polyethylene sheeting and cleaned substrate.

Sprayer(s): Shall be capable of delivering low velocity mist pattern spray of Amended water or sealant. Sprayers may be hand held reservoir type or powered airless units.

Surfactant: A commercial or industrial agent that when added to potable water reduces surface tension.

Tape: shall be able to create and maintain a suitable seal on polyethylene and other materials within the work area under both wet and dry conditions and ambient temperatures for the duration of the work being performed and shall otherwise be suitable for the work being performed.

Waste Containers: Waste shall be contained in two overlying dust tight containers impervious to asbestos fibres. The outer container shall be a minimum of 0.15 mm (6 mil.) thick sealable polyethylene waste bag.

- Should the waste material include sharp objects/materials, the inner container shall be a sealable metal, cardboard, fibre or plastic type suitable to resist puncturing of the containers;
- Containers shall be cleaned with a damp cloth or vacuum equipped with a HEPA filter immediately before being removed from the work area;
- Outer waste containers shall have a pre-printed cautionary asbestos warning identifying it as asbestos waste in both official languages clearly visible and legible in a colour which contrasts with the background on which it is printed; and

- Be otherwise suited for the waste being contained.

Vacuums: Shall be equipped with HEPA/P100 filters and shall have performance leak testing to verify efficiency of filters. Copies of filter tests shall be provided to the consultant upon request.

3.2 Signage and Placards

3.2.1 Before beginning work, post a sufficient number of signs at each entrance/exit to the work area(s) warning of asbestos hazards and restricting access to authorized persons wearing personal protective equipment.

3.2.2 On both sides of all containers and vehicles used in the transport of asbestos waste in large easily legible letters of a minimum of ten centimetres (10 cm) in height which contrast in colour with the background of the container or vehicle the following words shall be clearly displayed:

- CAUTION; CONTAINS ASBESTOS FIBRES; Avoid Creating Dust and Spillage; and
- Asbestos May be Harmful To Your Health; Wear Approved Protective Equipment.

4.0 Execution

4.1 General Requirements – All Procedures

4.1.1 Before beginning work, post at each entrance/exit to the work area(s) a sufficient number of signs warning of asbestos hazards and restricting access to authorized persons wearing personal protective equipment.

4.1.2 Eating, drinking, chewing or smoking shall not be permitted in the work area.

4.1.3 Where wet removals are to take place de-energize and disable with proper lock-out tag-out procedures electrical systems.

4.1.4 Temporary electrical distribution systems equipped with Ground Fault Circuit Interrupters (GFCI) shall be supplied and used by the Contractor during wet removals.

4.1.5 Remove all items from the work area(s). If items are affixed or otherwise cannot be removed from the work area(s), ensure that they are pre-cleaned using a HEPA/P100 filtered vacuum or damp wiping and completely covered and sealed with polyethylene sheeting and otherwise adequately protected.

4.1.6 Before commencing with work, disable and seal all ventilation to and from the work area and ensure ventilation remains disabled throughout the duration of activities. Seal any and all openings within the work area(s).

4.1.7 Removal of Asbestos Containing Materials shall commence only after set-up is complete.

4.1.8 Frequently and at regular intervals during the Work and immediately upon completion of the work clean up and place all asbestos dust, debris and waste in approved waste containers.

4.1.9 Prevent the spread of dust from the Work Area.

4.1.10 At completion of Work or at the end of the work day, remove from work area(s) all asbestos waste and in accordance with requirements of Ontario Regulations and these specifications dispose of asbestos waste off-site.

4.2 Execution of Type 1 Operation

4.2.1 Set Up

4.2.1.1. The Owner to remove all contents from the work areas, including however not limited to drapes, curtains, blinds window coverings and all items adjacent to the window which may be impacted by window replacement work. If items are affixed or otherwise cannot be removed from the work areas, the Abatement Contractor to ensure they are pre-cleaned using a HEPA/P100 filtered vacuum or by damp wiping and isolated using polyethylene sheeting affixed with tape and otherwise adequately protected.

4.2.1.2. Ensure adequate signage is posted restricting access to the work area to authorized personnel. Indicate alternate entry/transit routes, where applicable.

4.2.1.3. Ensure electrical power to all accessibility doors are disabled in all work areas prior to start of work.

4.2.1.4. Prevent the spread of dust from the work area using measures appropriate to the work to be done. Use single layer rip proof polyethylene sheeting to isolate roof penetrations, HVAC units and work adjacent work area(s).

4.2.1.5. Use single layer rip proof polyethylene sheeting to isolate windows from adjacent work area(s).

4.2.1.6. Prevent the spread of dust from the work area using measures appropriate to the work to be done. Use single layer rip proof polyethylene drop sheets. In areas with carpeted or textured floors which cannot be readily cleaned use double layer rip proof polyethylene over flooring in work area(s).

4.2.1.7. Provide facilities for washing hands and face.

4.2.2 Asbestos Removal

4.2.2.1. If a worker requests, the contractor shall supply a respirator in accordance with Ontario Regulation 278/05 Table 2 requirements, suitable for protection against asbestos and protective coveralls and the worker shall wear the respirator and coveralls.

4.2.2.2. Perform removal of ACM in a manner to reduce dust creation to lowest level practicable by:

- Dust and waste shall not be permitted to fall freely from one work level to another;
- Use of hand tools only for the removal of ACM;
- Careful removal of ACM;
- Continual wetting of Asbestos Containing Materials throughout the work;
- Placing removed asbestos waste directly into approved waste containers; and

4.2.2.3. All workers shall proceed to washing facilities and wash hands and face before leaving the work area.

4.2.3 Clean Up

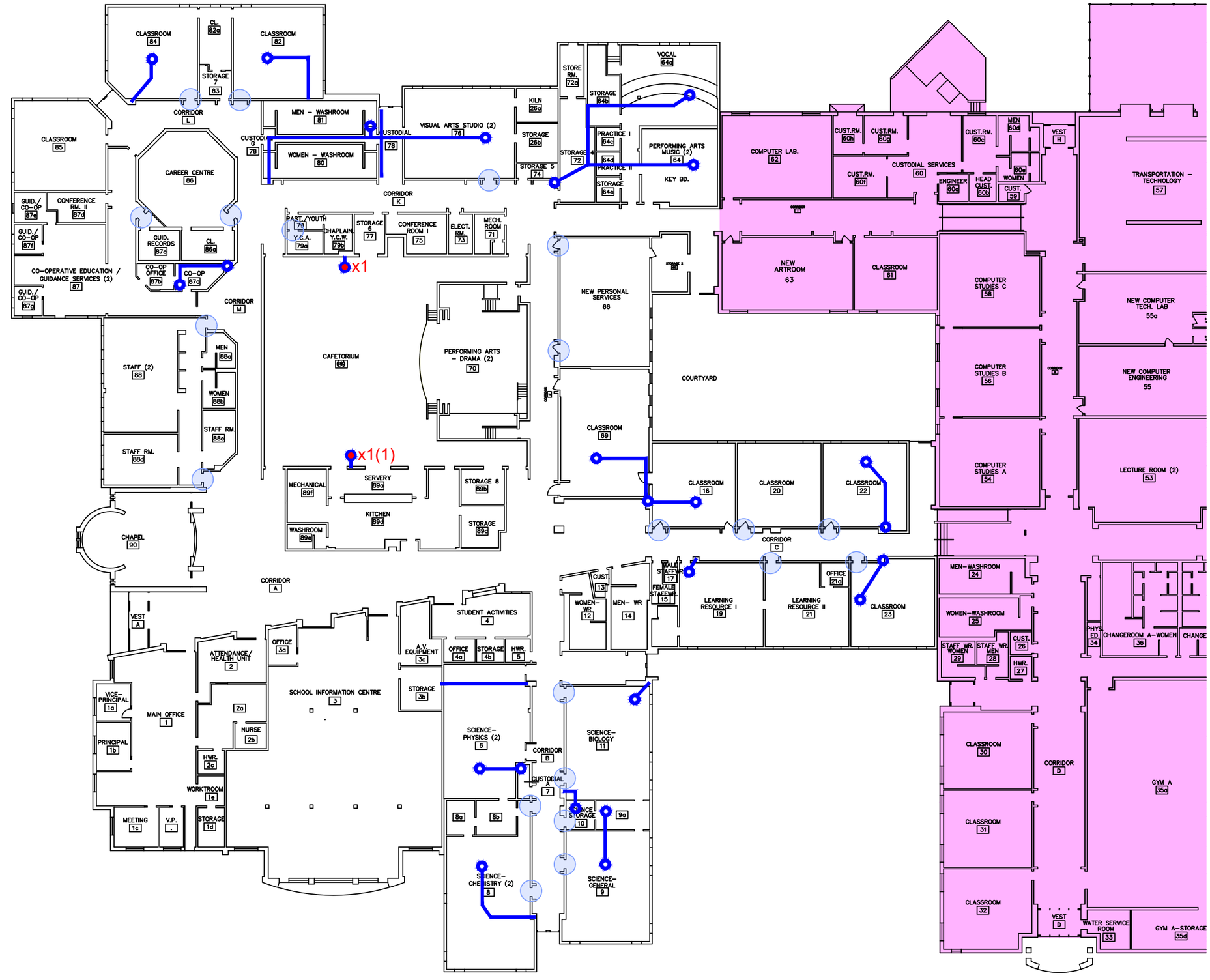
4.2.3.1. After completion of the removal; perform final thorough cleanup of polyethylene, barriers, tools, equipment, items, work area(s) and adjacent areas using HEPA/P100 filtered vacuum or damp wiping methods. Ensuring work area(s) and all items within the work area(s) are free off asbestos dust, debris and waste. Place and seal all asbestos dust debris and waste in approved waste containers

4.2.3.2. Wet and fold polyethylene and barriers in a manner which contains asbestos dust, debris and waste, place and seal in approved waste containers.

4.2.3.3. If Personal Protective Equipment was requested and used by the worker prior to leaving the work area(s) clean all asbestos dust, debris and waste from clothing and personal protective equipment (PPE). Remove and place disposable PPE in approved waste container.

4.2.3.4. Immediately before their removal from the work area, clean each filled waste container using HEPA/P100 filtered vacuum and place and seal in a secondary clean waste container.

End of Section



NOTES:

ALL DRAWINGS TO BE REFERENCED WITH THE ASSOCIATED REPORT, LOCATIONS AND QUANTITIES ARE APPROXIMATE.

ALL KNOWN OR SUSPECT ASBESTOS-CONTAINING MATERIALS ARE NOT DEPICTED ON THIS DRAWING. REFER TO THE REPORT FOR A COMPLETE LIST OF IDENTIFIED MATERIALS.

THIS FIGURE IS COLOUR DEPENDENT, PHOTOCOPIES MAY ALTER INTERPRETATION OF THE FIGURE. ALWAYS REFER TO ORIGINAL DRAWINGS AND REPORT.

Legend

- 13 Location Number
- No Access
- Post 1995 Construction

Asbestos-Containing Materials (ACM):

- Floor Tile
- Rolled Flooring
- Ceiling Tile
- Friable Soft Textured Ceiling
- Non-Friable Hard Textured Ceiling
- Spray-On Fire Proofing
- Transite (Asbestos Cement) Paneling
- Duct Insulation
- x2(1) Pipe Fitting Insulation w Quantity (Brackets Indicate # of Damaged Fittings)
- Pipe Insulation (Vertical and Horizontal)
- Transite (Asbestos Cement) Pipe (Vertical and Horizontal)
- x2(1) Duct Expansion Joints w Quantity (Brackets Indicate # of Damaged Joints)
- Friable Debris
- Door Window Pane Sealant

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CLIENT
WATERLOO CATHOLIC DISTRICT SCHOOL BOARD

PROJECT
2024 ASBESTOS ABATEMENT SPECIFICATIONS

DRAWING
MONSIGNOR DOYLE CATHOLIC SECONDARY SCHOOL (Cambridge)

FIRST LEVEL

Project Manager	PXS	Date	February 2024
Design By	WCDSB	Project No.	32961-960
Drawn By	SGL	Drawing No.	1.0
Scale	N.T.S.		

PART ONE – GENERAL

1.1 Related Sections

.1 Section 01001 General Conditions.

.2 Details of work covered by cash allowance: in respective Section.

1.2 Cash Allowances

.1 Refer to CCDC 2 - 2008, GC 4.1.

.2 Include in the Contract Price the cash allowances stated herein.

.3 Expenditures under cash allowances shall occur only with Consultant's prior consent.

.4 Where costs under cash allowances exceed the total amount of the cash allowances indicated by less than 10% of the aggregated stated values, the Contractor will be compensated for any excess incurred and substantiated, without any allowance for overhead and profit.

.5 Where costs under cash allowances exceed the total amount of the cash allowances indicated by more than 10% of the aggregate stated values, the Contractor will be compensated for any excess incurred and substantiated plus an allowance for overhead and profit as set out in the Contract Documents.

.6 Progress payments on accounts of work authorized under cash allowances shall be included in the Consultant's monthly certificate for payment. Submit invoices in support of claims.

.7 Where costs under a specific cash allowance exceed of the amount of the allowance, unexpended amounts from other specific cash allowances shall be reallocated at the Consultant's direction to cover the shortfall.

.8 The amount of allowance covers for the school, for Work specified in the respective specification Sections, shall be **Four Hundred Fourty-Two Thousand Two Hundred Dollars ($442,200.00)** not including Harmonized Sales Tax (HST):

.1 Hardware
.2 Unforeseen Abatement. General abatement as per report and specs and must be part of Base fee.
.3 For inspection and testing as determined by the owner
.4 Building Automation System (BAS)
.5 Change existing broken and/or damaged ceiling tiles.
.6 Window covering.
.7 Mansory repair.
.8 Interior signage
.9 Security
.10 Data cabling

PART 2 - PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

End of Section

PART ONE - GENERAL

1.1 Related Sections

.1 Section 01535 -Temporary Facilities

.2 Section 01560 - Temporary Controls

.3 The requirements of this Section apply to all other Sections of the specifications.

1.2 Installation, Maintenance and Removal

.1 Provide temporary utilities in order to execute work expeditiously.

.2 Remove from site all such work after use.

.3 Maintain temporary utilities and plant in good operating order.

.4 Use utilities and execute work to prevent waste of utilities.

1.3 Dewatering

.1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

1.4 Sanitary Facilities

.1 Provide temporary sanitary facilities within the exterior fenced staging area.

.2 Maintain in clean condition.

1.5 Water Supply

.1 The Owner will provide a continuous supply of potable water for construction use.

.2 Provide temporary connections to existing supply points, and pay all costs for installation, maintenance and removal.

1.6 Temporary Heating

.1 Provide temporary heating required during construction period, including attendance, maintenance and fuel (unless otherwise specified) for exterior work, or work exposed to exterior conditions, during construction period as required to:

.1 Facilitate progress of work.
.2 Protect work and products against dampness and cold.
.3 Prevent moisture condensation on surfaces.
.4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
.5 Provide adequate ventilation to meet health regulations for safe working environment.

.2 Construction heaters used inside building must be vented to outside or be flameless type. Solid fuel salamanders not permitted. Maintain fire watch during use of open flame heaters.

.3 Do not use electricity for temporary heating except with Owner's prior permission.

.4 Maintain temperatures of minimum 10 degrees C in areas where construction is in progress, unless indicated otherwise, or as may be required by manufacturer's instructions for materials being installed during heating period.

.5 Existing, permanent heating system of building, or portions thereof, may be used when available. Be responsible for damage thereto. Do not modify or alter existing system without written direction from Consultant, except that filters shall be installed and maintained clean at return air inlets and exhaust air inlets to prevent soiling of system.

.6 On completion of work for which permanent heating system is used as construction heating, replace permanent filters, and leave equipment clean.

.7 With Owner's permission, temporary connection may be made to natural gas service for construction purposes. Provide meter, and compensate Owner for cost of fuel consumed at Owner's costs. Obtain all necessary permits and inspections. Owner shall be final authority to determine costs. Provide all other piping, fittings, connections, hoses, etc. as required for temporary connection.

.8 Where work is solely renovation of an existing building, Owner will pay natural gas utility charges when temporary heat source is existing building equipment.

.9 Be responsible for damage to work due to failure in providing adequate heat and protection during construction.

.10 Prevent excessive use or waste of utilities, and minimize utility costs to Owner.

.11 Maintain strict supervision of operation of temporary heating equipment to:
- .1 Conform to applicable codes and standards.
- .2 Enforce safe practices.
- .3 Prevent abuse of services.
- .4 Prevent damage to finishes.
- .5 Vent direct-fired combustion units to outside.

1.7 Temporary Ventilation

.1 Ventilate heated areas keep building free of exhaust or combustion gases.

.2 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.

.3 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.

.4 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.

.5 Ventilate storage spaces containing hazardous or volatile materials.

.6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.

.7 Maintain strict supervision of operation of temporary heating and ventilating equipment to:
- .1 Conform to applicable codes and standards.
- .2 Enforce safe practices.
- .3 Prevent abuse of services.
- .4 Prevent damage to finishes.
- .5 Vent direct-fired combustion units to outside.

.8 New and existing equipment and systems shall not be used for temporary ventilating.

1.8 Temporary Power and Light

.1 The General Contractor will pay for temporary power during construction for temporary lighting and operating of power tools to maximum available supply. Site verify available supply, including voltages, amperages and phases. Unless otherwise ascertained or verified. Do not interrupt occupants' use of power when using power for construction purposes.

.2 Provide temporary connections to existing supply points, and pay all costs for installation, maintenance and removal. Make connections in accordance with Electrical Safety Code.

.3 Provide and maintain temporary lighting throughout project. Level of illumination on all floors and stairs shall not be less than 15 foot-candles (162 Lx).

.4 Do not use electricity to provide temporary construction heating except with prior permission of Owner.

1.9 Temporary Telephone

.1 Provide and pay for temporary telephone services for own use and use of Consultant and Owner.

.2 Telephone service shall be separate from Owner's existing telephone service.

.3 Telephone service shall be complete with answering machine or voice mail messaging system. Cell phone system acceptable for projects with a Contract Price of less than $300,000. For projects with a Contract Price of $300,000 or more, provide telephone and facsimile machine in site office.

.4 Facsimile machine not required for projects with a Contract Price of less than $300,000.

1.10 Fire Protection

.1 Provide and maintain temporary fire protection equipment during performance of work required by governing codes, regulations and bylaws and by Owner's requirements.

.2 Open and burning rubbish are not permitted on site.

.3 General Contractor to ensure Life Safety Systems is in operation at all times

PART 2 - PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

End of Section

1.0 GENERAL

.1 **Related Work**

.1 Hoarding and Protection due to Excavation, included in this Section.

.2 **Shop Drawings**

.1 Indicate & describe in detail complete perimeter hoarding and side walk protection. Include all means of access/vehicular entrances.

.2 Provide Shop Drawings to and obtain from, approval from both the Consultant and the authorities having jurisdiction. Make all revisions as required by these authorities at no additional cost to the Owner.

.3 **Permits and Fees**

.1 Apply for, obtain and pay for all necessary permits required by authorities having jurisdiction for the Work of this Section.

.4 **By-laws**

.1 Comply with the By-laws of the City of Sarnia, and all others having jurisdiction over the Work of this Section including the Occupational Health and Safety Act and Regulations for Construction Projects

2.0 PRODUCTS

.1 **Materials – For Internal Barriers**

.1 Plywood 13 mm minimum thickness Douglas Fir exterior grade plywood "B" or better for paint finish.

.2 Structural Lumber: Rafters, posts, planking and bracing, N.L.G.A. No. 2 grade minimum.

.3 Waterproof Membrane: "Bituthene" Regular by W.R. Grace Materials Ltd., or approved alternative.

.4 Exterior alkyd paint to approved manufacturer.

.5 Interior fire retardant paint to approved manufacturer.

.6 Steel Studs: 0.55 mm thick, wipe coated galvanized, having knurled flanges 32 mm wide with edges doubled back at least 4.8 mm, with girts as required.

.7 Gypsum Board: To meet specified requirements of CAN/CSA-A82.27-M91; **fire rated board classified for hazard by ULC and labelled as such.**

.2 **Chain-Link Fencing: For Exterior Site Enclosures**

.1 Galvanized Link Fabric: 50mm mesh, No. 9 gauge woven steel wire, zinc coated after weaving, to meet specified requirements of ASTM A392.

.2 Tube: 90mm diameter for end posts, 45mm for top rail, 60mm for line posts, standard, butt welded steel, galvanized, Schedule 40, to meet specified requirements of ASTM A120. Hollow metal structural steel tubing with minimum wall thickness of 0.100" and meeting specified requirements of CSA G40.21, Grade 50W.

.3 Tension Wire: No. 6 gauge single strand, finished to match fabric.

.4 Fabric Bands: Galvanized steel to fit tubing.

.5 Rail Fittings: Galvanized steel for caps, top tails guides.

.6 Galvanizing: Galvanize fittings, accessories and steel tube by hot dip method after fabrication to meet specified requirements of CSA Standard G164.

.7 Approved manufacturers: Frost Fencing, Lundy Steel Fencing, Donald Greening or other approved alternate. Materials need not be new however, they must be able to remain in place and perform as required for the duration of the Project.

.8 Fence height: 1830mm high unless noted otherwise.

.9 **Commercially available temporary construction fencing may be approved at the discretion of the architect.**

3.0 EXECUTION

.1 **Fabrication and Installation**

.1 **Hoarding**

.1 Install hoarding, fencing and sidewalk protection to the exterior of the building in accordance with approved Shop Drawings and By-laws of the City of Sarnia, and in accordance with documents.

.2 Provide posts, planking and plywood.

.3 Provide pedestrian and vehicular entrances as required, complete with swing or sliding gates, screened openings and all necessary hardware including locks.

.4 Paint complete hoarding in colour selected by Consultant.

.5 Maintain hoarding in good condition at all times.

.6 Repair any hoarding removed or damaged, to satisfaction of the Consultant and authorities.

.7 Wash all hoarding at least every two months.

.8 Remove hoarding and fencing from site only when authorized by the Consultant.

.2 **Barrier**

.1 Install barrier within the existing building to separate a work area from the remainder of the building.

.2 Barrier shall be erected such that it is self-supporting and braced on work area side.

.3 Erect a barrier of one hour fire rated drywall construction and to meet the requirements of Section 09250 and ULC Design No.W408 or W409

.4 Barrier shall not allow for the passage of airborne dust.

.5 Maintain minimum clearance for exits and access to exits.

.6 Relocate, temporarily any existing life safety devices which may become hidden or obscure due to the erection of barrier.

.7 Maintain barriers in good stable condition at all times.

.3 **Chain Link Fencing**

.1 Posts shall be spaced at 3000mm on centre maximum and shall be driven into the ground a

minimum of 1200mm deep.

.2 Install at 40mm above grade, a single strand of tension wire with turnbuckles at each end.

.3 Install at top of fabric, a 45mm diameter top rail with appropriate caps and holders.

.4 Install fabric under tension under anchor to the posts, top rail and bottom tension wire at 450mm on centre.

.5 At end post, attach fabric and 6mm x 19mm tension bands at 300mm on centre.

.6 Provide a 45mm diameter brace between end posts at mid height.

.7 At completion of project, completely remove temporary fencing and patch all disturbed areas to match existing.

.8 All fencing and components will remain the property of the Contractor.

.2 **Exception**

.1 Temporary/movable perimeter fencing barriers for site work is may be approved by the consultant where construction activities require staged construction perimeters.

.2 Where permanent hoarding is not specifically indicated, provide safety fencing at perimeter of property adjacent of streets and adjacent residential properties, separating public access areas from the work site, where no other barrier is present.

End of Section

PART ONE - GENERAL

1.1 Related Sections

.1 Section 01510 - Temporary Utilities.

.2 Section 01560 - Temporary Controls.

.3 Section 01710 - Cleaning

.4 The requirements of this Section apply to all other Sections of the specifications.

1.2 Use of Owner's Temporary Facilities

.1 Use of Owner's temporary facilities, such as portable ladders, work lights, extension cords, tools, etc. is prohibited. Contractor to provide all such items.

1.3 Installation and Removal

.1 Provide temporary construction facilities in order to execute work expeditiously.

.2 Maintain temporary facilities and plant in good operating order.

.3 Remove from site all such work after use.

1.4 Scaffolding

.1 Provide and maintain scaffolding, ramps, ladders, platforms, temporary stairs and other temporary access devices as required to complete the Work.

1.5 Hoisting

.1 Provide, operate and maintain hoists and cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for use thereof.

.2 Hoists and cranes shall be operated by qualified operator.

1.6 Elevators

.1 Use of existing elevators to move personnel and materials prohibited without Owner's prior consent.

.2 Where elevator use is permitted, provide temporary protection to elevator finishes. Make good all damage arising from use of elevators.

1.7 Site Storage/Loading

.1 In accordance with CCDC 2 - 2008, GC 3.11.

.2 Confine work and operations of employees to limits indicated by Contract documents or where no limits shown on drawings, to immediate area of work. Do not unreasonably encumber premises with products.

.3 On-site storage of construction materials and equipment shall be kept to a minimum at all times. All materials being stored shall be protected by the Contractor from damage or loss and shall be repaired or replaced by the Contractor should damage or loss occur.

.4 Do not load or permit to load any part of work with a weight or force that will endanger the work, or any part of existing structures, components or elements.

.5 Do not store goods and materials within existing buildings except with Owner's prior permission. Materials are to be stored in a location and manner to cause the least interference with work activities, pedestrian or vehicular traffic.

.6 Where storage is not permitted within existing buildings, provide lockable sheds and trailers to store goods and materials. Pay parking costs associated with storage trailers.

.7 Determine with the Owner those locations that are suitable for receiving and storage of materials and equipment.

.8 All materials and equipment shall be kept in a secure area, at contractor's expense, or removed from the job site when work is not actually in progress.

1.8 Construction Parking

.1 Except as noted below, pay costs of parking. Owner's available parking is subject to charge. Obtain schedule of available parking locations, rate schedule and permits (if applicable) from Owner.

.2 Parking costs will apply to office and/or storage trailers occupying parking spaces.
.3 Parking within construction hoarding is without charge. Owner reserves right to approve extent of hoarding. Owner's requirements take precedence over Contractor's use of site.

1.9 Security

.1 For unoccupied buildings, ensure that buildings are maintained locked at all times, except when doors are unlocked and continuously monitored by Contractor.

.2 For occupied buildings, cooperate with Owner's schedule of unlocking and locking. Maintain locking schedule unless otherwise directed by Owner. Continuously monitor all doors unlocked at periods when Owner would normally maintain locked doors.

.3 Comply with Owner's security requirements.

.4 Refer also to other sections for security provisions during periods when building systems (e.g., fire alarm) are out of service.

.5 Comply with Owner's directives regarding security of existing buildings.

.6 See also other Sections, in particular Section 01560 Temporary Controls.

1.10 Offices

.1 Provide and maintain in clean condition during progress of work, adequately lighted, heated and ventilated temporary Contractor's office with space for filing and layout of Contract Documents and Contractor's normal site office staff. At Owner's discretion, portions of existing building may be used for these purposes. Where site offices use existing parking, pay parking fees required. Notwithstanding the above, but subject to applicable legislation, site offices are not required for Work with Contract Price of less than $300,000.

.2 Provide adequate required aid facilities.

.3 Subcontractors may provide their own offices as necessary. Direct location of these offices.

1.11 Equipment, Tool and Materials Storage

.1 Materials may be stored in building subject to other requirements regarding overloading structure and Owner's ongoing use.

.2 Where materials cannot be stored in building, provide and maintain, in a clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.

.3 Locate materials not required to be stored in weatherproof sheds on site in a manner to cause least interference with work activities.

1.12 Waste Disposal Containers and Services

.1 Provide for garbage chutes, on-site debris collection and disposal equipment, and services needed to dispose of all debris. Do not use Owner's waste containers for disposal of debris arising from work of this Contract. Provide and pay for dedicated waste disposal for work of this Contract.

1.13 Construction Sign

.1 Generally, for interior projects and other work with a Contract Price up to $300,000, the minimum sign requirements shall be:

.1 Provide within two (2) weeks of award of Contract, and prior to submitting first claim for payment, minimum 11" x 17" and maximum 24" x 36" sign(s), sufficient in number to fully alert building occupants and public of work, listing project title, Owner's project number, name of Owner's representative (Construction Co-ordinator) complete with telephone extension, Contractor's name, address and telephone number; sign background shall be white; letters for names minimum 0.75" high, black text. Paper signs accepted. At Contractor's discretion, subcontractors may be listed on the construction sign, space permitting. Sign shall be executed with exhibit lettering produced by a computer or professional sign manufacturer/painter.

.2 Maintain sign(s) as required to adequately advise members of the public of the Work, posting signs at each entrance to the work area. For example, this may require signs at each end of corridors in which work is occurring, at entrances to rooms in which is occurring, or on guards surrounding work area.

.2 For all other work with a Contract Price of more than $300,000 the minimum sign requirements shall be:

.1 Provide within two (2) weeks of signing Contract, and prior to submitting first claim for payment, minimum 4' x 8' x 5/8" G1S plywood sign, complete with wood framing and supports, listing project title, Owner's project number, name of Owner's representative (Construction Co-ordinator) complete with telephone extension, consultant and contractor complete with name and address for all; sign background and rear face of sign shall be white; letters for names 1.25" high, black paint; typeface as respective corporate standard; provide logo for each firm listed, in corporate colour. Provide 1.25" vertical space between parties. Submit sign sketch for Consultant's approval before fabrication. At Contractor's discretion, subcontractors may be listed on the construction sign, space permitting. Sign shall be executed with exhibit lettering produced by a professional sign manufacturer/painter.

.2 Locate sign as directed by Consultant and with Owner's consent.

.3 Supplement sign in paragraph 1.12.2. with signs as 1.12.1 in occupied premises.

.3 Maintain sign in good condition for duration of work. Clean periodically. Remove immediately after Substantial Performance of the Contract, or at Completion of Contract as defined in applicable lien legislation where there is no application for Substantial Performance of the Contract.

.4 No other signs or advertisements, other than warning signs, or signs required by law, are permitted on site, without Owner's consent.

PART 2 - PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

End of Section

CONSTRUCTION SAFETY MEASURES

.1 Observe and enforce construction safety measures required by National Building Code 1990, Canadian Construction Safety Code 1977, Occupational Health and Safety Act 1980 and all latest amendments including the Regulations for Construction Projects, Ontario Building Code, Ontario Regulations 413/90 and all latest amendments, Workers' Compensation Board and municipal statutes and authorities.

.2 In the event of conflict between provisions of above authorities the most stringent provision applies.

.3 The General Contractor shall be designated the "Constructor", as defined by the Occupational Health and Safety Act. All Contractors on the Work site shall consider themselves as "employers" as defined by the Occupational Health and Safety Act.

.4 Do not permit any work in the existing building which may be hazardous or harmful to the occupants of the existing building. All such work must be scheduled for times the existing building will be unoccupied. Such work will include, but not be limited to, hoisting of materials and equipment over normally occupied spaces; the rise of toxic solvents or adhesives, the rise of carbon monoxide or carbon dioxide fumes generated by fuel-fired appliances or equipment, etc.

.5 Smoking in any part of the building or on any part of the Owner's property is prohibited.

.6 The Contractor is to provide the Ministry of Labour with a "Notice of Project" and post conspicuously on site.

.7 The contractor must complete the requirements of the Waterloo Regional District School Board.

FIRE SAFETY REQUIREMENTS

.1 Comply with requirements of standard for Building Construction Operations FCC no. 301 - June 1982, issued by Fire Commissioner of Canada.

.2 This standard may be viewed at Regional Engineer's office and copies may be obtained from the Ontario Fire Marshal's Office, Toronto.

.3 Hot Work Permit

- .1 General Contractor is expected to establish and enforce a "Hot Work" permit system for any and all work or temporary operation which involves open flames or which produces heat and/or sparks.
- .2 It is the intent of the Hot Work Permit system to ensure authorization of "hot work" only under specific fire-safe conditions.
- .3 Contractor Hot Work Information and Responsibilities
  - .1 The Owner has adopted the Factory Mutual System recommendation regarding "hot work" and are modified as follows.
  - .2 If hot work cannot be avoided, the Contractor is expected to follow the procedures which follow.

.3 The Contractor will be expected to appoint a Fire Safety Supervisor for this project who will be expected to enforce the procedure.

.4 "Hot Work" Rules

.1 A "hot work" permit is required for any temporary operation involving open flame or producing sparks. This includes but shall not be limited to: brazing, grinding, soldering, pipe thawing, torch applied air barriers, waterproofing and roofing, and any welding.

.2 If there is a practical and safer way to do the job without hot work, then the alternative method shall be used.

.3 No "hot work" is permitted without authorization from the Contractor's appointed Fire Safety Supervisor, in the form of a signed "hot work" permit. This permit will be valid for a specified time frame only. After this time period, another permit must be obtained before the "hot work" can continue.

.4 Specific firefighting equipment and protection material will be required at the "hot work" site before any work can be started. The Contractor undertaking the "hot work" shall provide the firefighting equipment.

.5 No "hot work" is permitted without a designated fire watch present. This role will be provided by the Fire Safety Supervisor. If unsafe conditions are observed by the Fire Safety Supervisor during the "hot work" operation, the work will be stopped until the hazard can be neutralized or eliminated.

.6 The Contractor undertaking the "hot work" will verify that all the "hot work" equipment is in proper working order and in fire-safe condition. An inspection of the equipment will be completed by the Fire Safety Supervisor. Any unsafe equipment will be removed form the Owner's property.

.7 Any Contractor's equipment or material that is to be stored in the facility overnight must be properly secured in an area designated by the Fire Safety Supervisor.

.8 Violation of these rules will result in termination of the "hot work" and the Contractor's personnel will be escorted from the Owner's property.

.9 The Owner will provide the permit form required for use to the Fire Safety Supervisor.

FIRE SAFETY REQUIREMENTS

.4 Procedure

.1 If it is necessary to do "hot work", an individual designated as Fire Safety Supervisor shall determine

and identify the following information on a permit:
- the location and the nature of the "hot work",

- the exact name of the individual and the Contractor who will be doing the work,
- and expiration date and time for the "hot work",
- emergency notification procedures,
- completed checklist on the permit.

.2 The Supervisor signs and issues the permit.

.3 The Contractor shall hang the permit in a visible place in the work area.

.4 A fire watch is to be put in place during the "hot work" in order to maintain a constant vigil for stray sparks, ignition or other fire hazards and is ready to provide initial fire response.

.5 Once the work is done, the fire watch is to remain in the area for one hour after the work has been completed and shall carefully inspect the area including the floors above and below and the adjacent rooms. Once the inspection has been completed, the fire watch signs the permit.

.6 The "hot work" area shall be further monitored for an additional 3 hours after the work has been completed.

.7 When the monitoring period has ended, the fire safety supervisor shall conduct a final inspection, sign the permit, remove it and file as a record of the work.

.8 Authorization of the "hot work" permit shall only take place once the following procedures have been reviewed by the Fire Safety Supervisor and the Contractor and these same precautions put in place:

.1 An area of 11 meters around the "hot work" must be entirely clear of hazards:
- flammable liquids, dust, lint and oily deposits are removed from the work area,
- explosive atmosphere in area is eliminated,
- floors are swept clean,
- combustible floors are wet down, covered with damp sand or fire-resistive sheeting,
- all combustible materials whether on floor or walls are removed or covered by fire-resistant tarps protected by metal skids,
- all wall and floor openings are covered with non- combustible materials including the closing of all doors and windows.

.2 The area has been provided with operable sprinklers, hose stream and fire extinguishers.

.3 The "hot work" equipment is in proper working order.

.4 "Hot work" shall be prohibited when an area cannot be made safe:
- where processes involving flammable liquids, gases and dusts cannot be shut down and made safe,
- where lint conditions are severe beyond correction,
- on partitions, walls, ceilings or roofs with combustible coverings,
- on partitions of combustible, sandwich-type construction,
- on pipe or other metals that can conduct enough heat to ignite combustible materials adjacent to the pipe,
- where there are large amounts of combustibles that are impractical to move or cover such as roll paper, cotton or jute.

FALSEWORK

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

SCAFFOLD

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

VISITORS

.1 Provide hard hats and safety shoes for use by all visitors.

.2 The Contractor must control all personnel visiting the site and the work. Representatives of the Owner shall be limited to personnel from the Facilities Services Department. Others who wish to visit the site must have prior approval from the Owner via the Architect. The Contractor must maintain a log book of all visitors to the site. Record dates, times, and names of all visitors.

End of Section

PART ONE – GENERAL

1.1 Related Sections

.1 Refer to CCDC-2
.2 Section 01710 Cleaning
.3 The requirements of this Section apply to all other Sections of the specifications.

1.2 Progressive Cleaning

.1 Refer to Section 01710 Cleaning

1.3 Review/Take-over Procedures

.1 Review/Takeover Procedures
.1 In accordance with OAA/OGCA Document 100, latest edition, except where specified otherwise.
.2 In OAA/OGCA Document 100, where the term "Architect" is used, substitute the term "Consultant", and where the term "inspection" is used in relation to the Consultant's assessment of the Work, substitute the term "review".

.2 Arrange and pay for review by local authorities to obtain permission to occupy/occupancy permit (where applicable) prior to requesting Substantial Performance.

.3 Refer also to Section 01025 Changes, Payments and Certificates for requirements related to applications for certificates and for applications for payment.

1.4 Project Closeout

.1 Final Cleaning
.1 Refer to CCDC 2 – 2020, GC 12.1 and Section 01710 Cleaning.

.2 Systems Demonstration
.1 Prior to final review, demonstrate operation of each system to Owner. Ten (10) days prior to demonstration, provide an agenda for demonstration and a written description of operating procedure and maintenance, including schematics and diagrams for operation and maintenance of building services equipment and systems being demonstrated.
.2 Responsible personnel from Contractor, Subcontractors and equipment suppliers whose work is being demonstrated shall be present as required at these demonstrations.
.3 Instruct personnel in operation, adjustment, and maintenance of equipment and systems, using provided operation and maintenance data as basis for instruction.

.3 Operating and Maintenance Manuals
.1 Collect reviewed submittals and assemble documents executed by Subcontractors, suppliers, and manufacturers.
.2 Minimum two weeks prior to Substantial Performance of the Work, submit to Consultant, Two (2) copies and 1 digital (USB stick) of operating and maintenance manuals. Where Substantial Performance of the Work is not certified, and the Contract proceeds directly to Completion of Contract as defined in applicable lien legislation, submission shall be minimum two (2) weeks prior to Completion of Contract
.3 Bind contents in a three-ring, hard covered, black plastic jacketed binder, with labelling pocket on spine and with 'D' type rings. Size for 8-1/2" x 11" size paper, enclose title sheet labelled "Operating and Maintenance Data Manual", project name, date and list of contents. Organize contents into applicable sections of work to parallel project specification breakdown. Mark each section by labelled tabs protected with celluloid covers fastened to hard paper dividing sheets.
.4 Include following information as applicable, plus data specified elsewhere: operational information on equipment, cleaning and lubrication schedules, filters, overhaul and adjustment schedules and similar maintenance information; copy of building permit; copy of final inspection certificate by Electrical Safety Authority; copy of fire alarm verification certificate; copy of sprinkler test verification certificate; copy of certificates issued by other utilities; copies of field tests; copies of all inspection and testing reports; maintenance instructions for finished surface and materials; copy of hardware and paint schedules; description, operation and maintenance instructions for equipment and systems, including complete list of equipment and parts list; indicate nameplate information such as make, size, capacity, serial number; names, addresses and phone numbers of Contractor, Subcontractors and Suppliers, including local source of supplies and replacement parts; manufacturer’s product guarantees and warranties, executed in the name of the Owner, showing name and address of project and guaranty/warranty commencement date and duration of guaranty/warranty, and clear

indication of what is being guaranteed and what remedial action will be taken under guaranty/warranty; additional material used in project listed under various sections showing name of manufacturer and source of supply.
.5 For Mechanical and Electrical include: description of system; controls including diagrams; maintenance and testing schedule; method of operation for each piece of equipment, and list of equipment with replacement parts, parts number, suppliers, addresses, etc. Refer also to Division 15, Division 16 and Division 17 as applicable for particular requirements relevant to respective Division.
.6 Neatly type lists and notes. Use clear drawings, diagrams or manufacturers' literature.
.7 Each set of manuals shall include complete set of reviewed shop drawings and product data sheets, indicating corrections and changes made during fabrication and installation.

.4 Maintenance Materials and Spare Parts:
.1 Where supply of maintenance materials and spare parts are specified, deliver to Owner as follows:
.1 Use unbroken cartons, or if not supplied in cartons, they shall be strongly packaged. Supply maintenance materials and spare parts in quantities specified in individual specification sections.
.2 Provide only new materials as maintenance materials and spare parts, of the same manufacture, type and quality as incorporated into the Work.
.3 Store in locations directed, in a manner to prevent damage or deterioration.
.4 Clearly mark containers as to content.
.5 If applicable, give colour, room number, or area where material used.
.6 Request for transmittal with corresponding receipt from Owner upon delivery of materials.

.5 Project Record Documents
.1 Accurately and neatly record deviations from Contract Documents caused by site conditions and changes ordered by Consultant.
.2 Record locations of: concealed components of mechanical and electrical services; depths of various elements of foundations in relation to first floor, accurate location, depth, size and type of outside underground utilities; location of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features or structure; field changes of dimension and detail; changes made by Change Order, Change Directive or Site Instruction.
.3 At completion of project and prior to final review, neatly transfer notations to second set of drawings and specifications and submit both sets to Consultant
.4 Record changes using a different colour of felt tip pen markers for each major system.
.5 Mark up specifications to record actual construction, including manufacturer, trade name, and catalogue number of each item actually installed, particularly alternative, optional and substitute items.
.6 Identify drawings and specifications as "Project Record Copy". Maintain in new condition and make available for review on site by Consultant.
.7 Minimum 2 weeks prior to application for final payment, submit record documents to Consultant.
.8 General Contractor to provide Two (2) copies and 1 digital (USB stick) of any as-built drawings, including Architectural, Structural, Civil, Mechanical and Electrical.

.6 Financial Close-Out
.1 Execute transition of Performance and Labour and Materials Payment Bond, if any, to warranty period requirements.
.2 Submit a final statement of accounting giving total adjusted Contract Price, previous payments, and monies remaining due.
.3 Consultant will issue a final change order reflecting approved adjustments to Contract Price not previously made.

PART 2 - PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

End of Section

PART 1 - GENERAL

1.1. General Procedures

1.1.1. Conduct cleaning and disposal operations to comply with local ordinances, anti-pollution laws, and recommendations of Construction Safety Association.

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

1.1.3. Prevent accumulation of wastes which create hazardous conditions.

1.1.4. Provide adequate ventilation during use of volatile or noxious substances.

1.1.5. Provide instructions designating proper methods and materials to be used in final cleaning of Work.

1.2. Material

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

1.3. Cleaning During Construction

1.3.1. Maintain project grounds, public streets, and public sidewalks free from accumulations of waste materials and rubbish. Do not allow rubbish to accumulate in work under construction or on low roofs.

1.3.2. Provide on-site containers for collection of waste materials and rubbish.

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

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

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

1.4. Final Cleaning

1.4.1. In addition to the progressive removal of rubbish from the entire building and Site, and leaving the building's broom clean, the Contractor shall perform the following work before final acceptance:

1.4.1.1 Clean glass both sides, and replace broken glass.
1.4.1.2 Remove stains, spots, marks and dirt from decorated work, electrical and mechanical fixtures, casework and the like. Remove protective materials.
1.4.1.3 Clean hardware, aluminum, stainless steel and the like.
1.4.1.4 Remove paint spots and smears from all surfaces.
1.4.1.5 Vacuum clean all building interiors affected in construction operations.
1.4.1.6 Broom clean paved surfaces.
1.4.1.7 Remove debris and materials from roof areas.

1.4.1.8 Clean all exterior walkways adjacent to the site.
1.4.1.9 Replace heating, ventilating and air conditioning filters if units were operated during construction.
1.4.1.10 Thoroughly clean floor finishes ready for seal and wax by owner.
1.4.1.11 Leave premises ready for immediate occupation without further cleaning, all to the Consultant's approval.

1.5. Operations and Maintenance Data

1.5.1. Each trade shall supply to the Contractor for inclusion into the Project Data Book, a written set of cleaning instructions.

End of Section

PART 1 - GENERAL

1.1 Related Sections

.1 Comply with Division One as applicable.

.2 Restrictions on noise, dust, interference, obstructions, access, hours of work: Section 01000.

.3 Temporary facilities, public safety, weather and dust barriers or partitions: Section 01005 General Instructions, Section 01500 Temporary Facilities.

.4 Work described in Division 15000 and 16000.

.5 The requirements of this Section apply to all other Sections of the specifications.

1.2 References

.1 CSA S350-M1980, Code of Practice of Safety in Demolition of Structures.

1.3 Existing Conditions

.1 Examine areas to be selectively demolished or dismantled, and confirm that their condition is substantially the same as the date on which bids closed, and as indicated in the Contract Documents. Advise the Consultant of any conditions that vary from this.

.2 Be familiar with structural system of the building, and the elements being demolished or dismantled.

.3 Inspect site and verify with Consultant items designated for removal and items to remain. Protect existing items designated to remain and materials designated for salvage. In event of damage to such items, immediately replace or make repairs to approval of Consultant and at no cost to Owner.

.4 Demolition of spray or trowel-applied asbestos can be hazardous to health. Should material resembling spray or trowel-applied asbestos be encountered in the course of demolition work stop work and notify the Consultant immediately. Do not proceed until written instructions have been received from the Consultant.

.5 Demolition of applied asbestos materials can be hazardous to health. Should material resembling asbestos be encountered in the course of demolition work, stop work and notify the Consultant immediately. Do not proceed until written instructions have been received from the Consultant.

1.4 Extent of Demolition

.1 Drawings showing extent of selective demolition are intended to be schematic and do not indicate full extent of all selective demolition work. Examine all Documents to determine complete scope of selective demolition, removals and re-instatement, repair and make good required to complete the Work.

1.5 Protection

.1 Prevent movement, settlement or damage of existing structures, services, walks, paving, trees, landscaping, adjacent grades and parts of existing building to remain.

.2 Provide bracing, shoring and underpinning as required. Make good damage caused by demolition.

.3 Take precautions to support affected structures and, if safety of building being demolished appears to be endangered, cease operations and notify Consultant.

.4 Prevent debris from blocking surface drainage system, elevators, mechanical and electrical systems which must remain in operation.

.5 Provide bracing, shoring, or needling as required to support portions of existing structure or building to remain, where demolition or dismantling, cutting out, or partial removal of any elements, as specified in other Sections degrades the structural integrity of the structure to a point where it will not support all imposed loads. All bracing, shoring, and needling shall be designed to cause no damage to existing surfaces upon which the bracing, shoring or needling bears.

.6 Shoring, bracing, or needling of structural items shall be designed by a Professional Engineer registered in the Province of Ontario, and drawings shall bear the seal of this Engineer. Submit drawings of shoring, bracing, or needling to the Consultant prior to installing.

.7 Maintain temporary supports in place until permanent structure is able to fully support all imposed loads.

.8 Make good damage to existing elements to remain caused by demolition.

.9 Prevent debris from blocking surface drainage system, and obstructing mechanical and electrical systems which must remain in operation.

.10 Protect salvaged elements from damage. Provide protective coverings and storage.

PART 2 – PRODUCTS

Not used.

PART 3 - EXECUTION

3.1 Work

.1 Dispose of demolished materials except where noted otherwise and in accordance with authorities having jurisdiction and in accordance with Section 01000 of the Specifications.

.2 Remove materials and equipment as indicated in the documents. Salvage, and store, protect, and reinstall to suit execution of other parts of the Work as indicated in the documents.

.3 Items for Demolition: Refer to drawings for specific details.
- .1 Portions of existing terrazzo floor, VCT and sheet flooring.
- .2 Door openings in walls, bulkheads, overhead lintels, portions of masonry walls.
- .3 Miscellaneous plumbing, mechanical and electrical items.
- .4 All other elements required to allow the Work to be completed, whether specifically indicated, or not.

.4 Carefully dismantle items containing materials for salvage and stockpile salvaged materials on site at locations as indicated or as directed by Consultant.

.5 Temporarily re-route service lines entering building or on the building in accordance with authorities having jurisdiction, and to suit the Work of this Contract. Post warning signs on electrical lines and equipment that must remain energized during period of work.

.6 Do not disrupt active or energized utilities designated to remain undisturbed, without Consultant's consent.

.7 Reference the demolition of specific Mechanical and Electrical as documented in drawings and Specifications.

3.2 Safety Code

.1 Comply with all applicable legislation.

3.3 Dismantling and Demolition

.1 Do all work in a manner to prevent endangering safety of building or occupants.

.2 Selectively dismantle parts of the building as required to suit installation of new work and remedial work. Salvage and reinstall elements unless otherwise indicated. Make good disturbed surfaces.

.3 Remove existing equipment, services, and obstacles where required for refinishing or making good of existing surfaces, and replace as work progresses.

.4 Do not disturb adjacent items designated to remain in place.

.5 At end of each day's work, leave work in safe condition so that no part is in danger of toppling or falling. Protect interiors of parts not to be demolished from exterior elements at all times.

.6 Demolish to minimize dusting. Keep materials wetted as directed by Consultant.

.7 Do not throw or allow debris to fall uncontrolled from heights. Use chutes and other controls.

3.4 Restoration

.1 Upon completion of work, remove debris, trim surfaces and leave work site clean.

.2 Reinstate areas and existing works outside areas of demolition to conditions that existed prior to commencement of work.

End of Section

Part 1 General

1.1. DESCRIPTION

.1 General Instructions:

.1 Division 1, General Requirements, is a part of this section and shall apply as if repeated here.

.2 Related Work:

- Section 02510 - Hot Mix Asphalt Paving and Granular Bases

1.2. REQUIREMENTS OF REGULATORY AGENCIES

.1 Ontario Building Code, as currently amended.
.2 Occupational Health & Safety Act and Regulations for Construction Projects, 1980; local bylaws and all other regulations of the Ontario Ministry of Labour relating to the Work of this Section.
.3 O.P.S.S. 1001 and O.P.S.S. 1010, “Material Specification for Aggregates – General” and “Granular A, B, M and Select” respectively.

1.3. DRAWINGS

.1 Examine the drawings forming a part of this Contract and conform to the requirements of all such drawings.

1.4. COORDINATION AND COOPERATION

.1 Coordinate the Work of this Section with the Work of all other Sections in accordance with the General Conditions.

1.5. EXAMINATION

.1 Examine the site for the purpose of determining the conditions prevailing there, which may affect the Work of this Section, including available access to the site, site contours, etc.
.2 Determine the nature and location of all existing services below and above ground, which may affect the Work of this Section.

1.6. UNIT PRICES

.1 Provide where and if indicated, in the Tender Form, unit prices for the addition/deletion of:

.1 Bulk excavation – per cubic metre
.2 Footing excavation by machine – per cubic metre
.3 Hand excavation – per cubic metre
.4 Compacted Class 'C' material – per cubic metre
.5 Compacted Class 'A' material – per cubic metre

.2 Include all labour, equipment, materials, overhead, profit and applicable taxes in the unit prices so that each unit price represents the total cost for the completion of the Work including hauling, where applicable.

Part 2 Products

2.1. MATERIALS

.1 Concrete: In accordance with Division 03 of this specification as follows:
  .1 Mud slabs, lean concrete fill – fc = 15 MPa., slump = 125 mm
.2 Reinforcing Steel: In accordance with the requirements of Division 03.
.3 Imported Granular Fills – Class 'A' and Class 'B': in accordance with current O.P.S.S. Form 1010 for Granular 'A' and Granular 'B'.
.4 Granular materials shall be free draining and not susceptible to frost action as determined by current M.T.C. Standards.
.5 Submit representative samples of each class of proposed material to the inspection company for testing and approval for use on this Project. Mark samples as to source of supply, including pit locations.
.6 Supply only those materials approved for use on this Project by the inspection company.
.7 Grout: Sand, cement dry pack mixture.

2.2. FABRICATION

.1 Mixing, transporting, placing, curing and protection of concrete in accordance with Division 03.

2.3. SOURCE QUALITY CONTROL

.1 All materials may be subject to test and inspection by a testing and inspection company appointed by the Architect.

.2 Cost of testing will be paid from the Testing and Inspection Cash Allowance, in accordance with Division 01.

.3 Provide access to pits or quarries for the personnel of the inspection company.

.4 Provide representative samples of materials as may be required by the inspection company at no additional cost to the Owner.

Part 3 Execution

3.1. EXCAVATION

.1 Excavate and remove **all** existing fill from within the building's general excavation.

.2 Found footings on undisturbed soil at the elevations shown on the drawings but not less than 1200 below final finished grade for exterior footings, not 500 below the till surface for all.

.3 Footings are designed for a maximum net safe allowable bearing pressure of 150 KPa (3000 psf) under service loads.

.4 Notify the Architect of any unusual soil conditions encountered during excavation so that corrective action may be taken, if necessary.

.5 Where excavations for footings are accidentally over-excavated, fill the over-excavated portion with lean concrete fill to the founding elevation shown on the plans, at no additional cost to the Owner.

.6 Provide excavations for footings of sufficient width for the construction and inspection of formwork and the satisfactory, safe execution of the Work. In general, provide not less than 400 mm clear of all construction.

.7 Trim the bottom of all excavations to elevations as shown on the drawings or approved by the Engineer.

.8 Step footings from one elevation to another as shown on the drawings or approved by the Engineer.

.9 Install footings at lower elevations prior to installing footings at higher elevations to ensure that bearing capacity of upper levels is not adversely disturbed.

.10 Notify the testing company when each phase of the excavation is completed so that bearing surfaces may be inspected.

3.2. PUMPING AND DEWATERING

.1 Keep all excavations, pits and trenches free from accumulations of water from all sources, including ground water, rain and surface water at all times by pumping or other methods satisfactory to the Engineer.

.2 Conduct dewatering operations, when required, in such a manner as to avoid damage to work under construction or existing adjacent structures and so as not to weaken the strength of bearing soils or to endanger the stability of banks or slopes.

3.3. PROTECTION OF EXCAVATIONS

.1 Protect all excavations against penetration of frost and damage from moisture before, during and after the placement of concrete.

.2 Protect adjacent construction and underground services from damage resulting from the excavation operations and from frost penetrations.

.3 If footings cannot be completed on the day of excavation, place a 75 thick concrete mud slab to protect the exposed soils. Note that this may require a slightly deeper excavation to maintain specified footing dimensions.

3.4. BACKFILL AND COMPACTION (WITHIN AND ADJACENT TO STRUCTURES)

.1 After the construction of footings, pits, walls or piers and the approval of the Work by the Architect, backfill and compact with granular Class 'B' material to the elevations shown on the drawings. Backfill on both sides of perimeter foundation walls to be granular.

.2 Backfill and compact in equal lifts on each side of walls below grade. Do not backfill and compact behind retaining walls until lower slab is placed and set.

.3 Deposit and spread granular materials in uniform layers not exceeding 400 mm (loose measurement) in depth.

.4 Compact all granular materials to not less than 98% of Standard Proctor Density, except as noted. Maintain optimum water content for proper compaction by the addition of water as required. Do not use frozen materials in the backfill.

.5 Compact using approved vibratory plate tampers or vibratory rollers, except when working close to silt or other materials which may be adversely affected by vibration in which case, use approved non-vibratory rollers to avoid disturbance of the subgrade.

.6 Do not compact adjacent to walls with earth on one side any closer than 2500 mm with heavy equipment. Use hand-controlled compaction equipment within this 2500 mm zone.

3.5. SUBFLOOR GRANULAR FILL

.1 Prior to placing general area Class 'B' granular, remove all soft and loose materials, sub-excavate any soft spots and replace with compacted granular 'B'. Proof-roll sub-grade to 95% of Standard Proctor Density.

.2 Place and compact Class 'B' granular to 98% Standard Proctor Density.

.3 Provide a minimum of 200 of compacted Class 'A' under the slab-on-grade as shown on the drawings.

.4 Compact Class 'A' granular using mechanical vibrating plate tampers to 100% of Standard Proctor Density.

.5 Take care not to damage any underfloor mechanical systems.

.6 Grade Class 'A' granular smooth and level ready for placing the vapour barrier.

.7 Remove clay, silt, dirt and construction debris from Class 'A' granular and replace any contaminated material just before the vapour barrier is placed.

3.6. ROUGH GRADING

.1 Rough grade all areas around the building in accordance with the site plan with due allowance for the existing and required grade shown, and as directed by the Architect.

.2 Areas to receive sod or seeding shall be rough graded to an elevation 150 below finished grade.

.3 For areas to receive paving or concrete slabs, refer elsewhere in this specification.

.4 Slope ground so that water will be directed away from the building.

.5 Rough graded areas shall be cleanly raked free of coarse material and left ready for final grade.

3.7. FIELD QUALITY CONTROL

.1 All materials and workmanship shall be subject to test and inspection by a testing and inspection company appointed by the Architect.

.2 The cost of testing except as noted, will be paid for from the Testing Allowance in accordance with the General Conditions.

.3 Material or workmanship which fails to achieve the specified standards shall be recompacted or replaced as directed by the Engineer and additional tests made. The cost of such additional testing and the cost of remedial action shall be at no additional cost to the Owner.

.4 The compaction tests are performed on behalf of the Owner to satisfy the Architect that the requirements of the Contract have been met. They are **not** intended as a substitute for the Contractor's quality control program.

3.8. CLEAN-UP

.1 At the completion of the Work of this Section, remove from the site any excess materials, debris and equipment, **including stockpiled materials not required** for backfill, landscaping, road or parking lot construction.

END OF SECTION

Part 1 General

1.1. DESCRIPTION

.1 General Requirements:

.1 Division 1, General Requirements, is a part of this section and shall apply as if repeated here.

1.2. TESTING

.1 Obtain Architect's approval of topsoil source.

.2 Test topsoil from source prior to stripping and stock piling, for NPK, Mg, soluble salt content organic matter and PH value.

.1 Use 23 mm diameter sampling tube or space and take 25 samples per hectare to full depth of topsoil at random across entire area to be stripped. Mix samples thoroughly before submitting for testing.

.2 Submit 0.5 Kg sample of topsoil to testing laboratory and indicate intended use, type of mulches to be applied, type of topsoil and quality of drainage. Prepare and ship sample according to provincial regulations.

.3 Determine required lime or Sulphur treatment to bring PH value of soil to 5.5 – 7.5 level.

.4 Submit two copies of soil analysis and recommendations for corrections to Architect.

.5 Inspection and testing of topsoil will be carried out by testing laboratory designated by Architect.

.6 The Owner will pay costs for testing. Refer to Section 01020.

1.3. SCHEDULING OF WORK

.1 Schedule placing of topsoil and finish grading to permit sodding operation within 2 days.

1.4. DELIVERY AND STORAGE

.1 Deliver and store fertilizer, lime Sulphur in waterproof bags showing weight, analysis and name of manufacturer.

Part 2 Products

2.1. MATERIALS

.1 Topsoil: Original topsoil stock-piled on site. Material subject to analysis by testing laboratory, Agri-Lab in Guelph, at contractor's expense. Soil analysis must be submitted with bid, otherwise all topsoil must be imported.

.2 Imported Topsoil: Friable, neither heavy clay nor of very light sandy nature, containing a minimum of 4% organic matter for clay loams and 2% for sandy loams to a maximum of 20% volume. Free from subsoil, roots, grass, weeds, toxic materials, stones, foreign objects and with an acidity range, PH of 5.5 to 7.5. Topsoil containing crabgrass, couphgrass, or noxious weeds is not acceptable.

.3 Peatmoss: Decomposed plant material, fairly elastic and homogeneous, free of decomposed colloidal residue, wood, Sulphur and iron containing a minimum of 60% organic matter by weight and moisture content not exceeding 15%. Shredded particle may not exceed 6 mm in size. Minimum PH value of peat 4.5, maximum 6.0.

.4 Fertilizer:

.1 Complete commercial synthetic slow release fertilizer with maximum 35% water soluble nitrogen.

.2 Formulation ratio: 1:4:4

.5 Lime:

.1 Ground agricultural limestone containing a minimum 85% of total carbonates.

.2 Gradation Requirements: Percentage passing by weight, 90% passing 1.0 mm sieve, 50% passing 1.0 mm sieve, 50% passing 125 micrometer sieve.

.3 Use lime as indicated by acidity analysis of topsoil to bring PH to required level.

.6 Bonemeal: Raw Bonemeal, finely ground with a minimum analysis of 3% nitrogen and 20% phosphoric acid.

.7 Sand: Hard, granular sharp sand to CSA A82. 56-M1976, well-washed and free of impurities, chemical or organic matter.

.8 Sulphur: Finely crushed agricultural elemental Sulphur, free of impurities.

2.2. SOIL MIXTURE AND PLANTING

.1 Planting Soil:

.1 For planting of trees, mix topsoil with 20% peatmoss loose by volume.

.2 Incorporate Bonemeal into planting soil at rate of 3 Kg per cubic metre of soil mixture.

Part 3 Execution

3.1. PREPARATION

.1 Grade subgrade, eliminating uneven areas and low spots, ensuring positive drainage. Remove debris, roots, branches, stones in excess of 50 mm diameter and other deleterious materials. Remove subsoil that has been contaminated with oil, gasoline or calcium chloride. Dispose of removed materials as directed.

.2 Cultivate entire area which is to receive topsoil to a depth of 100 mm. Repeat cultivation in those areas where equipment used for hauling and spreading has compacted subgrade.

3.2. SPREADING OF TOPSOIL

.1 Do not spread topsoil until Architect has inspected and approved subgrade.

.2 Spread topsoil with adequate moisture in uniform layers during dry weather over approved, dry, unfrozen subgrade, where sodding or planting is indicated.

.3 Keep topsoil 15 mm below finished grade for sodded areas; elsewhere bring topsoil up to finished grade.

.4 Apply topsoil to the following minimum depths: 135 mm for seeded areas and 450 mm for shrub beds.

.5 Remove stones, roots, grass, weeds, construction materials, debris and foreign, non-organic objects from topsoil.

.6 Manually spread topsoil.

3.3. SOIL AMENDMENTS

.1 Apply lime, Sulphur or other soil amendment at rate determined from soil sample test.

.2 Mix soil amendment well into full depth of topsoil by cultivating or roto-tilling prior to application of fertilizer.

3.4. APPLICATION OF FERTILIZER

.1 Apply fertilizer at least one week after lime application and at least 6 (six) days before sodding.

.2 Spread fertilizer with mechanical spreaders over entire area of topsoil at manufacturer's recommended rate of application.

.3 Mix fertilizer thoroughly into upper 50 mm of topsoil.

3.5. FINISH GRADING

.1 Fine grade manually, entire topsoiled area to contours and elevations as indicated. Eliminate rough spots and low areas to ensure positive drainage.

.2 Fine grade and loosen topsoil prior to sodding. Eliminate rough spots and low areas to ensure positive drainage. Prepare loose friable sod bed by means of discing and subsequent raking. Roll lightly and rake wherever topsoil is loose.

.3 Roll topsoil with 50 Kg roller, minimum 900 mm wide, to compact and retain surface.

.4 Leave surface smooth, uniform, firm against deep foot printing, with a fine loose texture.

3.6. RESTORATION OF STOCKPILE SITES

.1 Restore stockpile sites within or adjacent to contract limits to a "rake clean" condition acceptable to Architect.

3.7. SURPLUS MATERIAL

.1 Dispose of surplus topsoil not required for fine grading and landscaping off site.

END OF SECTION

Part 1 General

1.1. DESCRIPTION

.1 General Requirements:

.1 Division 1, General Requirements, is a part of this section and shall apply as if repeated here.

.2 Related Work:

.1 Section 02225 – Excavation and Backfill

1.2. STANDARDS AND SPECIFICATIONS

.1 Ontario Provincial Standard Specifications as follows:

.1 OPSS 310, December 1983, “Construction Specification for Hot Mixed, Hot Laid, Asphaltic Concrete.”

.2 OPSS Form 1150, December 1983, “Material Specification for Hot Mixed, Hot Laid Asphaltic Concrete.”

1.3. ENVIRONMENTAL CONDITIONS

.1 Asphalt shall be laid only when base is dry and weather conditions are suitable.

.2 HL-8 Asphaltic Concrete shall be laid at minimum temperatures of 2°C (35°F) and rising.

1.4. UNIT PRICES

.1 Requirements for unit prices are specified in detail in Tender Form and Section 01026.

.2 Provide where and if indicated, in the tender form, unit prices for the addition and deletion of:

.1 HL-8 Asphaltic Concrete, per tonne.

.2 HL-3 (fine aggregate) Asphaltic Concrete Surface Course, per tonne.

.3 Granular ‘A’, compacted in place, per tonne.

.4 Granular ‘B’, compacted in place, per tonne.

.3 Unit prices to include all overhead, profit, taxes, labour, materials, plant, trucking, and all other costs implied in completing the Work.

1.5. SPECIAL PROTECTION

.1 Barricade paved surfaces from traffic for 72 hours and until surfaces are ready for normal traffic.

Part 2 Products

2.1. MATERIALS

.1 HL-8 Asphaltic Concrete Base Course – to OPSS 1150.

.2 HL-3 Asphaltic Concrete Base Course – to OPSS 1150.

.3 Marking Paint – to OPSS 1710 “material Specification for Coning and Non-Coning Traffic Paint,’ colour, white.

.4 Granular ‘A’: the material shall not be susceptible to frost action, and shall be clean, angular, crusher run natural stone, free from shale, clay, friable materials, roots, and vegetable matter and graded to the specifications. The coarse aggregate portion (larger than 4.75 mm; 0.19” sieve) shall be hard and durable and must contain at least 50% crushed material. The fine aggregate portion shall be durable, free from cementation, and must not contain chert in excess of 20%.

.5 Granular ‘B’: the material shall not be susceptible to frost action, and shall be clean, free from friable, soluble materials or vegetable matter. The material may be bank or pit run and graded to the specifications.

Part 3 Execution

3.1. GRANULAR SUB-BASE AND BASE UNDER ROADWAYS, PARKING AREAS AND CONCRETE SURFACES

.1 Carefully lay out areas to be paved to required lines and levels as detailed on the drawings.

.2 Extend granular base course 300 mm (12”) minimum beyond the back edge of all curbs.

.3 Remove all topsoil, fill and otherwise deleterious materials and grade to underside of Granular 'B' elevation. Compact subgrade to 96% of Standard Proctor Density. Proof roll the subgrade in the presence of the project geotechnical engineer.

.4 All asphalted and concrete surface areas shall be brought to grade with an engineered fill constructed from Granular 'B' material.

.5 Place Granular 'B' in no more than 300 mm lifts. Compact to 95% Standard Proctor Density.

.6 Place Granular 'A' and compact to 98% Standard Proctor Density.

3.2. INSTALLATION OF ASPHALT PAVING

.1 Over the compacted Granular 'A', apply a specified layer of HL-8 compacted as outlined in OPSS 310.

.2 Finish off entire areas to be paved with a specified layer of HL-3 compacted as outlined in OPSS 310.

.3 Temperature of asphalt shall not be less than 120 °C (245°F) after spreading and prior to initial rolling.

.4 Use mechanical spreaders and compact using rollers of sufficient size and weight to achieve adequate compaction. The asphalt paving shall be compacted to at least 97% of Marshall Density.

.5 Total thickness of compacted asphalt shall not be less than thickness specified on drawings.

.6 Maintain specified slopes, elevations and "crowns" as shown on the site plan and in accordance with good construction practice.

3.3. PATCHING AND TYING IN

.1 If and when patching is required, the area to be patched shall be cut out to its entire thickness and repaved making sure that the edges are primed and compacting is equal to that outlined in approved grades.

.2 Where "tying in" to existing asphalt pavement, neatly cut existing asphalt to full depth. Prime existing edges and "iron in" as required to provide neat, smooth transition to approved grades. All road cuts are to be milled as detailed on the drawing.

3.4. QUALITY CONTROL

.1 Notify the testing company of the granular placing and paving schedule, sufficiently in advance so that tests may be made.

.2 Provide representative samples of the materials as requested by the testing and inspection company at no additional cost to the Owner.

.3 The cost of any additional testing and/or the cost of replacement of any part of the asphalt to meet the test requirements, shall be borne by the Contractor.

.4 Where field tests have been cut as block samples from the in-place asphalt concrete, replace and make good to the satisfaction of the Architect.

3.5. PROTECTION AND CLEAN-UP

.1 Exercise care in granular placing and paving operations adjacent to curbs, lighting standards, sidewalks, etc., so as not to damage these items. Make good any damaged items to the satisfaction of the Architect.

.2 At the completion of the Work of this Section, remove from the site all tools, equipment, surplus materials, and debris.

3.6. PAVEMENT MARKINGS

.1 Layout lines as indicated on drawings and apply 100 mm wide lines for parking, use a mechanical application equipment. End limit of each line to have clean, sharp 90° corners with no overspray fogging. Thickness of paint application to be consistent throughout. Under-sprayed lines shall be repainted.

END OF SECTION

PART 1 - GENERAL

.1 **Description**

.1 **General Requirements**

Division 1 and General Requirements, is a part of this Section and shall apply as if repeated here.

.2 **Work Related to This Section Performed by Other Sections**

Section 06200: Finish Carpentry

.3 **Installation of Work Supplied by This Section, Specified in Other Sections**

Section 03300: To install bolts, inserts, etc.
Section 04200: To install bolts, inserts, etc.

.2 **Quality Assurance**

.1 **Requirements of Regulatory Agencies**

Mark each piece of wood, which is rated non-combustible by fire retardant pressure treatment, with ULC Fire Hazard Classification label.

.3 **References**

.1 **Reference Standards**

.1 Grade lumber in accordance with rules and regulations of the National Lumber Grades Authority.
.2 Dimensions of lumber shall conform to dressed sizes specified in CSA Standard O141-91.
.3 Reference standards quoted in Contract Documents refer to:
ASTM E84-81a, Test for Surface Burning Characteristics of Building Materials.
CAN/CSA O80 Series-M89, Wood Preservation.
CAN/CSA O141-91, Softwood Lumber.
CSA Standard B111-1974, Wire Nails, Spikes and Staples.
CSA Standard O121-M1978, Douglas Fir Plywood.

.4 **Site Conditions**

.1 **Environmental Conditions**

When it is required that wood maintain dimensional stability and tolerances to ensure accurate installation of later work, store and install it only in dry areas, and where no further installation of moist materials is contemplated.

PART 2 - PRODUCTS

.1 **Materials**

.1 For lumber and fastenings conform to Ontario Building Code, Section 4.3.
.2 Grade mark lumber by the appropriate association under authority of the National Lumber Grades Authority.
.3 Moisture content of lumber at time of building-in shall not exceed 19%.
.4 **Lumber**
  .1 Spruce-Pine-Fir Species Group Designation, framing lumber, with no more than 15% of next lesser of specified grade included.
  .2 For utility use where concealed: sound and free of imperfections or deficiencies making unsuitable for use.
.5 **Plywood**
  .1 Douglas Fir, in conformance with CSA Standard 0121-M1978.
  .2 For utility use: Unsanded Sheathing Grade.
.6 **Nails, Spikes and Staples**
  In conformance with CSA Standard B111-1974; galvanized at exterior locations, at interior high humidity locations and for treated lumber; plain finish elsewhere. Use spiral shank nails generally.
.7 **Fasteners**
  To hollow masonry use toggle bolts: to solid masonry and concrete use expansion shields and lag bolts; to steel use bolts or welded stud fasteners. Use lead or inorganic fibre plugs for fasteners in concrete and masonry. Provide washers at bolt heads and nuts. Galvanize fasteners at exterior locations, at high humidity interior locations and for treated lumber.
.8 **Wood Preservative**
  Copper naphthenate or pentachlorophenol solution to meet specified requirements of CSA Standard O80.
.9 **Dampproof Membrane**
  0.051 mm polyethylene film.

PART 3 - EXECUTION

.1 **Installation**

.1 **General**
  .1 Lay out items installed by this Section carefully and to accommodate requirements of other Sections. Cut and fit members accurately; erect them in position indicated by Drawings; align, level, square, plumb, and secure them permanently in place. Brace work temporarily as required. Join members only over solid backing.
  .2 Bore holes true to line and to same size as bolts. Drive bolts into place for snug fit, and use plates and lag screws tightly when installed, and again just before being concealed by other installations or at completion of the work.
  .3 Cooperate with other Sections to ensure that unity of actions will ensure orderly progress to meet construction schedule.
  .4 Supply anchors, bolts, and inserts, required for installations of this Section, to those performing the work of other Sections and who are responsible for their installation.

.5 Include rough hardware such as nails, bolts, nuts, washers, screws, clips, hangers, connectors, and strap iron required for installations by this Section; and for all operating hardware required by this Section for temporary use.

.6 Do not attach installations of this Section by wood plugs or blocking in concrete or masonry. Use lead shields, expansion shields, concrete nails, or similar methods only as approved.

.2 **Blocking, Nailers, Strapping, Furring, Grounds & Miscellaneous Rough Framing**

.1 Do not regard nailers, blocking, and such other fastening provisions as shown on drawings as exact or complete. Install required provisions for fastening, located and secured to suit site conditions, and adequate for intended support.

.2 Cut members into lengths as long as practicable and with square ends.

.3 Install rough bucks for opening jambs, heads, and sills of minimum nominal 38 mm thickness, and of width of casings or as otherwise indicated. Set bucks plumb, level, and anchored securely in place.

.4 Verify that grounds required for fastening of components and equipment are located correctly, and that they provide adequate support.

.5 For general strapping, set preservative treated nominal 19 mm x 38 mm wood strips vertically and spaced at 400 mm o.c., unless otherwise indicated. Shim to provide a true face plane. Install intermediate horizontal strapping at all joints to wall finishes applied over grounds.

.2 Adjustment

.1 Ensure that bolted fasteners are drawn up tightly.

End of Section

PART 1 - GENERAL

.1 **Description**

.1 **General Requirements**

Division 1 and General Requirements, is a part of this Section and shall apply as if repeated here.

.2 **Work Performed by Other Sections Related to This Section**

Section 06100: Rough Carpentry
Section 06410: Casework
Section 09910: Painting

.2 **References**

.1 Conform to CSA Standard 0141-91 for dressed dimensions of wood members.
.2 Reference standards quoted in Contract Documents refer to:
ASTM E84-81a, Test for Surface Burning Characteristics of Building Materials.
CAN3-O188.1-M78, Interior Mat-Formed Wood particleboard
CAN/CSA-A172-M79, High Pressure, Paper Base, Decorative Laminates
CAN/CSA-O80 Series-M89, Wood Preservation
CAN/CSA-O141-91, Softwood Lumber
CSA Standard O115-1982, Hardwood Plywood
CSA Standard O121-M1978, Douglas Fir Plywood
CSA Standard O151-M1978, Canadian Softwood Plywood
CSA Standard O153-M1980, Poplar Plywood
CGSB Specification 11-GP-3M, Hardboard
.3 Fabricate millwork as specified in Finish Carpentry Schedule to meet specified requirements of Custom Quality Standard of either:
: AWI Specification, Architectural Woodwork Quality Standards and Guide Specifications, 1973, by Architectural Woodwork Institute, or
: AWMAC Specification, Quality Standards for Architectural Woodwork of the Architectural Woodwork Manufacturers Association of Canada, Seventh Edition, 1984.

.3 **Submittals**

.1 **Shop Drawings**

Submit detailed shop drawings of all millwork and finished carpentry items.

.2 **Samples**

Submit samples of each specified finish wood species, and in each cut if requested.

.4 **Delivery, Storage and Handling**

.1 Protect materials from damage during handling, delivery, and storage.
.2 Receive finish hardware supplied by Section 08710 and store, secure against theft.

.3 Do not deliver wood materials to site until storage areas are completed, and conditions are such that no damage will occur to them while in storage and during installation.

.5 **Site Conditions**

.1 **Environmental Requirements**

Ensure that relative humidity in areas where wood materials are stores and installed does not exceed 55%.

.6 **Warranty**

.1 **Extended Warranty**

Warranty installation specified in this Section covering the period for one (1) year beyond the expiration of the warranty period specified in the General Conditions to the Contract.

PART 2 - PRODUCTS

.1 **Materials**

.1 **General**

.1 Provide rough hardware required for finish carpentry specified in this Section. Use non-corrosive hardware at exterior locations.
.2 Moisture content of wood at time of installation shall be for interior locations at an average of 7%, with a permitted range of individual pieces of 5% to 9%; and for exterior locations at an average of 12%, with a permitted range in individual pieces of 10% to 15%.
.3 Use only adhesive and fastenings that develop sufficient strength for intended use, are non staining, and are unaffected by the environment to which exposed.

.2 **Wood**

.1 Grade mark softwood and hardwood lumber by the appropriate association under authority of the National Lumber Grades Authority.
.2 Where not exposed to view, use wood of grades suitable for fabrication, utility and structural needs.
.3 Where exposed to view, use Appearance Grade wood for structural lumber, as otherwise specified. Meet requirements of specified AWI or AWMAC Quality Grade Standard, where applicable.
.4 Ensure that surfaces exposed to view and given a natural or stained finish are free from markings and stains caused by milling, treatment, storage, handling and other causes.
.5 Ensure that veneered panels, and solid finger jointed and edge laminated members, where admissible for incorporation as approved, are matched for grain configuration and uniformity of colour throughout all surfaces exposed to view which are to receive a natural or stained finish.

.3 **Plywood**

.1 Douglas Fir; To meet specified requirements of CSA Standard O121-M1978; Sanded Grade, Good Two Sides where both sides are exposed to view, and Good One Side where only one side is exposed to view.
.2 Softwood: To meet specified requirements of CSA Standard O151-M1978, Sanded Grade, Solid Two Sides where both sides are exposed to view, and Good One Side where only one side is exposed to view.
.3 Hardwood: To meet specified requirements of CSA Standard O115-M1978 veneer core, Type II, smooth sanded, rotary cut face veneers, Good Grade where exposed to view and Sound Grade where not.
.4 Poplar: To meet specified requirements of CSA Standard O153-M1980.
.5 Birch: Rotary cut Select Grade veneer where transparent or clear finish specified.

.4 **Particleboard**

To meet specified requirements of CAN/CSA-O188.1-M78, Grade S.

.5 **Plastic Laminate**

To meet specified requirements of CAN/CSA-A172-M79.

.1 Colour: Selected from manufacturer's standard solid colour range.

.6 **Hardboard**

To meet specified requirements of CGSB Specification 11-GP-3, Type 2.

.7 **Fire Retardant Treatment**

Pressure treat lumber in accordance with CSA Specification O80 Series-M89, C20 and plywood with O80 Series-M89 C27, or to ULC Specifications; to ensure a flame spread rating of less than 25 when tested in accordance with ASTM Standard E84.

.8 **Wood Preservative**

Clear pentachlorephenol, to meet specified requirements of CSA Standard O80 Series-M89.

.2 **Fabrication**

.1 **General**

.1 Assemble fabricated millwork units in mill in units as large as possible. Design units to fit together if site assembly is required.
.2 Edge plywood where specified or indicated with solid wood to match face veneer, with profiled pressure glued edge joint and finished level with plywood surfaces.
.3 Fabricate custom casework specified in this Section to meet workmanship specifications in Section 400, Casework, of AWI/AWMAC Custom Quality Standard, except as modified, and as follows:

.1 Conceal edge grain of exposed and semi-exposed plywood and particleboard using solid hardwood edges for stain finish or plastic laminate.
.2 Assemble cabinet body members with adhesive.
.3 Where permitted, drive power-driven Tee head nails or staples with long dimension parallel to grain.
.4 Install dust panels between drawers.

.4 Shop fabricate work of this Section in as large units as possible.
.5 Incorporate services, fixtures, and trim in units as indicated on drawings or specified in Divisions 15 or 16, or both. Make all necessary cutouts to template information.

.2 **Trim**

.1 Rout or groove backs of flat trim members.
.2 Kerf backs of wide flat member.

.3 **Fastening**

.1 Fasten assemblies with nails generally, but use screws or special fasteners at critical joints where strain, and excessive usage and shrinkage is anticipated, and where required by specified quality grade standards.
.2 Glue built-up assemblies as well as nailing and screwing.
.3 Bind nail unless impossible.
.4 Set finish nails below finished surfaces.

.4 **Plastic Laminate Facing**

.1 Apply plastic laminate for counters to poplar faced phenolic bonded plywood, or to particleboard, minimum 19 mm thick, or as otherwise indicated on Drawings. Apply plastic laminate for doors, drawer fronts, gables, etc. of cabinets to minimum 19 mm thick wood core, Birch faced plywood.
.2 Bond plastic laminate to backing with urea formaldehyde adhesive, or by methods of equal or better quality recommended by the plastic laminate manufacturer.
.3 Seal edges of cutouts with plastic laminate, or where concealed from view by other methods that will prevent entry of moisture into core.
.4 Apply plastic laminate backing sheet to core on back side of panels faced with plastic laminate.
.5 Ensure that both face and backing sheet have been sanded in same direction.
.6 Bond plastic laminate self-edges under pressure, and bevel and finish smooth finished corners.
.7 Round corners of holes cut through plastic laminate and file them smooth.
.8 Make joints only when lengths of plastic laminate facing exceeds 3660 mm. Butt joints together, reinforce core with 6.4 mm hardwood blind splines, and lock together with Tite Joint fasteners located at a maximum of 75 mm from edges.

.5 **Finishing**

.1 Finish each surface of millwork to specified quality grade standard where exposed or semi exposed. Consider that all visible surfaces are exposed, including underside surfaces above 1200 mm from floor and interiors of fitments behind glass doors. Consider that underside surfaces within 1200 mm of the floor, top surfaces more than 1800 mm above the floor, interiors of fitments behind opaque doors and the backs of fitment doors are semi-exposed.

.2 Fine sand surfaces level and smooth after fabrication.

PART 3 - EXECUTION

.1 **Examination**

.1 Before commencing installation, ensure that grounds, strapping, and other constructions and surfaces to which finish carpentry is installed are satisfactory for fitting and adequate for its securement.

.2 Take site measurements of construction to which finish carpentry installations must conform, and through which access must be made, before fabricated units are delivered to site, to ensure that adaptation is not required which would result in construction delay.

.2 **Preparation**

.1 **Protection**

.1 Ensure that finish carpentry materials are protected from damage and deterioration during installation, and otherwise until project completion in accordance with General Conditions.

.2 Take particular care that wood made fire retardant by pressure treatment is not exposed to dampness.

.3 **Installation**

.1 **General**

.1 Backprime exterior and interior millwork specified in this Section immediately after delivery to site under work of Section 09900. Ensure that cut ends are primed. Scrape or sand smooth surfaces by this Section. Notify those who are responsible for backpriming in sufficient time to enable them to schedule their work.

.2 Coordinate the installation of casework manufactured under section 06410 and determine which section will be responsible for the installation of casework. Notify the architect of section responsibility for installation of casework.

.2 Install finish carpentry plumb, level and straight, and fasten it securely to backing to support itself and anticipated superimposed loads.

.3 Build finish carpentry into construction as indicated on Drawings or specified in other Section of the Specifications, or both.

.2 **Trim**

.1 Install in single lengths except where material limitation makes impossible. Stagger joints where they occur and locate over solid backing for fastening.

.2 Install wood bases after finish flooring is laid.
.3 Cut returns of stool and apron ends to match face profile.

.3 **Cutting and Fitting**

.1 Cut moldings with sharp true profiles.
.2 Cope trim and mouldings at interior corners and at returns.
.3 Miter trim and mouldings at exterior corners. Glue and lock shop miters that are over 100 mm from heel to point.
.4 Scribe and join members accurately together, and to other surfaces, to fit tightly and with flat smooth surfaces. Install trim or filler panels to close gaps.
.5 Ensure that all cutouts for electrical devices and plumbing are fully coordinated and neatly completed for work under this section and Section 06410.

.4 **Fastening**

.1 Fasten finish carpentry with nails generally, but use screws or special fasteners at critical joints where strain, usage and excessive shrinkage is anticipated, and where specified quality grade standards require.
.2 Blind nail unless impossible.
.3 Set finish nails below finished surfaces to receive putty.

.5 **Installation of Doors**

.1 Install wood doors after finishing of walls.
.2 Fit wood doors with 2 mm clearance at jambs and heads, and 9.5 mm over finished flooring.
.3 Trim hinge side of wood doors to fit, and bevel latch edges as required.
.4 Ensure that top and bottom edges of wood doors are primed under Work of Section 09900 after they are cut to fit.
.5 Undercut wood doors where indicated on Door Schedule.

.6 **Installation of Finish Hardware**

.1 Install finish hardware
.2 Make cuts in wood doors neatly
.3 Accurately locate and adjust hardware to meet manufacturer's instructions. Use special tools and jigs as recommended.
.4 Install hardware in wood doors at same locations as for hollow metalwork installed in project.
.5 Locate door stops to contact doors 75 mm from latch edge.
.6 Install hardware and trim square and plumb to doors.
.7 Replace missing hardware to ensure specified installation at time of building completion.
.8 After installation, replace wrappings for hardware provided by manufacturer.
.9 Safeguard keys to keep them out of unauthorized hands, tag them with opening number, and deliver them to person designated by Architect at building completion.

.7 **Finishing**

.1 Sand wood surfaces after installation to leave surfaces in true planes and free of machine or tool marks.

.8 **Wood Preservative**

.1 Give wood installed at exterior of building and which is specified for painting a soaking coat of wood preservative on all surfaces. Give freshly cut ends two additional soaking coats.

.4 **Adjustment and Cleaning**

.1 Adjust hinged doors to swing freely and easily, to remain stationary at any point of swing, to close evenly and tightly against stops without binding, and to latch positively when doors are closed with moderate force. Ensure that when doors are installed with hinged stiles adjacent, both doors can open simultaneously without binding.

.2 Adjust hardware so that latches and locks operate smoothly and without binding, and closers act positively with the least possible resistance in use. Lubricate hardware if required by supplier's instructions.

.3 Clean hardware after installation in accordance with supplier's instructions.

.4 Sand and clean woodwork to leave free from finish defects in any exposed part.

End of Section

PART 1 - GENERAL

.1 General Requirements

.1 Division One, General Requirements, is a part of this Section, and shall apply as if repeated here.

.2 Reference Standards

.1 Standard of finished carpentry, metalwork and cabinet work in accordance with the "Millwork Standards" of the Architectural Woodwork Manufacturers Association of Canada (AWMAC).

.3 Qualifications

.1 The Vendors must be from the Vendor or Record List.

.4 Work Included

.1 Provide all millwork and casework as shown on the drawings, including but not limited to the following. Provide prefinished cabinets, display cases, shelving units, counters, vanities, and similar items where shown on drawings as specified herein, and as needed for a complete and proper installation.

.2 Provision of rough hardware, including fastening devices required to secure in place items of carpentry and millwork.

.3 Supply and installation of finishing hardware for millwork by this millwork contractor section 06400.

.4 Supply and installation of grilles, etc. on millwork items.

.5 Installation of all miscellaneous metals for millwork items including but not limited to vanity & ets. Metal brackets for change room benches to be supplied and installed by miscellaneous metals contractor.

.6 Supply and installation miscellaneous trims, scribers, filler panels.

7 Provide cutouts in the counter tops for the sinks, electrical outlets and all other necessary cutouts regarding the millwork.

.5 Shop Drawings

.1 Shop drawings only required where not detailed by "AW" drawing. Copies of "AW" are to be marked up to indicate changes.”AW” drawings refer to WRDSB Millwork Standards drawings contained in Specifications or drawing sets.

.2 Before shop drawings and fabrication is started, take critical measurements at the site to facilitate installation, fitting of work and access required to move millwork into final location. Take such measurements prior to fabrication of the work of this section and in ample time to avoid delays in the work.

.3 Draw Shop Drawings in related and/or dimensional positions with sections. Scale minimum 1:10.

.4 Shop Drawings shall show fabrication details, materials, jointing, description of anchorage and hardware.

.5 Submit 4 sets for approval.

.6 Do not commence work until reviewed shop drawings have been returned as approved by Consultant and WRDSB.

.7 The drawings are to be photo copied, confirmed, to fit openings and sizes, mark up, in red, and return for approval.

.6 Delivery And Storage

.1 Give Painter sufficient notice so that untreated or unprimed carpentry items or materials can be primed immediately upon delivery to site.

.2 No equipment shall be delivered to the site until portion of the building in which it is to be installed is completely ready for equipment as approved by Consultant.

.3 Store finished work properly and keep under cover both in transit and at site. Finish woodwork shall not be delivered to site until concrete and masonry work has dried out.

.4 Cover all plastic laminate and prefinished top surfaces at shop with heavy Kraft Paper.

.5 Carefully protect from damage of any kind.

.7 Related Work Specified Elsewhere

.1 Finishing Hardware - Section 08700
.2 Finish Carpentry - Section 06200
.3. Millwork Finish Painting - Section 09900
.4 Gypsum Drywall - Section 09250
.5 Painting and Finishing - Section 09900

.8 Shop Finish

.1 All cabinet work, including wood for change room bench seating and all other cabinet trims, to be shop finished by this Section and per Section 09900.

.9 Samples

.1 Samples melamine 305x305mm, plastic laminate, edging, hinges, pulls, bumpers, drawer slides, and shelf clip.

.2 Submit duplicate 12" (300 mm) long samples of each type of moulding.

.3 Submit samples of construction methods and of all hardware.

.10 Intent

.1 The intent of this Section is that casework shall be manufactured and finished at the plant, delivered to the Site and immediately installed by this Section including provision of necessary strapping, backings, bearers, rough hardware and finish hardware and miscellaneous support metals and stainless steel metal components.. Touch up finish immediately prior to completion of the Work and leave in perfect condition.

.11 Co-Operation

.1 Water, drainage and air piping, faucets, hose cocks, retort rod and bases, traps, ventilation ducts, sinks, electric receptacles and wiring are supplied and installed by the Mechanical and Electrical Sections at all rooms. Co-ordinate the work with these trades and make provision in the construction of the fitments to accommodate this work. Methods of construction shall be such as to permit mechanical and electrical work being concealed in the fitments, cut and

frame accordingly, provide removal access panels in the units or provide proper access for installation and repairs.

.2 Cabinet hardware, pilaster strips, locks, finishing hardware will be supplied by this section. Miscellaneous metals used in this section will be supplied and installed by miscellaneous metals contractor unless otherwise noted.

.3 Woodwork, not shop primed, will be primed and back painted as per painting section immediately upon delivery to the site. Care shall be taken that all surfaces cut after priming are brush coated with an approved primer before installation.

.12 Maintenance

.1 Provide Owner with printed instructions for "Care and Maintenance of Plastic Laminate" and millwork finishes.

.13 Warranty

.1 Warranty workmanship against manufacturing defects, including warpage or delamination, for a period of five (5) years from date of acceptance of substantial completion. Make good or replace work showing defects in this period, as requested, at no expense to the Owner.

PART 2 - PRODUCTS

.1 Materials

.1 Finishing Work:

Materials used for finish work shall be sound, free from defects that would mar finished appearance, well seasoned and air dried and of good quality for intended purposes. Wood laminates pressure bonded.

.2 Plywoods:

.1 Select Plain Sliced Maple architectural Grade 'A' No. 1 Face grade; and yellow birch rotary cut select white (varnish grade) as in compliance with C.S.A. 0115-M1982 with a minimum 5 ply plywood veneer waterproof core, laminated with waterproof adhesive. Plywood shall be good both sides except where concealed by construction. Exposed faces to be natural grade per AWMAC. Interior of doors to be classified as exposed.

.2 Melamine Faced Particleboard: to CAN3-0.188.1-M78, grade "H" particleboard sanded faces, 13 mm, 16 mm, 19 mm, 28.6 mm and 32 mm thickness, faced with laminated plastic. Melamine resin impregnated cover sheet with coloured and/or patterned paper inner layer. Melamine shall be thermally fused to rigid particle board substrate. Melamine faces shall be 120 Gram Weight Paper. Colour to be Hardrock Maple or as noted on the drawings. Maximum of three colours/patterns to be chosen by Consultant from manufacturer's full range.

.1 Acceptable Material: Flakeboard, Uniboard or approved equal. Final colour by Architect at Shop Drawing submission.

.3 Particleboard, CSA-0118-1975 Type 11, Grade R, minimum 690 K8/m3, 4.5 to 8% moisture content.

.3 Hardwood: shall be selected Clear Yellow Birch, all shall be Architectural Grade (knots will not be accepted). It shall be selected for colours and graining when used for stain work.

.4 Wood Edging: 1/4" (6 mm) hardwood to match plywood unless indicated otherwise (if maple, use hard maple).

.5 .Melamine Faced Particle Board Edge Banding: solid polyvinylchloride (PVC), 3 mm thickness x full width of board, wood core, wood grain type to match melemine face by Canada Wood tape or approved colour equal. Edging rigid PVC with a measured degree of hardness of " 95 shore D" and thickness of "3mm (+0.15mm, -0.2mm)" with the primer side having a concave measuring 0.10 to 0.25mm.
Edging adhesive Ethylene vinylacetape thermalset adhesive with a temperature resistance of not less than 100 degrees C; A Processing range of 190 degrees - 200 degrees C and natural in colour.
Edging is to be applied using only equipment designed for the application of thick PVC in strict accordance with the specifications of both the thick PVC and hot-melt adhesive manufactures. All edges and all corners of this 3mm PVC edgebanding are to be machined to a 3mm radius for all cabinet parts.
Care should be taken during application to achieve the thinnest glueline consistent with a good bond without causing skips or unspread areas. Final colour by Architect.

.6 Plywood Concealed by Construction: Douglas Fir plywood shall be veneer core, waterproof, bonded, sanded, complying with C.S.A. 0121-M1978. Solid grade where concealed by construction.

.7 Concealed Framing Lumber: N.L.G.A.C. select eastern white pine, kiln dried to a 5% moisture content.

.8 Unexposed Plywood for Framing: Waterproof fir plywood minimum 1/2" (12.7 mm) thickness unless indicated otherwise.

.9 Adhesive:

.1 Waterproof synthetic resinous glue of approved general type conforming to C.S.A. 0112.
.2 For plastic laminate - as recommended by plastic laminate manufacturer and to conform to C.S.A. 0120-M1978.
.3 Approved waterproof type.

.10 Plastic Laminate:

.1 Laminated Plastic for Flatwork: .050" (1.27 mm) thick decorative, melamine surfaced, high pressure laminated plastic sheeting in suede finish to conform to CAN3-A172-M1979 Grade G.P., Type 1. Manufacturer shall thoroughly sand back of sheet to form a homogeneous bonding surface. Plastic laminates shall be as manufactured by Arborite, Formica, Wilsonart or Nevamar. Backing sheet .020" (.5 mm) thick, sanded one side. Products may be selected based upon manufacturer's full standard range of colours and patterns. The finish will be suede; the colour will be non-stock.

.2 Laminated plastic for postforming work and preforming work: to CAN3-A172-M79 Grade P.F., Type 3, .050" (1.25 mm) thick, based on standard colours with suede finishes as selected by Architect. Plastic laminates shall be as noted in 1 above except for Darkroom 142.3 which shall be as per item 3 below. The colour will be non-stock.

.11 Cork: 1/4" (6 mm) natural fine grain sheet cork. Cork to be Fabro from Architectural School Products or approved equal. Colour to be selected and approved. Fabric covering over cork, as indicated, to be supplied and installed by this section.

.12 Nails and Staples: To C.S.A. Bill-1974. Use spiral threaded nails and barbed staples.

.13 Architectural Woodwork Finish: Refer to Section 09900.

.14 Shelves: adjustable shelves longer than 950 mm and fixed shelves without centre supports longer than 950 mm to be 28.6 mm thick wood veneer plywood or melamine faced particleboard as detailed. Shelves shorter than lengths specified above are to be 19 mm thick wood veneer plywood core and melamine faced particleboard for alternate price items. Front edges of adjustable shelves to be edge-banded. Front edges of fixed shelves to edge banded, rear edge to be secured to cabinet back panel.

.15 Egg Crate: 12mm x 12mm x 12mm Deep chrome finished plastic egg grate louvre in display cabinet, complete with chrome finished support angle trim equal to standard Acoustic Ceiling corner angle.

.16 Glazing: Doors and shelves 6mm tempered clear glazing, and shelves. Provide 6mm clear tempered glass at display cases and where glass is indicated in millwork units and millwork screen in Library. Glass to conform to Glass and Glazing Section 08800 previously tendered.

.17 Aluminum Angles: 50 mm x 50 mm x 3 mm aluminum angles for vertical corners at mobile storage units.

.18 Exposed Fasteners: All millwork units secured to walls shall be secured with Tapcon screws and cup washers. All specialty fasteners such as acorn head bolts shall be supplied and installed by this section. Submit samples for Architect's approval.

.19 Aluminum Grilles: Brush finished aluminum size as indicated see AD 9.30. Supply and installation of grilles, etc

.20 Counter tops: to be plastic laminate postformed on particleboard or veneer core plywood or as noted on the drawings.
Adhesives: to CSA 0112.5M, waterproof type.
Counter tops are postformed D profile.

.21 Backer standard: to be .028 thick. Panels shown to have backer panel shall be balanced with 0.5mm (0.030) backing sheet manufactured by the same manufacture as the facing sheet. Core CSA 0115-M1982 (G/SO) or CSA0121-M1978 Grade "B" or CAN3-0188.1-M78, Grade R.

.2 Hardware

.1 The cabinet work manufacturer shall furnish and install cabinet hardware. Finish of hardware shall be used US26D or US28 depending on base material. Hardware shall be manufactured as follows or approved equal:

.1 Pulls - door and drawer, Canadian Building Hardware CBH 255 x C26D.

.2 Hinges - Blum 107 dregree hinge with soft close or approved equal, or specified other on drawings.

.3 Cabinet locks door and drawer - National # C8053-5 or approved equal. All cupboard doors in a room to be keyed the same. Each room to be keyed different. Provide 6 master keys for cupboard locks.

.4 Shelf support - Richelieu - # 5834-180 for 32mm spaced holes in all gables or recessed pilaster strips see drawings.

.5 Door Bumper - Richelieu # AMP5312-11.

.6 Elbow Catch - Richelieu # BP3675-2G.

.7 Toe Kick Vent - Richelieu # 010533-30.

.8 Drawer slides – Richelieu tandembox 908 white with soft close, adjustable front fixing brackets and 12mm Melamine with 3mm PVC on all exposed edges for bottoms and back panels. Install screws to all pre-drilled holes.

.9 Rough Hardware - Nails, screws, bolts, lag screws, anchors, special fastening devices and supports required for erection of carpentry components. Use galvanized components if exposed to exterior atmosphere. Galvanize in accordance with the requirements of CSAG164-M1981.
Install all hardware to manufacturer specifications.

.10 Glass sliding doors.
Glass sliding doors to be 6mm tempered c/w HUWIL track from Richelieu, lock in track, and ground in finger pulls 12mm x 64mm. Glass shelves to be 6mm tempered.

.11 Finishes.
Melamine Composite Panels simulated Hardrock Maple or as noted on the drawings
Edge Banding: simulated Hardrock Maple grain or as noted on the drawings

.12 Display Case Shelf Brackets and Standards:
.1 Brackets: Knape & Vogt 187 Series length as shown on drawings to suit glass shelf width.
.2 Standards: Knape & Vogt Sereis 87.

.13 Computer Grommets: Standard recessed 3" (75mm) diameter. Colour as selected by Architect.

.14 Slide Bolts: Gallery 73 - 3" (75 mm) or approved equal.

.15 Casters from Colson in Cambridge - lockable model 22.04156.445, non-lockable model 2.04056.445.

.16 Closet rod , Metal rod chrome 26mm dia. #122.108.140 And matching flanges #8332-140, by Richelieu

.17 Coat Hooks, Henkel Hook from Henkel Diversified Inc (519-641-5872)

.3 Fabrication

.1 General

1. Fitments shall be machined, assembled in mill where possible and delivered to job in units. Construct in accordance with details using first class cabinet construction with joints dowelled, glued and properly fastened. Machine all surfaces of finished woodwork to an even smooth surface; fit all joints and miters accurately. Frame materials with tight joints held in place,
Conceal joints and connections where possible. Joints made on site shall be equal in quality of work to joints made in the shop.

2. Check job dimensions and conditions and notify the Consultant in writing of unacceptable conditions. Design construction methods for expansion. Do not proceed until remedial instructions are received.

3. Deliver work to the job ready for installation. Leave ample allowance for fitting and scribing on the job. Shop assemble work for delivery to site in size easily handled and to ensure passage through building openings, Design units to fit together if site assembly is required.

4. Fabricate work square and to the required lines. Recess and conceal fasteners and anchor heads. Fill with matching wood plugs.

5. Comply with glue manufacturer's recommendations for lumber moisture content, glue life, pot life, working life, mixing spreading, assembly time, time under pressure and ambient temperature.

6. The interior of counters, cupboards, shelving units, desks, shall be considered "exposed". Finish all exposed edges with 3mm thick PVC edge banding material, applied by an Edge-Bander using Hot Melt adhesive. Colour to match the melamine. Radius all exposed edges and corners (PVC edging or Wood edging). Counter tops which are to receive plastic laminate coverings may be 3/4" (19 mm) thick sanded veneer core plywood where specified. Particle core shall be used for shelving and gables, countertops specifically called for as solid material or as otherwise specified. Include all filler strips and to match the face colour.

.7 Refer to Drawings and Architectural Detail Sheets for location, details, number of units required and location of fittings.

.8 Interior fitments shall be complete in every respect with special fittings required and hardware.

.9 Provide exposed end grain of solid members and edges of exposed plywood with matching solid hardwood edging at least 1/4" (6.4 mm) thick and thicker where specified. At melamine faced particle board provide 3 mm P.V.C. edging complete with 3 mm radius on all exposed edges and corners as per millwok sections. Edging to melamine faced particle board shall be applied with an Edge-Bander using hot melt adhesive.

.10 Make all necessary cut-outs in the furniture for sinks, gas cocks, appliances, and electrical switch and outlet boxes and pre-drill all mounting holes for faucets, fittings and outlet boxes. Refer to electrical and mechanical drawings and specifications.

.11 Provide and install pipe covers, scribing pieces, top, bottom and/or closures and filler panels where necessary, including wherever units require furring out or blocking to existing conduits, pipes, etc.

.12 Service cover panels to be provided at all kneehole drawer units, kneehole front rails and knee drawer table assemblies. End closing panels to be provided at all exposed ends of service strips and island/peninsula assemblies. Front filler panels to be provided where called for on Drawings and as required by field conditions.

.13 Telephone and electrical receptacles and wiring are specified under Electrical Division. Co-ordinate work of this trade, make provision to accommodate this work and cut tops for and provide wood bearers for support.

.14 Cooperate with others engaged in work on the building to the end that proper unity of action will assure the orderly progress of the work. Do necessary boxing and protecting of sills, jambs, and the like. Construct scaffold, ramps, and other temporary staging necessary.

.15 Provide 3/4" (19 mm) plywood adjustable or fixed shelving where detailed. Maximum unsupported span for shelving shall be 3'-0" (900 mm). Fixed shelves

shall be dowelled into gables and divisions. Where shelves are set on clips only, gables shall be drilled 32 mm o.c. for total height of gables.

.16 The plywood used in interior fitments throughout regardless of whether for paint or stain finish, shall have exposed edges edged with solid strips 1/4" (6 mm) wide, unless noted otherwise by full thickness of plywood. No exposed edges of plywood will be permitted. Strips shall be glued and accurately fixed to edges. Adjustable shelves shall have strips applied to front edge.

.17 Exposed framing members and trim shall be solid hard maple or birch.

.18 Plastic laminate coverings to fitments, cupboards and counters shall be in colours selected by Architect, and applied in accordance with manufacturer's directions. Where plastic laminate occurs, exposed edges and edges around cut-outs such as sinks shall be edged in the same material. Seal remaining exposed edges of surfaces with heavy Kraft paper prior to shipment. Paper shall not be removed until final cleaning. When cutting holes in plastic laminate work, corners shall be rounded and filed smooth.

.19 When cutting holes in plastic laminate work, corners shall be rounded and filed smooth.

.20 Protection erected by this trade shall be removed, damage to this work and adjoining work due to the lack or failure of such protection, made good and debris, surplus materials, plant and equipment removed and premises and the whole left clean and tidy to Architect's satisfaction.

.21 Melamine on all surfaces unless noted otherwise.

.22 Fabricate all plywood and melamine faced particle board backs, gables and bottoms of millwork units together by means of 8 mm x 25 mm hardwood dowels or with hardwood biscuits. All backs to be 1/2" (13 mm) stock. Dowel all panel cabinet components using 5 mm x 25 mm hardwood dowels or biscuits at maximum 4" (100 mm) o.c. All drawer bottoms and backs are 1/2" stock or greater. All exposed edges on all melamine faced particle board units to be edged with solid 3 mm PVC C/W 3 mm radius edges and corners including drawer parts and with 1/4" (6 mm) matching hardwood edge banding at Maple and Birch units. Kick material for normal application shall be 3/4" (19 mm) waterproof spruce/fir plywood to be used. Resilient base by Section 09650 and quarry tile base by Section 09300.

.2 Cupboard Doors

.1 Doors shall be 3/4" (19 mm) thick particle core veneer plywood. Doors shall be flush, slab type, accurately fitted, free of warp and twist. Care must be taken in sawing and assembling so that there is no splintering of finish face. Splintered doors that mar the appearance will be rejected by the Architect.

.2 Where melamine is specified; construct doors of 3/4" (19 mm) particle core with melamine good - 2 sides.

.3 Provide two door silencers/bumpers per panel mechanically fastened to the cabinet frames.

.3 Drawers

.1 Fabricate Blum Metabox drawer bottom and backs with 16mm melamine composite panel.

.2 Where melamine is specified: drawer fronts to be 3/4" (19 mm) particle core with melamine, good 2 sides.

.3 Extend all backs in file drawers for use with hanging file hardware. Metabox units used should also allow for legal width hanging folders to run front to back and letter width side to side where space permits.

.4 Fronts to match cupboard doors finish.

.5 Provide two drawer silencers/bumpers per drawer panel mechanically fastened to the cabinet frame.

.4 <u>Counters, Cupboards, Shelving, Circulation Desk etc</u>.

Adjustable shelves c/w clips and drilled holes at 32mm centers. Base cabinet's c/w 1 shelf, wall cabinet's c/w 2 shelves, and tall cabinet's c/w 5 shelves, the center shelf is fixed unless drawings show otherwise
Factory installs all hardware firmly into position for long life under hard use. Install 2 hinges on doors up to 1 meter in height, 3 hinges to 1.5 meter in height and 4 hinges for doors greater than 1.5 meters in height or shown otherwise.

.1 Frame as detailed with 3/4" (19 mm) thick, or as noted otherwise, plywood gables, tops and bottoms. House intermediate dividers and plywood backs, into gables and top and bottom shelves, for all fitments. Plywood shall be birch or oak as called for in this Section unless otherwise indicated. Cabinet backs to be 1/2" (13 mm) plywood.

.2 Where melamine specified: horizontal and vertical gables; and shelving to be 3/4" (19 mm) particle core with melamine, good 2 sides. Cabinet backs to be 1/2" (13 mm) particle core with melamine, good 1 side.

.3 Fabricate cabinet carcass, The 32-millimeter system from 19mm thick melamine composite panel using flush frameless construction and exposed edges, to AWMAC Standard " Custom grade" c/w 3mm thick PVC edge banding on exposed edges. All exposed edge banding c/w 3mm radiuses edges and corners.
Do not exceed 800mm a maximum width of cabinet without a divider or specified otherwise.
Carcass construction- Backs 16mm, bottoms, rails, doors, drawer fronts 19mm of melamine composite panels, assembled with glued hardwood dowels 8x30mm or wafers.

.4 Cut countertops for sinks and provide bearers. Provide splashback at back of sink for entire length of the unit and at return ends where walls or other vertical surface occur within 600mm of sink or other wet location.

.5 Countertop and splashback will be plastic laminate unless noted otherwise.

.6 Provide removable plywood access panels, screwed in place, where necessary for access to concealed wiring.

.7 Fit trim and scribe moulds to fitments as shown and as required to hide voids at walls, partitions and ceilings.

.8 Provide cut-outs for inserts, outlets, grilles, appliances, etc. occurring in fitments.

.9 Bottom of units blocked up to form a 4" (100 mm) high x 3" (75 mm) deep toe space and fabricated from 19mm waterproof veneer core plywood of fir or spruce

.10 Fit fillers between fitments, of same material as fitments, where necessary to fill voids between fitments and walls.

.11 Lighting fixtures and outlets to be supplied and installed under Division 16.

.12 Provide cutouts and access panels where required for Division 15 and covers over ductwork (stove exhaust fans) or piping that run exposed above counters and upper shelves.

.13 Provide extended top, bottom, and exposed gables where furring out of upper cupboards is required due to pipes, conduits, and the like behind to provide a flush face atwalls.

.14 Plastic Laminate Work:

.1 Comply with CAN3-A172-M79, Appendix "A".

.2 Veneer laminated plastic to core material in accordance with adhesive manufacturer's instructions. Ensure core and laminate profiles coincide to provide continuous support and bond over entire surface. Provide cores of not less than 3/4" (19 mm) nominal thickness solid face Douglas Fir.

.3 Form shaped profiles and bends as indicated, using post forming grade laminate to laminate manufacturer's instructions.

.4 Use straight self-edging laminate strip .062" (1.6 mm) thick for flatwork to cover exposed edge of core material. Chamfer exposed edges uniformly at approximately 20 deg. Do not mitre laminate edges. Curved self edging shall be post formed material or bending grade.

.5 Apply laminate backing sheet to reverse side of core of plasticlaminate work where specified. Provide backing sheet of sufficient thickness to compensate for stresses caused by the facing sheet.

.6 Locate joints where indicated, where not indicated at approximately 8'-0" (2440 mm) or 12'-0" (3660 mm) centres also include joints at corners, and changes in superficial area.

.7 Accurately fit decorative laminate together to provide tight, flush, butt joints. Joints in cored panels shall be made with 1/4" (6 mm) blind splines and draw bolts, one draw bolt for widths up to 6" (150 mm), two or more draw bolts at maximum 18"(450 mm) o.c. for widths exceeding 6" (150 mm).

.8 Keep joints min. 2'-0" (300 mm) from sink cutouts.

.9 Seal the core at joints and exposed edges with sealer.
Counter tops apply Tremco Tremsil 200 silicone sealant at junction of plastic laminate or phenolic tops when tops are joined. All joints to be over a gable or supported other wise.
Use draw bolts in counter top joints.
Apply a small bead of mildew-resistant paintable silicone sealant at junction of plastic laminate counter back and adjacent wall finish.

PART 3 - EXECUTION

Execution.
Preparation and Protection.
Protect work of other trades from damage.
Make good any resulting damage, to the satisfaction of the Consultant, at no additional cost to the owner.

.1 Workmanship

.1 Fabricate and install work in accordance with the best practice. Finished work shall be free from drag, feathers, slivers or roughness of any kind. Remove machine marks by sanding. Give finished work smooth surfaces, ready for painting or varnish application.

.2 Mortise and tendon joints shall be glued and pinned. All panels shall be secured together with specified glued and dowelled method. Glue blind screw all fabricated component work unless otherwise specified. Set surface nails and plug countersunk screws with matching wood plugs. Use screws with cap washers where units with doors are secured to walls behind.

.3 Finished woodwork shall be free from bruises, blemishes, mineral marks, knots, shakes and other defects.

.4 All metal items such as grilles, tracks, supports, legs, brackets, etc. supplied by other trades shall be built into fitments, paneling, wood doors, etc., in strict accordance with directions of trades supplying such.

.5 Furnish rough hardware, nails, expansion shields, screws, brackets and incidentals required to assemble and install the fitments in their proper locations.

.6 Fit small scribe moulds or fillers of same materials as fitment to hide or fill voids at walls, partitions ceilings, furrings, exposed tops of millwork units, at base locations where rubber base occurs.

.7 Plywood Edging: all exposed 3/4" (19 mm) plywood edges shall be covered with glued on 1/4" (6 mm) thick hardwood strips.

.2 Millwork Workmanship

.1 Fitments shall have joints dowelled and all joints shall be glued and nailed or screwed. All cabinet bases shall be of 3/4" plywood, blocked 3'-0" O.C. maximum and at corners.

.2 Counter tops shall have splash backs where sinks occur.

.3 Shelving shall be 3/4" (19 mm) plywood, adjustable or fixed as detailed. Maximum unsupported span for shelving shall be 3'-0" (900 mm). Adjustable shelves shall be set on angle clips or metal pilaster strips. Loose shelves shall have PVC edges on front edge.

.4 Laminates shall be pressure bonded to back-up board. Counter tops shall be self edged and have plastic laminate covered back splash. Back-up material for counter tops shall be particle core unless otherwise noted.

.5 Plastic laminate surface shall be level, without bubbles and core ghosting. Core edges in counter cut outs shall be sealed with asphalt compound. All exposed plastic edges shall be matched and sanded.

.3 Installation

Welded bench brackets to be supplied and installed by others. Installation of wood work to the bench brackets to be completed by this section.

Commencement of work implies total acceptance of surface and site conditions.
Set and secure all materials and components in place, rigid plumb and square.
Provide all furring strips and strapping required fixing millwork and casework to walls, etc. Provide all filler strips to seal any openings or joints at adjacent surfaces.
After installation, fit and adjust operating hardware to align all doors and drawers.
Clean up as the work proceeds and upon completion remove all rubbish and surplus materials resulting from the foregoing work.

Plumbing.
Sink installation.
Cut hole, clean the counter top with alcohol.

Use Tremco, Tremsil #200 a silicone sealant that gives protection against fungi and bacteria. Install Tremsil around the cuts, and then place a bead of Tremsil on the top before installing the sink. Millwork Contractor to make sure the Plumber installs as specified.

.1 Installation and assembly work on the job shall be executed by skilled forces under supervision of a competent joinery foreman.

.2 Furnish rough hardware, nails, expansion shields, screws, brackets and incidentals required to assemble and install fitments in proper locations. Units shall be adequately fastened and secured in place with concealed fixings wherever possible. Include grounds and furring where required.

.3 Fitments shall be installed level, plumb and true and complete in all respects.

.4 Provide smooth surfaces with fastenings sunk and filled over to receive stain and sealer.

.5 Use draw bolts in countertop joints.

.6 At junction of plastic laminate counter, back splash and adjacent wall finish, apply small bead of silicone sealant as per Section 07900 in colour as selected by Architect.

.7 Apply water resistant building paper over wood framing members in contact with masonry or cementitious construction.

.4 Hardware Installation

.1 Locate concealed European style hinges in accordance with manufacturer of hinge and with best standard practice. Set knobs, locks, and cylinders square with doors and escutcheons plumb. Apply accurately and neatly, to operate quietly and smoothly. Knobs shall turn easily, bolts slide freely and smoothly.

.2 All cupboard doors and drawer locks except as noted below, shall be keyed alike in each room unless otherwise stated. All such keys shall be labeled as to their lock location and shall be turned over to the Owner. All locks, slide bolts, etc. shall be supplied with the appropriate strikes and screws. Provide slide bolts at all locked pair of doors on interior side of door leaf without lock.

NOTE: No locks on doors below sink units.

.3 All pilaster strips, where specified, shall be recess mounted and installed with the numbers on the pilaster at equal heights.

.4 At completion of the work, moving parts shall be gone over, made to work easily, smoothly and efficiently. Work carefully cleaned down and left in complete and finished condition satisfactory to Architect.

.5 Resilient And Quarry Tile Base

.1 Supply and installation of Resilient or quarry tile Base at millwork units as indicated is by Section 09650 for rubber base locations and Section 09300 for quarry tile locations.

.2 Provide hardwood base to match millwork where rooms are finished with wood base.

End of Section

PART 1 - GENERAL

.1 **Description**

.1 **General Requirements**

Division 1, General Requirements, is a part of this Section and shall apply as if repeated here.

.2 **Work Performed by Other Sections Related to this Section is Specified in**

Section 04200: Unit Masonry.
Section 07411: Preformed Metal Siding
Section 07920: Sealants and Caulking, Other Than Sheet Metal Joints
Section 09900: Painting and Finishing
Division 15 : Flashings Specified for Mechanical Installations
Division 16 : Flashings Specified for Electrical Installations

.3 **Supply of Work Which Shall be Installed by This Section is Specified in**

Section 07415: To furnish precoated sheet metal

.4 **Installation of Work Which Shall be Supplied by This Section is Specified in**

Section 03300: To install flashing reglets.

.5 **This Section Shall Include Performance of Work Which is Specified in**

Section 07520: To specify field quality control and submission of inspection reports.
Section 07900: To specify caulking at sheet metal joints.

.6 **Work Included in This Section**

Generally the work of this section will include, but will not be limited to the following:
: all galvanized metal flashings for counter flashings at all parapets, curbs, roof openings not normally exposed to view,
: all flashings not specifically covered or detailed by other related sections.

.2 **Quality Assurance**

.1 **Subcontractor Qualifications**

Provide sheet metal specified in this Section only by a Subcontractor who has adequate plant, equipment and skilled tradesmen, and is known to have been responsible for satisfactory installations similar to that specified during a period of at least the immediate past five years.

.3 **References**

.1 **Reference Standards**

Reference standards quoted in Contract Documents refer to:
ASTM A525-81, Specification for Steel Sheet, Zinc Coated (Galvanized) by the Hot-Dip Process, General Requirements.
CGSB Specification 1-GP-108M, Paint, Acid and Alkali Resistant, Black.

.4 **Submittals**

.1 **Samples**
Submit samples of precoated finish and sheet metal joints if requested.

.5 **Delivery, Storage, and Handling**

.1 Protect sheet metal during handling and storage to prevent rusting, staining, abrasion of finish coatings, bending and denting.
.2 Protect surfaces of precoated metal to prevent scratching.

.6 **Warranty**

.1 **Extended Warranty**

.1 Warranty contained in GC24 is, with respect to Section 07600, extended from 2 year to 5 years. Without restricting generality of warranty, defects shall include leaking, failure to stay in place under expansion, lifting, deformation, deterioration, etc.
.2 Contractor hereby warrants that system is suitable for use in this type of installation.
.3 Contractor shall arrange with Consultant and/or Owner, about 1 month before warranty expires, to visit site, examine installation specified in this section, and make necessary repairs. Should Contractor fail to make such arrangement through no fault or neglect of Owner or Consultant, then period of warranty shall extend to one month after such arrangement is made.

PART 2 - PRODUCTS

.1 **Materials**

.1 **Galvanized Steel Sheet**

ASTM Specification A525, zinc coating designation Z275; flashings, 0.5 mm thick; cleats and edge strips, 1.6 mm thick; other work in thickness indicated on drawings or specified.

.2 **Precoated Finish**

.1 Use sheet metal with precoated finish where metal is exposed to view.
.2 Baked enamel or other coatings as may be specified in other sections, applied to galvanized sheet steel in shop by continuous coating line, by Stelco or Dofasco.
.3 Colour to match new metal siding

.3 **Solder**

New, one half pig lead, one half block tin.

.4 **Flux**

For galvanized steel, resin type.

.5 **Fasteners**

Use only nails, bolts, screws and other fasteners of the same metal and with the same finish as the metal being fastened. Use fasteners of a size suitable for the particular fastening condition and service. Use only approved nails, bolts, screws and other fasteners

.6 **Metal Flashing Reglets**

0.6 mm thick galvanized steel, open type at least 50 mm sloped depth, with receiving slot sloping up 45°, wedges, soft lead.

.7 **Caulking**

One or two part polysulphide specified in Section 07920.

.8 **Felt**

No. 15 asphalt saturated roof felt, to meet specified requirements of CSA Standard A123.3.

.9 **Building Paper**

Smooth, unsaturated quality, rosin-sized paper weighing not less than 0.25 kg/sq.m.

.10 **Bituminous Paint**

To meet specified requirements of CGSB Specification 1-GP-108.

.2 **Fabrication**

.1 Fabricate all possible sheet metal in shop by brake forming, and bench cutting, drilling and shaping.
.2 Form bends with straight sharp lines, angles and arises; and sheets into true planes free from twists, buckles, dents and other visual distortions.
.3 Supply accessories required for installation of sheet metal specified in this Section. Fabricate accessories of same material as sheet metal with which they will be incorporated.

PART 3 - EXECUTION

.1 **Installation**

.1 **General**

.1 Install sheet metal exposed to view in straight lines, with junctions aligned and on same plane.
.2 Install sheet metal wherever possible on runs of equal 2400 mm lengths except where conditions for securing dictates that shorter and equal 1200 mm lengths are preferable.
.3 Install precoated sheet metal wherever possible in minimum lengths of 3600 mm on typical runs, except where conditions for securing dictates that shorter and equal 1200 mm lengths are preferable.
.4 Supply flashing reglets required by this Section, to other Sections responsible for their installation. Assist others in their location.
.5 Install sheet metal to prevent entry of water under service and weather conditions.
.6 Back paint, with two coats of bituminous paint at rate of 1 L/sq.m., sheet metal that is not given precoated finish and that comes into contact with another kind of metal, or masonry or concrete.
.7 Install sheet metal with concealed fastenings. Exposed fastenings will be permitted only as approved when concealed fastenings are impossible. Fasten sheet metal, clips and other components in an approved manner, with fasteners weathertight and evenly and neatly located. Do not use pop rivets.
.8 Join sheet metal by slip lock seams to permit thermal movement. Space joints evenly where exposed. Lock seam and solder internal corners. Form mitres with standing seams in precoated metal.
.9 At exposed sheet metal, install expansion joints with 200 mm wide hooked covers, bedded in caulking compound, fastened at one side only, and at intervals of approximately 6.0 m., or as otherwise shown on Drawings or approved.
.10 Install 50 mm X 75 mm cleats where required to fasten sheet metal. Secure each cleat to backing with 2 nails, space cleats at 300 mm o.c. generally.
.11 Install edge strips in lengths of approximately 2400 mm, continuously, and with 6 mm between each length. Fasten at 300 mm o.c.
.12 Do not form open joints or pockets that fail to drain water.
.13 Caulk all reglets and open sheet metal joints that do not mechanically provide weathertight construction, in accordance with Section 07920.
.14 Apply No. 15 roofing felt under sheet metal installed directly over masonry,

concrete, or wood. Secure felt in place, and lap joints 100 mm as sheet metal is installed. Turn up edges 150 mm where used on horizontal surfaces. Lay rosin-sized building paper over felts.

.15 Secure sheet metal by nailing at 150 mm o.c. where concealed, unless otherwise specified or indicated on Drawings.

.2 **Flashings**

.1 At masonry: Wedge flashings into joints and reglets with lead at 300 mm o.c. Caulk remainder of joint and reglet.

.2 Install metal flashings as indicated on Drawings or as otherwise required where building components penetrate exterior construction, and for which flashing is not specified by other Sections. Fasten by cleats in doubled back edges of drips. Colour to match siding.

.3 **Roof Edge Trim**

Install 0.5 mm thick galvanized steel trim secured by nailing and edge strip.

.4 **Roof Control Joints**

Install 0.5 mm thick galvanized sheet cover secured by edge strips to joint movement.

.5 **Copings**

Install 0.5 mm thick galvanized steel secured by edge strips.

.6 **Fascias**

Install 0.5 mm thick galvanized steel as indicated on drawings with bottom secured by edge strips.

.7 **Suppers and Downspouts**

Fabricate of 0.5 mm thick galvanized steel to profiles and sizes as shown on Drawings. Install these items using galvanized fasteners.

.2 **Cleaning**

.1 Remove flux residue completely from surfaces and crevices, remove other deposits, stains or protection and wash metals left unpainted and exposed to view as recommended by the manufacturer of the metal.

End of Section

PART 1 - GENERAL

.1 **Description**

.1 **General Requirements**

Division 1 and General Requirements, is a part of this Section and shall apply as if repeated here.

.2 **Work Performed by Other Sections Related to This Section is Specified in**

.3 **Work Included Elsewhere but Performed in Compliance with This Section**

Section 06200 – Rough Carpentry
Washroom Accessories
Plumbing Fixtures

.2 **Quality Assurance**

.1 **Subcontractor Qualifications**

Seal joints specified in this Section by Subcontractor approved by manufacturers of sealants; who has equipment adequate for Project, skilled tradesmen to perform it expeditiously; and known to be responsible for satisfactory installations similar to that specified during at least the immediate past five years.

.3 **References**

.1 **Reference Standards**

Reference Standards quoted in Contract Documents refer to:
CGSB Specification 19-GP-5M, Sealing Compound, One Component, Acrylic Base, Solvent Curing.
CGSB Specification 19-GP-9Ma, Sealing Compound,
One Component, Silicone Base, Chemical Curing
CAN/CGSB-19.13-M82, Sealing Compound, One Component, Elastomeric, Chemical Curing.
CAN/CGSB-19.24-M80, Sealing Compound, Multi-Component, Chemical Curing.

.4 **Submittals**

.1 **Samples**

Submit samples of sealant and backing if requested.

.2 **Product List**

Submit manufacturer's and product name for each sealant which will be used for Project, before commencing joint sealing.

.5 **Site Conditions**

.1 **Environmental Conditions**

Apply sealants only to completely dry surfaces, and at air and material

temperatures above minimum established by manufacturer's specifications.

.6 **Warranty**

.1 **Extended Warranty**

.1 Submit a warranty of the joint sealant installation specified in this Section covering the period for four years beyond the expiration of the warranty period specified in the General Conditions to the Contract, including materials and application. Replacement of joint sealants shall include removal of defective materials, preparation for and application of new material, and the repair and making good of damaged adjacent materials.

.2 Defective joint sealant installation shall include, but not be restricted to, joint leakage, hardening, cracking, crumbling, melting, bubbling, shrinkage, running, sagging, change of colour, loss of adhesion, loss of cohesion, and staining of adjoining or adjacent materials or surfaces.

PART 2 - PRODUCTS

.1 **Materials**

.1 All materials utilized in a sealant system shall be compatible.

.2 Specified proprietary products are minimum acceptable quality. Products of other manufacturers of equal or superior quality will be accepted where specifically approved by Architect.

.3 **Sealants**

.1 Provide sealant formulation recommended by manufacturer for type of joint, substrate and service conditions applicable.

.2 Refer to Caulking Schedule for utilization of the following sealants.

.3 Colours of sealants will be selected from manufacturer's standard range.

.4 Acrylic Solvent Release, One Part, Sealant:
To meet specified requirements of CGSB Specification 19-GP-5.
PTI 738 by P.T.I. Sealants Ltd.

.5 Two Part Urethane Sealant:
To meet specified requirements of CAN/CGSB-19.24-M80, and as recommended by manufacturer for conditions.
Dymeric 240 by Tremco Canada.

.6 One Part Urethane Sealant:
To meet specified requirements of CAN/CGSB-19.13-M82, and as recommended by manufacturer for conditions.
Vulkem 45 SSL by Tremco Canada
Tremco Canada Dymonic FC

.7 Silicone Sealant: One Part Sealant:
To meet specified requirements of CAN/CGSB-19.13-M82. Spectrem 1 for window sealent by Tremco (Canada) Ltd., or as otherwise approved.

.8 Two Part Polyepoxide Urethane Sealant:
To meet specified requirements of CAN/CGSB-19.24-M80. Dymeric by Tremco (Canada) Ltd.

.9 One Part Polysulphide Sealant:
To meet specified requirements of CAN/CGSB-19.13-M82.

.10 Two Part Polysulphide Sealant:
For use in joints except where subjected to traffic:
To meet specified requirements of CAN/CGSB-19.24-M80, non-sag, with a Shore "A" hardness range of 20 to 35.

.11 Two Part Polysulphide Sealant:

For use at surfaces subjected to traffic:
To meet specified requirements of CAN/CGSB-19.24-M80, self-levelling, with a Shore "A" hardness range of 35 to 40.

.4 **Primer**

Specifically designed for use with sealant compounds on surfaces encountered, and as specified by the compound manufacturer to assure adhesion of compound to prevent staining of substrate materials.

.5 **Sealant Backing (Bedding Material)**

Extruded, foamed, closed cell, round, polyethylene, urethane, neoprene or vinyl rod, 30% greater diameter than joint width, with Shore "A" hardness of 20, and 830 - 900 kPa tensile strength, and manufactured especially for the purpose.

.6 **Void Filler**

Mineral fibre as specified in Section 07200.

.7 **Bond Breaker**

For installation where minimum specified depth of joints is unobtainable. Pressure sensitive plastic tape, 3M 3266 or #481.

PART 3 - EXECUTION

.1 **Examination**

.1 Before commencing joint sealing, verify at site that joint configuration and surfaces have been provided as specified in other Sections to meet intent of sealant specification; that joint conditions will not adversely affect execution, performance or quality of completed sealed joints; and that they can be put into acceptable condition by means of preparation specified in this Section. If in doubt, verify site conditions together with manufacturer's representative of sealant to be applied.

.2 Ascertain that sealers and coatings applied to sealant substrate are compatible with the sealant used and that full bond between sealant and substrate is attained. Request samples of the sealed or coated substrate from their fabricators for testing of comparability and bond if necessary.

.3 Verify specified environmental conditions are ensured before commencing joint sealing.

.4 Defective sealed joints resulting from application to unsatisfactory joint conditions will be considered the responsibility of this Section.

.2 **Preparation**

.1 Remove loose mortar, dust, oil, grease, oxidation, mill scale, coatings, all other materials affecting bond of compounds to surfaces that sealant compounds must adhere, except for painted surfaces, by brushing, scrubbing, scraping or grinding.

.2 Clean down caulked metal surfaces with clean cellulose sponges or rags soaked in solvent recommended by sealant manufacturer, and wipe dry with clean cloths. Ensure that solvent is not injurious to painted surfaces.

.3 Use method of preparation suitable for substrate as recommended by sealant manufacturer, and that does not damage adjacent surfaces.

.4 Ensure that releasing agents, coatings or other treatments have either not been

applied to joint surfaces, or that they are entirely removed.

.3 **Application**

.1 Except where specified in other Sections, seal open joints in surfaces exposed to view, and to make the building weathertight and airtight as applicable; as indicated typically on Drawings, and as otherwise specified. Refer to Article 3.05, Caulking Schedule. Include, but do not restrict it to, sealing the following joints:

.1 Perimeter joints of exterior and interior pressed steel opening frames where installed in masonry and a weathertight joint is otherwise required.
.2 Perimeter joints of exterior and interior aluminum opening frames.
.3 Perimeter joints of exterior louvre and vent frames.
.4 Joints between underside of window sills and walls.
.5 Exposed control joints in masonry walls.
.6 Exposed expansion joints in masonry walls.
.7 Exposed control joints in concrete except for floors.
.8 Exposed expansion joints in concrete.
.9 Raked joints at masonry wall junctions and masonry to concrete junctions.
.10 Interior and exterior exposed joints, between dissimilar materials, and not concealed from view.
.11 Exposed control joints in gypsum/fiber reinforced gypsum panels.
.12 Joints at wall floor junctions, and at floors unless indicated on Drawings.
.13 Full length of exterior door saddles.
.14 Close-fitted space between mechanical and electrical ducts, conduits and pipes, and walls and also at floors where fire separations must be maintained.
.15 Joints between base angle and structure at preformed metal siding.

.2 Prime surfaces to receive sealants as required by substrate and manufacturer's specifications to ensure positive and permanent adhesion, and to prevent staining.
.3 Pack joints tightly with sealant backing set at depth specified for sealant. Fill other voids with filler.
.4 Install bond breaker tape in bottom of joints in lieu of sealant backing where proper depth cannot be obtained when backing is installed.
.5 Maintain depth of sealant as follows for joint widths of
: 6 mm (minimum joint width): joint depth 6 mm.
: 6 to 13 mm: depth equal to joint width.
: 13 to 25 mm: depth equal to 1/2 joint width.
: 25 to 50mm: maximum depth of 13 mm.
.6 Install sealant in joints over 50 mm wide only after consultation with and approval of sealant manufacturer.
.7 Fill joints with sealant compound to specified or indicated depths as indicated. Perform joint sealing in accordance with compound manufacturer's specifications, under his supervision, and using pressure guns and other equipment as approved by him. Finish joints with a full bead so that they are smooth; and free from ridges, wrinkles, air pockets and embedded foreign materials.
.8 Tool surface of joints to a slight concave profile.
.9 Make compounds workable only as manufacturer specifies.

.10 Caulk joints in site painted materials after adjacent surfaces have been painted. Match compound to paint colour.
.11 Do not allow sealants to cover or spot surfaces outside of joints. Use masking tape protection to prevent coating of adjacent surfaces if necessary.

.4 **Cleaning**

.1 Remove sealant smears and drippings, and masking tape immediately on completion of joint sealing.

.2 Do not use chemicals, scrapers, or other tools which would damage surfaces from which excess compounds or drippings are removed. Make good materials damaged by cleaning by the installer of the damaged material and at the expense of this Section.

.3 Instruct Contractor on proper final cleaning methods.

.5 **Caulking Schedule**

.1 **Type 1 Sealant**

One Part Silicone Sealant, or
Spectrem 1 for window sealant
Use at all locations except where another is specified.

.2 **Type 2 Sealant**

Use at exterior joints between window frames and masonry.

.3 **Type 3 Sealant**

One part Clear Silicone Sealant, mildew resistant.
Use at joints between:

1. Washroom fixtures and wall,
2. Washroom fixtures, water closets and floor,
3. Countertops and wall,
4. Cabinets and walls and adjacent finishes.

End of Section

PART 1 - GENERAL

.1 Description

.1 General Requirements

Division 1, General Requirements, is part of this Section and apply as if repeated here.

.2 Work Performed by Other Sections Related to This Section is Specified in

Section 06200: Hanging of Wood Doors
Section 07920: Caulking Frames
Section 08710: Supply of Finish Hardware
Section 09900: Painting and Finishing

.3 Installation of Products Supplied by This Section is Specified in

Section 04200: To build anchors/frames in masonry.
Section 06200: To set up frames in masonry openings.
Section 06200: To install hollow metal doors.
Section 09250: To install and anchor frames in drywall partitions.

.2 Quality Assurance

.1 Subcontractor Qualifications

Provide fabrications specified in this Section only by a Subcontractor who has adequate plant, equipment and skilled tradesmen to perform it expeditiously, and is known to have been responsible for satisfactory installations similar to that specified.

.2 Requirements of Regulatory Agencies

.1 Construct fire rated doors and frames of ratings indicated in accordance with validating label requirements, otherwise required by jurisdictional authorities.
.2 Ensure hardware and installation meet CAN4-S104 requirements, Standard Method for Fire Tests of Door Assemblies adopted by Insurance Advisory Organization, when applicable.
.3 Doors and frames indicated as labelled, to meet conditions of NFPA No. 80, for installation, and shall have attached ULC labels.

.3 References

.1 Reference Standards

Reference standards quoted in Contract Documents refer to:
ASTM A366-72, Specification for Steel, Carbon, Cold-Rolled Sheet, Commercial Quality.
ASTM A525-81, Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, General Requirements.

ASTM A526-80, Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Commercial Quality.
ASTM A780-80, Standard Practice for Repair of Damaged Hot-Dip Coatings.
CGSB Specification 1-GP-132M, Primer, Zinc Chromate, Low Moisture Sensitivity.
CGSB Specification 1-GP-140M, Primer, Red Lead, Iron Oxide, Oil Alkyd Type.
CGSB Specification 31-GP-105M, Coating, Conversion, Zinc Phosphate, for Paint Base.
CGSB Specification 1-GP-181M, Coating, Zinc Rich, Organic, Ready Mix.
CSA Standard G164-M1981, Hot-Dip Galvanizing of Irregularly shaped Articles.

.4 **Submittals**

.1 **Shop Drawings**

Submit shop drawings.

.5 **Delivery, Storage, and Handling**

.1 Brace frame units to prevent distortion in shipment. Protect finished surfaces by sturdy protective wrappings.
.2 Ensure that doors are stored in a secure dry location to ensure they are not damaged until hung. Remove wrappings when finally stored in location secure from damage. Store doors vertically, resting on planks, with blocking between to allow air to circulate.
.3 Repair damage to finishes immediately as it occurs with matching specified finish materials.

PART 2 - PRODUCTS

.1 **Materials**

.1 **Steel Sheet**

Cold-rolled, stretcher levelled to meet specified requirements of ASTM Specification A366 or SAE Specification 1010: galvanized sheet, commercial quality, to meet specified requirements of ASTM Specification A526.

.2 **Prime Paint**

.1 General: Ensure that primers are compatible with specified finish paint.
.2 Primer: To meet requirements of CGSB Specification 1-GP-132, 1-GP-81, or 1-GP-140.

.3 **Galvanizing**

.1 Full galvanized sheet steel; coating to meet specified requirements of ASTM Specification A525, zinc coating designation Z275.
.2 Wiped coated sheet steel; zinc wiped coating to meet specified requirements of ASTM Specification A525, zinc coating ZF75.
.3 Galvanized accessories; zinc coating to meet specified requirements of CSA Standard G164, including Appendix A.

.4 **Zinc Rich Paint**

To meet specified requirements of CGSB Specification 1-GP-181.

.5 **Panel Insulation**

At exterior: Polyurethane: closed cell rigid board, density; 32 kg/cubic metre.

.6 **Grilles**

E.H. Price, Series STG1, steel, prime painted, sizes as shown on Door Schedule.

.7 **Door Bumpers**

Single stud rubber at interior openings.

.8 **Door Core Materials**

.1 Honeycomb: Structural small cell 25mm (1") maximum Kraft paper 'honeycomb'. Weight: 36.3 (80lb) per ream (minimum). Density: 16.5kg/m^3 (1.03pcf) minimum, sanded to required thickness.
.2 Temperature Rise Rated (TRR): Solid slab core of non-combustible, inorganic composite to limit temperature rise on the "unexposed" side of door to 250°C at 60 Minutes to ULC CAN4-S104—M80, ASTM E2074-00e1 or NFPA 252-2008.
.3 Polystyrene: EPS polystyrene, Type 1, density: 16 to 32 kg/m3 (1 to 2 pcf), thermal values: RSI 1.06 (R 6.0) minimum, conforming to ASTM C578-09e1.

.9 **Adhesives**

.1 Heat resistant, single component, polyurethane reactive (water) hot melt, thermoset adhesive.
.2 Rigid insulation cores: Heat resistant, epoxy resin based, low viscosity, contact cement.
.3 Lock seam doors: fire resistant, resin reinforced polychloroprene, high viscosity sealant-adhesive.

.10 **Acceptable Manufacturers**

.1 All Steel Doors 2000 Ltd.
.2 Artek Door (1985) Ltd.
.3 Daybar Industries Ltd.
.4 Fleming-Baron Door Products, an ASSA ABLOY group company.
.5 Trillium Steel Doors Limited.
.6 Vision Hollow Metal Limited.

.2 **Door and Frame Systems**

.1 **Exterior Framing**

.1 2.0 mm thick steel frames, fully welded; minimum 170 mm jamb depth.

.2 Frame sizing shall be of the metric size shown in Door and Frame Schedules.

.2 **Interior Frames**

.1 For Masonry Partitions: 1.6 mm thick welded construction; knocked-down construction where Door and Frame Schedule makes reference to "suit existing construction"; minimum 170mm jamb depth factory welded.
.2 For Drywall Partitions: 1.6 mm thick welded construction; throat size to suit partition.
.3 Frame sizing shall be of the metric size shown in Door and Frame Schedules.

.3 **Doors**

.1 Interior: Wood by 08210.
.2 Door sizing shall be of the metric size shown in Door and Frame Schedule or to suit existing openings.

.3 **Fabrication**

.1 **General**

.1 Fit & assemble fabrication in shop where possible. Make trial assembly in shop when not possible.
.2 Fabricate, reinforce and anchor component parts and assemblies, to support loads usage will impose without deflection detrimental to function, appearance or safety.
.3 Reinforce components to resist stresses imposed by hardware in use.
.4 Prepare frames and doors for specified hardware with mortises, and reinforcement. Drill and tap to template information. Incorporate steel reinforcement of
: 1.6 mm thick flush bolts, locks & strikes.
: 6.4 mm for hinges.
: 4.8 mm for push/pulls and panic devices.
: 2.7 mm thick for surface mounted hardware, and door closer brackets and arms.
.5 Install metal mortar guards of minimum 0.76 mm thick steel at cutouts for hardware in frames installed in masonry walls.
.6 Reinforce all frames for closers.
.7 Provide for anticipated expansion and contraction of frames and supports.
.8 Fit elements at intersections & joints accurately together in true planes, plumb & level.
.9 Weld frame and door assemblies together. Weld continuously at joints exposed to view or at joints through which air or water could penetrate from the exterior of building to the interior.
.10 Where welding is impossible, connections may be bolted. Ream drilled holes and leave exposed edges clean and smooth.
.11 Isolate from each other dissimilar metals, and metal from concrete or masonry or prevent electrolysis.
.12 Ensure that exterior doors and frames are tightly fitted, and drips are

installed on frames of out-swinging doors, to prevent entry of water where exposed to weather.

.2 **Pressed Steel Door Frames and Screen Frames**

.1 Supply frames to suit construction conditions and dimensions indicated on drawings and in Door and Frame Schedule.
.2 Schedule of fabrication and delivery must be such that it will not delay the project.
.3 Fabricate interior frames of wipe coat galvanized steel and exterior frames of full galvanized sheet steel.

.4 Fabricate steel frames in minimum thickness of 1.6 mm thick sheet steel unless otherwise specified or indicated.
.5 Use 2.0 mm thick sheet steel for exterior frames.
.6 Minimum frame material thickness applies only to doors not otherwise requiring heavier gauges to meet specified fire rated construction as required by validating underwriter's test.
.7 Fabricate removable stops of minimum 0.91 mm thick steel. Do not weld stop corners.
.8 Install recessed weatherstripping in stops of exterior doors.
.9 Finish frame with one coat of galvanized primer on zinc coated surfaces exposed to view.
.10 Where members join at corners, cut mitres and weld continuously along inside of sections.
.11 Where tubular frame sections meet frame members, join by butt welding.
.12 Attach two 1.2 mm thick steel channel spreaders at bottom of door frames to maintain square alignment, secured to facilitate removal after frames that extend only to finish floor are built in.
.13 Incorporate structural stiffeners for frame members as shown on Drawings. Securely anchor them at bottom and top. Where they extend above ceiling, anchor to concrete or structural framing to suit site conditions.
.14 Install 3 bumpers in interior frames at single opening latch jambs, and 2 at double door frame heads.
.15 Fasten removable stops by countersunk Phillips head screws at approximately 225 mm o.c. symmetrically spaced on stop length.
.16 Anchor frames at floor by 1.5 mm thick angle clips, welded to frame and provided with two holes for floor anchorage.
.17 For frames in masonry walls attach adjustable Tee-anchors fabricated from galvanized steel same gauge as frame. Install anchors on each jamb. Install 3 anchors for openings 2285 mm high.
.18 For frames in stud walls, weld L clip at bottom of frame for anchor to floor slabs.

.3 **Steel Doors and Panels**

.1 Fabricate steel doors and panels to a thickness of 45mm (1-3/4”). Unless indicated otherwise.

.2 Insulated doors and panels:
.1 Face sheets fabricated from 1.5 mm (0.06”) 16 gauge steel.

.2 Insulation core: Polystyrene.
.3 Longitudinal edges mechanically interlocked.
.1 Adhesive assisted with edge seams visible.

.3 Interior doors and panels:
.1 Face sheets fabricated from 1.5 mm (0.06") 16 gauge steel.
.2 Honeycomb core.
.3 Longitudinal edges mechanically interlocked
.1 Adhesive assisted with edge seams visible.

.4 Temperature rise rated doors and panels:
.1 Face sheets fabricated from 1.3mm (0.05") 18 gauge steel.
.2 TRR asbestos free core.
.3 Longitudinal edges mechanically interlocked.

.5 Fabricate of composite metal face construction with each face formed from flush sheet steel without visible seams, free of scale, pitting, coil brakes, buckles and waves.

.6 Formed edges shall be true and straight with minimum radius for the thickness of steel used.

.7 Lock and hinge edges shall be bevelled 3 mm in 50 mm (1/8" in 2") unless hardware or door swing dictates otherwise.

.8 Top and bottom of doors shall be provided with inverted, recessed, 1.5mm (0.06") 16 gauge steele end channels, welded to each face sheet at 50 mm (2") on centre maximum.

.9 Prior to shipment, mark each door with an identification number as shown on the approved submittal drawings.

.10 Exterior doors shall be provided with factory installed flush PVC top caps. Fire labelled exterior doors shall be provided with factory installed flush steel top caps.

.11 Blank, reinforce, drill and tap doors for mortised, templated hardware. Locate to manufacturer's standard unless indicated otherwise.

.12 Holes 12.7mm (1/2") and larger shall be factory prepared.

.13 Glazing:
.1 For glazing materials up to and including 8 mm (5/16") thick, doors shall be provided with 1 mm (0.04") 20 gauge steel glazing trim and snap-in glazing stops.

.2 For glazing materials greater than 8 mm (5/16") thick, doors shall receive 1 mm (0.04") 20 gauge steel trim and screw fixed glazing stops. Screws shall be #6 x 32mm (1 ¼") oval head Tek™ (self-drilling) type at 305 mm (12") on centre maximum.

.3 Glazing trim and stops shall be accurately fitted (within 0.39 mm (0.015") tolerance), butted at corners, with removable glazing stops located on the 'push' side of the door.

.14 Fabricate closing stiles of paired doors as indicated or scheduled.

.15 Where indicated in schedule, prepare doors and panels for installation of fire-rated door grilles. If required to meet door grille manufacturer's rated design, provide reinforcement around door grill opening.

.4 **Finishing**

.1 File and grind exposed welds smooth so that assemblies have appearance of one piece construction. Fill depressions with metal filler and finished

.2 For primed surfaces, clean, scrape and remove rust, mill scale, grease and other surface deposits from steel following fabrication. Apply full smooth coat of primer in shop. Force paint into corners and open spaces.

.3 For surfaces with zinc coating, clean and smooth ground surfaces at welds, fill if necessary, and coat all areas from which galvanizing has been removed with zinc rich paint coating of 0.1 mm minimum.

PART 3 - EXECUTION

.1 **Examination**

.1 Take field dimensions of construction into which fabrications of this Section are incorporated before they are fabricated. Field adaption of work fabricated in error or without field check will not be allowed without approval.

.2 **Installation**

.1 **Pressed Steel Frames**

.1 Setting up of pressed steel frames in masonry walls is included in Section 06200.

.2 Building in of pressed steel frames is included in Section 04200 of Specification.

.3 Setting up and building in of pressed steel frames in metal stud drywall partitions is included in Section 05500 and Section 09250.

.4 Secure frames to floor construction with two fasteners each jamb, set and brace securely to maintain true alignment until built in.

.2 **Doors**

.1 Wood Doors by Section 08210, installation by Section 06200 finish hardware supplied and installed by Section 08710.

.3 **Adjustment and Cleaning**

.1 Refinish damaged and defective fabrications before completion. Refinish exposed surfaces to ensure that no variation in appearance is discernible.

.2 Clean surfaces in preparation for specified finishing at completion of installation.

.3 Final cleaning is specified in Section 01710.

End of Section

PART 1 - GENERAL

.1 **Description**

.1 **General Requirements**

Division 1 and General Requirements is a part of this Section and shall apply as if repeated here.

.2 **Work Performed by Other Sections Related to This Section is Specified in**

Section 06200: Installation of hardware supplied by Section 08710.
Section 06410: Casework – to supply teacher and tall cabinet doors.
Section 08110: Metal Doors and Frames
Section 08710: Supply of Hardware
Section 09900: Painting and Finishing

.3 **Installation of Work Supplied by This Section is Specified in**

Section 06200: To install doors.

.2 **Quality Assurance**

.1 **Manufacturer Qualifications**

Manufacturers approved for fabrication of doors specified in this Section are

- Super Structure Door Co. of Canada Limited
- Cambridge Doors
- Premium Forest
- Premdor Inc.
- Or Approved alternative

.2 **Requirements of Regulatory Agencies**

.1 Construct fire rated doors of indicated ratings in accordance with validating label requirements and as otherwise required by jurisdictional authorities.

.2 Ensure that fire rated doors, together with specified frames, hardware and installation, meet requirements of NFPA No. 80, Standard for, Fire Doors and Windows, as adopted by Insurance Advisory Organization, and attach ULC labels for specified rating.

.3 **References**

.1 **Reference Standards**

Reference standards quoted in Contract Documents refer to:

a. Architectural Woodwork Standards 1st Edition 2009 Published jointly by the Architectural Woodwork Institute (AWI), the Architectural Woodwork Manufacturer Association of Canada (AWMAC), and the Woodwork Institute (WI).

b. ANSI/WDMA I.S. 1A-04 Industry Standard for Architectural Wood Doors.

c. CAN/ULC S-104 Standard Method for Fire Tests of Door Assemblies.
d. ASTM E2074-00 Standard Test Method for Fire Tests of Door Assemblies.
e. NFPA 80 Standard for Fire Doors and Other Opening Protectives.
f. NFPA 252 Standard Method of Fire Tests of Door Assemblies.
g. ITS/Warnock Hersey Mark for Fire Door Test Certification.
h. NFPA 80-1999; Fire Doors and Windows.
i. Underwriter's Laboratories of Canada – "List of equipment & materials" Volume II Building Construction.

.4 **Delivery, Storage, and Handling**

.1 Package doors: identify with labels.
.2 Store doors flat at site in piles with bottom face on bottom of piles protected from moisture by water resistant material under skids supporting piles, top of piles covered, and air circulation provided at sides of piles.

.3 Protect fire rated doors from moisture continuously from time of manufacture to completion of building.

.5 **Site Conditions**

.1 **Environmental Requirements**

.1 Install doors only in areas that have dried out and where no further installation of damp materials is contemplated.
.2 Moisture readings of building surfaces at storage and installation locations shall not exceed 15%.

.6 **Warranty**

.1 **Extended Warranty**

.1 Submit warranty for wood doors specified this Section covering period for 2 years beyond the expiration of the warranty period specified in the General Conditions to the Contract.
.2 Defects in doors shall include, but not be restricted to, surface blemishes, showing of core ghost lines, splitting, delamination, sagging, deterioration of core, and warping and twisting in excess of deformation allowed by CSA Standard 0132.2.
.3 Replacement under the warranty shall include fitting, installation, reinstallation of hardware, grilles and glass, and finishing to match replaced door.

PART 2 - PRODUCTS

.1 **General**

.1 Wood doors to meet or exceed AWI 7th Edition Version 1.2 1999.
.2 Doors shall be pre-fitted, bevelled and machines for mortise hardware items as per templates and approved hardware schedules provided.
.3 Doors shall be factory finished.
.4 Flush Interior Doors: 45mm thick, solid core construction, AWI type construction.

.2 **Materials**

a) MATERIALS

i) Flush Wood Doors:

1) Doors shall meet the requirements of ANSI.WDMA I.S. 1A-04 Extra Heavy Duty performance level.
2) Faces of wood veneered doors shall be AA Grade, select Maple, rotary cut, uniform white. **Doors to be factory finished, clear coat, seal top and bottom of doors.**
3) Core for non-rated doors shall be Particleboard with a minimum of 28-32 PCF (513 kg/m³) LD-2.
4) Cores for 45 minute fire-rated doors shall be agrifibre core.
5) Stiles for non-rated doors shall be structural composite lumber (100mm) laminated to 0.5" (13mm) thick minimum hardwood edging.
6) Top and bottom rails for non-rated doors shall be structural composite lumber (100mm) laminated to 0.5" (13mm) thick minimum hardwood edging.
7) Stiles and rails for fire-rated wood doors shall be the standard of the door manufacturer and shall conform to the requirements of the manufacturer's labeling agency.
8) Crossband shall be composite crossband. Wood crossband is not permitted.
9) Adhesives shall be Type 1 adhesives.
10) Approved doors by manufacturers: Boccam 8400, Baillargeon 8500-ME, Lambton Doors 5-8300-ME.

b) Glazing Stops:

1) Non-rated glazing stops: white maple, 11mm square profile (Lambton Doors LB7 or equivalent).

2) Fire-rated glazing stops: VSL - Slimline Low Profile Beveled Vision Lite, 20 gauge CRS frame, 6mm trim with radius corners, mitered and welded. Continuous glass retainer, countersunk mounting holes in the bevel on non-corridor side. #8 x 1" flathead phillips SMS to match finish. Powder Coat Finish: (S) Sand.

2.2. FABRICATION

a. Flush wood doors shall be Premium Grade in accordance with the Grade requirements specified in the Architectural Woodwork Standards 1st Edition 2009, or as herein otherwise
specified.
b. Doors shall be 5 ply construction.
c. Stiles and rails shall be fully bonded to core and assembled unit shall be abrasive planed prior to lamination of faces.
d. Doors shall be assembled using Type 1 adhesive.
e. Doors details shall be indicated on the door schedule.
f. Edges for veneered doors shall be Type A of the same species as the face veneer. Type B, wood veneered edges are not permitted.
g. Fire-rated doors shall be of the construction standard of the manufacturer and conform to the requirements of all applicable labeling agencies.

h. Provide blocking as required for surface mounted hardware to prevent the need for through-bolting.
i. Doors shall be factory undersized and factory machined for all door hardware.
j. Doors shall have factory drilled pilot holes to accept wood screws at all hinge location.
k. Where electrical hardware is specified in hardware groups or approved finish hardware schedule, wood door product shall have ½" wire raceway factory machined drilled from current transfer to electrical hardware location. See section 08710 for openings that require electric hardware.
l. Pairs of doors shall be book matched.

PART 3 - EXECUTION

.1 **Installation**

a. Install non-rated and fire-rated doors in accordance with NFPA 80, manufacturer's instructions and to ITS/Warnock Hersey requirements.
b. Allow a fitting clearance of 1/8" (3mm).
c. Trim non-rated door widths as required by cutting equally on both edges. Reseal and refinish all cut or planed surfaces immediately to match factory finish.
d. Trim door height by cutting bottom edges to a maximum 3/4" (19mm).
e. Trim fire door heights at bottom edge only in accordance with fire rating requirements.
f. Do not trim fire-rated door widths.
g. Coordinate installation of doors with installation of frames and hardware.
h. Install door louvres and light kits plumb and level.
i. Adjust doors for smooth and balanced door movement and operation.

End of Section

PART 1 - GENERAL

.1 **Description**

.1 **General Requirements**

Division 1, General Requirements, is a part of this Section and shall apply as if repeated here.

.2 **Work Related to this Section Performed by Other Sections**

Section 08520: Aluminum Windows

.3 **Work Performed by this Section but Specified Elsewhere**

Section 07920: To specify joint sealants.
Section 08800: To specify glazing.

.2 System Description

.1 **Tolerances**

.1 Fabricate frames to a tolerance of + 1.5 mm for vertical, horizontal, and diagonal dimensions of units under 1830 mm, and + 3 mm for dimensions greater than 1830 mm.

.2 Erect component parts within following tolerances
: Variations from plumb:
3 mm maximum variation in storey height or 3 m run, cumulative
: Variations from level:
3 mm maximum variation in any bay or 6 m run, non-cumulative
: Variations from theoretical calculated plan or elevation location related to established floor lines, column lines and other fixed elements of the structure, including variations for plumb and level:
: Offsets in end-to-end or edge-to-edge alignment of adjoining members:
1.5 mm maximum offset in any alignment.

.3 Maintain tolerances for glazing as recommended by glass manufacturer.

.4 Maintain locations of mullions related to, and within installed tolerances, of ceilings of walls as indicated on Drawings. Verify location of ceiling grid at each floor.

.2 **Design**

.1 The entire exterior skin execution shall be based on the rain screen principle.

.2 The system shall provide:
: Such gaskets, baffles, overlaps and seals as required to provide a rain screen barrier to effectively deter rain water entry into cavities.
: The necessary air seals to eliminate air passage from system cavities into the building and vice versa, and to assure adequate pressure equalization of the system cavities with the outside.

.3 The air and vapour seals required to eliminate air borne vapour infiltration from the building into the system cavities.

.4 Openings between cavities and outside shall be of sufficient cross section to provide pressure equalization. All openings must be effectively baffled to minimize direct water entry.

.5 Thermally, the grid members shall have a resistance to heat transfer equal to or better than that of the area along the bottom of the sealed glass units.

.3 **Structural Requirements**

.1 Entrances must withstand a minimum windload of (30 psf) 1500 Pa with a maximum deflection of span/200.

.4 **Performance**

.1 Air infiltration shall exceed 3.05 to the power of negative four cu.m/s/sq.m. of exterior surface at 75 Pa pressure difference.
.2 There shall be no water infiltration into the building under 50% of design wind load.
.3 No condensation shall form on any interior surfaces of the aluminum members before any of the exposed area of the 25 mm sealed units reaches the dew point temperature.

.3 Quality Assurance

.1 **Glazing Requirements**

Conform to recommendations of Flat Glass Marketing Association (FMGA), Glazing Manual 1980 (GM) and Glazing Sealing Systems Manual 1970 (GSSM).

.2 **Subcontractor Qualifications**

Perform Work of this Section only by a Subcontractor approved by one of the systems manufacturers approved for this Project and who has adequate plant, equipment and skilled tradesmen to perform it expeditiously and is known to have been responsible for satisfactory installations similar to that specified during a period of the immediate past five years.

Approved Suppliers:
Kawneer
Windspec Inc.
Alwind Ltd.
Alumicor

.3 **Welder Qualifications**

Perform welding of structural components only by fabricators certified by Canadian Welding Bureau to CSA welding qualification codes; CSA Standard W47.1 for welding of steel, and CSA W47.2 for welding of aluminum.

.4 **Requirements of Regulatory Agencies**

Conform to requirements of authorities having jurisdiction in the fabrication and installation of components specified in this Section.

.5 **Codes and Standards**

Except as modified by governing codes and by the Contract Documents, comply with applicable provisions and recommendations of the following:
.1 CSA W47.2-M1987 for welding of aluminum.
.2 CSA W59-M1989 for welding of steel.
.3 AAMA Aluminum Curtain Wall Design Manual.

.4 References

.1 **Reference Standards**

Reference standards quoted in Contract Documents refer to:
ASTM A167-81a, Specification for Stainless and Heat Resisting Chromium-Nickel Steel Plate, Sheet and Strip.
ASTM A480-81, Specification for General Requirements for Flat Rolled Stainless and Heat Resisting Steel Plate, Sheet and Strip.
ASTM A525-76, Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, General Requirements.
ASTM A780-80, Standard Practice for Repair of Damaged Hot-Dip Coatings.
CGSB Specification 41-GP-19Ma, Rigid Vinyl Extrusions for Windows and Doors.
CGSB Specification 79-GP-1M, Screens, Aluminum Frame, Window.
CGSB Specification 1-GP-108M, Paint, Acid and Alkali Resistant, Black.

CGSB Specification 1-GP-132M, Primer, Zinc Chromate, Low Moisture Sensitivity.
CGSB Specification 1-GP-181M, Coating, Zinc Rich, Organic, Ready Mix.
CAN/CSA3-G40.20/G40.21-M92, Structural Quality Steel.
CSA Standard G164-M92, Hot Dip Galvanizing of Irregularly Shaped Articles.
CSA Standard W47.1-92, Certification of Companies for Fusion Welding of Steel Structures.
CSA Standard W47.2-M1987, Aluminum Welding Qualification Code.
CSA Standard W59-M1989, Welded Steel Construction (Metal Arch Welding).

.5 Submittals

.1 **Shop Drawings**

.1 Submit shop drawings showing and describing in detail system assemblies, including: large scale details of members and materials, of brackets and anchorage devices, and of connection and jointing details, fully dimensioned layout for positioning of brackets and anchorage devices to structures; dimensions, gauges, thicknesses; glazing details, description of materials, including catalogue numbers, products' and manufacturers' names; aluminum alloy and temper designations, metal finishing specifications; and degree of torquing required for bolted connections; and other pertinent data and information.

.2 Shop Drawings shall contain the minimum following details:
: jamb, head and sill of units at junction of wall faces, including air vapour seal
: structure required for system that is supplied with system and not part of building structure
: anchorage system
: dielectric separator details
: separator/slip gasket details
: thermal separator details
: flashing details

.2 **Samples**

.1 Submit samples of unit frame profiles, glass and glazed sample assembly prior to fabrication of units. Sample acceptance will be for colour, appearance, glazing methods only.

.2 Submit samples for each finish and colour required. Submit samples finished on the specified alloy on 600 mm lengths of extrusions or 600 mm square of sheet or plate, showing maximum range or variation in colour and shade, and matching the Architect's samples in each case. Sample submittals and acceptance shall be for colour, texture and specular gloss.

.3 **Maintenance Instructions**

Submit maintenance instructions for incorporation into Project Data Book.

.6 Delivery, Storage and Handling

.1 Suitable storage at site shall be provided by the Contractor. Parts shall be stored in this area to permit natural ventilation over their finished surfaces.

.2 Under conditions of high humidity, heating or forced ventilation shall be provided to prevent the accumulation of surface moisture.

.3 Deliver, handle and store units by methods approved by manufacturer. Store units at site on wood platforms raised above grade or in enclosures protected from elements and corrosive materials, and with resilient pads provided for full bearing support of frame. Stack units vertically in manner to prevent racking. Do not remove from crates or other protective covering until ready for installation.

.4 Protection of this work shall be the responsibility of this Section and the methods used shall be agreed with the Contractor.

.5 Do not permit foreign materials such as splashing of concrete, mortar, plaster or paint, which could damage the finish, to remain on the surface of aluminum work. All materials of this nature must be immediately removed, and where conditions are such that this will

not be possible, the exposed surface of aluminum exposed to abuse shall be protected by removable aluminized vinyl protection throughout the period that work proceeds on the building. The protective materials must be carefully removed on completion of the building, and in such a manner that no damage occurs to the aluminum finish.

.7 Warranty

.1 **Extended Warranty**

.1 Warrant installation specified in this Section covering the period for four years beyond the expiration of the warranty period specified in the General Conditions to the Contract. The total warranty period is six (6) years.
.2 Without restricting the generality of the warranty, defects shall include failure to maintain true lines, plumbness and weather tightness under all conditions.

.2 Promptly remedy defects and/or failures upon written notification that such exist. Remedy shall include labour, materials, equipment and services required to make good defective work, and to replace such work, without removal of non-defective work, and to make good any work, components and finishes and Owner's property damaged or disturbed in course of remedying defects and/or failures.

PART 2 - PRODUCTS

.1 Materials

.1 **Aluminum**

.1 Extrusions: AA6063-T5, alloy and temper for framing, and otherwise where not exposed to suit specified and fabricator's requirements.
.2 Exposed Anodized Sheet and Plate: AA 5005-H14, alloy and temper, or AA 1100-H14, anodizing quality.
.3 Exposed sheets where painted: AA100-H14, alloy and temper.
.4 Non-exposed sheets: AA3003-H14, aloy and temper, mill finish, or Alcan "Utility Sheet".
.5 Exposed surfaces of aluminum shall be free of die marks, scratches, blisters, "leave-off" marks, or other blemishes which are visible.

.2 **Steel**

.1 Steel Framing: To meet specified requirements of CSA Standard G40.21, Grade 300W for rolled sections and Grade 350, Class H, for hollow sections.

.3 **Stainless Steel**

ASTM Specifications A480-81, and A167-81a, Type 304.

.4 **Finishes**

.1 New Construction: Anodic clear coating, Architectural Class 1, AA-M12C22A41 (.0007")
.2 Renovations and Additions: Match existing aluminium frames and entrance system

.5 **Glass**

To meet specified requirements of Section 08800; 25 mm sealed insulating units and as specified herein.

.6 **Glazing Gaskets**

Either neoprene of EPDM (ethylene propylene diene monomer) with dimensional tolerances and durometer hardness and of suitable size and shape to meet requirements of the specifications and their specific application. Gaskets shall be virgin material as

manufactured by Tremco Manufacturing Company (Canada) Limited or other approved manufacturer. Gaskets shall conform to Tremco Information Bulletins:
For EPDM - TDB-460-1 or equal.
For Neprene - TDB-270-1 or equal.

.7 **Glazing Tape**

Polyisobutylene, with continuous molded-in synthetic rubber shim, in colour selected, Polyshim Tape by Tremco (Canada) Limited, or equivalent as approved.

.8 **Sealants and Sealant Materials**

To meet specified requirements of Section 07920 and design performance requirements.

.9 **Fastenings**

Stainless steel, Type 300 series, or double cadmium plated steel, selected to prevent galvanic action between fasteners and components fastened. Where exposed in finished surfaces, use oval-head countersunk Phillips head screws with shank diameter one screw size smaller than the diameter of holes in fastened material, and colour to match adjacent surfaces.

.10 **Exposed Anchors**

Aluminum or stainless steel with aluminum materials; and otherwise to match metal anchored. Non-exposed: as for exposed or may be galvanized steel.

.11 **Bituminous Paint**

To meet specified requirements of CGSB Specification 1-GP-108.

.12 **Separator/Slip Gaskets**

Nylon as suitable for connection detail at moving faces of connections.

.13 **Thermal Separator**

Solid extruded and thermally resistant sections with a durometer hardness of Shore "A" 50, ±5.

.14 **Supporting Angles, Plates, Bars, Rods and Other Steel Accessories**

.1 Mild steel CAN3-G40.21-M78, thickness as required to sustain imposed loads and in no case less than 4.8mm thick.
.2 Galvanize steel after fabrication where installed on exterior side of vapour retarder/air barrier. Prime paint steel where installed on interior side of vapour retarder/air barrier.

.15 **Thermal Insulation**

.1 Rigid glass fibre board, AF530 wall insulation manufactured by Fiberglas Canada Inc. in thickness indicated on Drawings with black coating on outer surface.
.2 Loose Insulation: Glass fibre, density of 12 kg/cu.m., by Fiberlgas Canada Inc.
.3 **Foam Insulation**
.1 One or two part, polyurethane, with a nominal density of 40 kg/m^3, coefficient of linear expansion of 0.00006 mm/m/°C, water vapour transmission of 73 Ng/Pa5m^2 and thermal conductivity of 0.02 W/m°K.
.2 Similar to products as produced by BASF Canada Inc.

.16 **Hardware**

Refer to Section 07810.

.2 Products

.1 Specified manufacturers' catalogue references to Kawaneer, establish the minimum standards for the products listed in this Section.

.2 Unspecified materials which form a part of completed assemblies shall be of manufacturers' standard.

.3 Products of the following manufacturer are considered as acceptable alternatives, provided that they meet the minimum requirements of the products listed and must submit technical literature, samples, drawings and performance data for comparison:

Kawneer
Windspec Limited
Alwind Industries

.4 **Screens and Framing**

.1 Framing: Kawaneer 500 Series or similar

.2 Finish:
: exterior: clear anodized
: back sections: clear anodized

.3 Glazing: 25mm insulating glass units at exterior locations; Type 2.

.4 Sills: extruded aluminum, with concealed anchor system or hold down clips, colour and finish to match framing.

.5 Style: Combination of mullion depths, glazing rebates and caps as required by Drawings, and including door stops and cut pile weatherstripping.

.5 **Hinged Doors**

.1 Type: series 2200 thermally broken entrance framing by Alumicor. Refer to drawings for dimensions of bottom, mid and top rails and stiles..

.2 Glass: 25mm insulating glass units at exterior locations.

.3 Finish:
: clear anodized.

.4 Threshold: Extruded aluminum, clear finish, 12mm riser, overall width to match frames.

.5 Weatherstripping: Cut pile weatherstripping and adjustable door bottoms for exterior doors.

.6 Door Sweep: KN Crowder W-24S628.

.7 Hinges: continuous, heavy duty Rotun hinge

.3 Fabrication

.1 Ensure glazing rebate provided with depth and width to accommodate specified glass in accordance with glass manufacturer's recommendations. Install glazing gaskets anchored to aluminum extrusions.

.2 Provide structural support for air barrier tie-in.

.3 **Framing Members**

.1 Fabricate generally to dimensions/profiles indicated on drawings. Meet specified requirements and clearances to other construction components.

.2 Reinforce members and joints with steel plates, bars, rods or angles for rigidity and strength as needed to fulfill performance requirements. Use concealed stainless steel fasteners for jointing that cannot be welded.

.4 Provide glass setting, supports and stops to minimize posibility of glass breakage caused by structural inadequacy of frames, stops and frame joints, solar and thermal induced forces, within limitations of specfified design performance criteria, as recommended by glass manufacturer.

.5 Design system to ensure that site glazing may be performed in accordance with construction scheduling within environmental limitations specified in Section 08800.

.4 **Assembly of Units**

.1 Join members by welding where specified and otherwise where practicable.

.2 Join members where specified, and otherwise where welding is impracticable, by mechanical methods. Reinforcement or fasteners visible on faces of members where exposed to view will not be acceptable.

.3 Weld with electrodes and by methods recommended by the base metal manufacturer, and in accordance with CSA Standards W47.1, W47.2 and W59 as applicable, and to avoid distortion or discolouration of exposed faces. Make welds continuous unless otherwise shown. Grind exposed welds flush, to match adjacent metal.

.4 Join members in shop fabricated units to fit flush with hairline joints.

.5 Incorporate weepholes to drain off pocketed water. Baffle to prevent entry of driven water to conform to specified performance.

.6 Except where shipping makes impossible, fabricate units in shop and ship completely assembled.

.5 **Vapour Retarder and Air Barrier**

Maintain integrity of vapour retarder and air barrier system within systems installed by this Section and between systems and adjoining construction.

.6 **Dissimilar Materials**

.1 Protect material from electrolytic action when dissimilar metals are in contact with one another with two coats of bituminous paint or other approved means.

.2 Protect aluminum concealed in contact with masonry with two coats of biuminous paint.

.7 **Anchors**

.1 Incorporate anchorage to structure to support units adequately when subjected to specified loads.

.2 Allow for complete adjustment in anchorage for levelling and positioning of units during installation.

.8 **Doors**

.1 Fabricate doors with stiles and rails of extruded aluminum with major portions of 3mm minimum thickness.

.2 Join stiles to rails with sigma deep penetration welds and mechanical fastening.

.3 Provide flush glazing.

.4 Incorporate weatherstripping.

.5 Provide for master-keyed lock cylinders.

.9 **Fastenings**

.1 Where fastenings are exposed to dampness or moisture, use cadmium plated steel for steel-to-steel, aluminum for aluminum-to-aluminum, and stainless steel otherwise or alternatively for all above.

.2 Where fastenings are not exposed to dampness or moisture, cadmium plated steel may additionally be used for all combinations of metals noted in immediately preceding sub-paragraph.

.10 **Thermal Movement**

Fabricate exterior units and assemblies to provide for expansion and contraction of component members and between units when subjected to surface temperatures from -34 deg.C to 82 deg.C.

.13 **Mullions**

Fabricate mullions to provide for specified thermal movement without damage to adjacent units.

.14 **Dissimilar Materials**

.1 Protect material from electrolytic action when dissimilar metals are in contact with one another.
.2 Protect aluminum concealed in contact with masonry with a heavy coating of bituminous paint.

.15 **Anchors**

.1 Incorporate anchorage to structure for units at sills, heads and jambs on 450mm centres generally, and to support units adequately when subjected to specified loads.
.2 Allow for complete adjustment in anchorage for levelling and positioning of units during installation.

.16 **Attachment of Hardware**

.1 Match hardware fastenings to metal of hardware.
.2 Attach hardware by bolts or machine screws into tapped reinforcing plates.

.17 **Weatherstripping**

.1 Secure weatherstripping in place by mechanical means only, and in a manner to enable its removal and replacement without special tools.
.2 Ensure that continuity of weatherstripping is maintained around openings.
.3 Install adjustable metal backed pile cloth weatherstripping recessed in stiles at jamb locations provided with latches and butt hinges, and in top rails of doors.
.4 Install adjustable sweeps at bottom rails of doors.

.18 **Thermal Break**

Incorporate a thermal break in frames in which insulating glass units are installed.

.19 **Finishing**

.1 For surfaces with zinc coating, clean and smooth ground surfaces at welds and prime areas from which zinc has been removed with a coating of zinc rich paint of minimum 0.102 mm thickness. Immediately following damage to galvanized protection prepare and repair surfaces to meet specified requirements of ASTM Specification A780.

PART 3 - EXECUTION

.1 Examination

.1 Take critical site dimensions to ensure that adjustments in fabrication or installation are provided for, that allowance is made for possible deflection of structure at heads, and that clearances to other construction have been maintained.
.2 Ensure that anchors and inserts, installed by others, are adequate to meet specified requirements, and make adaptations before installation.

.2 Installation

.1 **General**

.1 Coordinate fabrication of components specified in this Section with requirements of other Sections to ensure proper anchorage and fitting.
.2 Install components and units plumb, level and in accordance with shop drawings, by qualified experienced tradesmen and to conform to fabricator's instructions at location of testing and at site.
.3 Do not force units into place, nor superimpose on them loads for which they were not designed.
.4 Install vapour retarder and air barrier to ensure complete continuity and

integration of vapour retarder and air barrier system.

.5 Provide structural support for air barrier to prevent its displacement or its loss of seal when subjected to forces specified for design performance.

.6 Install metal flashing to drain cavities in system. Secure flashings permanently to prevent displacement, leaks, and noise.

.7 Provide for thermal movement to take place between shop fabricated assemblies and between assemblies and adjacent construction.

.8 Secure units by non-corrosive anchorage materials. Use of wood or fibre is not acceptable.

.9 Conceal anchors, clips, blocking, and all other attachments.

.10 Install reinforcing and supporting members as indicated and required structurally as part of the work of this Section.

.11 Seal metal-to-metal joints between components included in the work of this Section to ensure a weathertight assembly, and in accordance with sealant manufacturer's specificaitons.

.12 Install insulation where aluminum is exposed to the exterior to ensure that thermal conductance to interior of building is no more than thermal conductance of insulating glass units.

.13 Install units with consideration for finish variations. Abrupt variations of appearance or colour in adjacent components wil not be acceptable without approval before installation.

.16 Coat all damaged prime painted surfaces of anchorage with rust inhibiting paint after welding is completed.

.17 Apply two coats zinc rich paint to metal surfaces bared by removal of galvanizing.

.18 Apply one coat of prime paint to metal surfaces bared by removal of shop applied primer.

.2 **Welding**

.1 Perform welding in accordance with CSA Specification W59-1977. Exercise care during welding to minimize effect of welding heat. Design welds to prevent tearing at end of welds which could cause a progressive failure.

.2 Detailed welding procedure covering specified welds on erection and shop drawings may be requested for approval by the Consultant.

.3 Take precautions during welding to prevent damage or staining of adjacent surfaces.

.4 Remove prime paint from surfaces to be welded.

.3 **Caulking**

Caulk joints between frame members and sills and adjacent construction as a part of the work of this Section and in accordance with Section 07920 of the specifications.

.4 **Glazing**

.1 Install glass in units, as part of work of this Section and in accordance with Section 08800 of these specifications. Include manufacturer's standard glazing components to create prime seals.

.3 Adjustment and Cleaning

.1 **Adjusting**

.1 Adjust doors to operate smoothly and fit tightly when closed and locked.

.2 Adjust hardware to operate smoothly, with proper tension and lubricate.

.3 Ensure that weatherstripping does not cause binding to prevent closing and locking, and that it makes weathertight contact.

.4 Adjust closers after doors are glazed, and other hardware and vestibule doors are installed.

.3 **Cleaning on Completion of Installation**

.1 Remove deposits which affect appearance or operation of units.
.2 Remove protective materials.
.3 Clean interior and exterior surfaces by washing with clear water; or with water and soap or detergent; followed by a clear water rinse.
.4 Clean and restore stained metal surfaces in accordance with manufacturer's recommendations. Replace if cleaning is impossible.
.5 Final cleaning is specified in Section 01710.

.4 Protection

.1 Immediately upon completion of installation, suitably protect vulnerable edges, and exposed corners and surfaces. Protection shall prevent damage by mortar, paint or other hazards from the work of other trades.
.2 Protect prefinished surfaces of metal with protective coatings or wrappings to remain in place until construction completion. Use materials recommended by finishers or manufacturers of metals to ensure that method is sufficiently protective, easily removed, and harmless to finish.
.3 Remove protection from metal glazing surfaces before installation of glass.
.4 Maintain protection from time of installation to final cleanup in accordance with Sections 01040 and 01500.

End of Section

PART 1 - GENERAL

.1 Description

.1 General Requirements

Division 1, General Requirements, is a part of this Section and shall apply as if repeated here.

.2 Work performed by other Sections Related to this Section is specified in

Section 06200: Cabinet hardware as specified.
Section 06410: Cabinet hardware as specified

.3 Hardware Specified This Section, Supplied and Installed

Section 06200: Finish Carpentry: To install hardware other than as specified.
Section 06400: Custom Millwork: To install hardware other than as specified.

.4 Selected hardware suppliers will become a Subcontractor of the Contractor.

.5 See Finish Hardware Schedule and Electrical Elevations at the end of this Section

.2 Quality Assurance

.1 Requirements of Regulatory Agencies:
Install only ULC or ULI listed hardware for fire rated doors and frames.

.3 Submittals

.1 Samples

Submit samples of each hardware item.

.2 Templates

Submit templates to Contractor for use by installers and fabricators as required for proper location and installation of hardware.

.3 Maintenance and Operating Instructions

Submit maintenance, operating and installation instructions for installation purposes and for incorporation in Project Data Book.

.4 Delivery, Storage, and Handling

.1 Package hardware and label with description of contents and installation location. Refer to hardware list designation, and with door number when applicable.
.2 Deliver hardware to location at building site designated by Contractor.

.5 Warranty

.1 Extended Warranty

.1 Warranty contained in GC24 is, with respect to Section 08710, extended from 1 year to 5 years.
.2 Contractor hereby warrants that system is suitable for use in this type of installation.

.3 Contractor shall arrange with Architect and/or Owner, about 1 month before warranty expires, to visit site, examine the hardware, and make necessary repairs. Should Contractor fail to make such arrangement through no fault or neglect of Owner or Architect, then period of warranty shall extend to one month after such arrangement is made.

PART 2 - PRODUCTS

.1 Products

.1 Finish hardware fabricated of same materials shall have consistent colour and finish throughout Project.
.2 Supply with specified hardware screws, bolts, expansion shields, inserts, and other items and parts required for complete installation and functioning.
.3 Owner to provide Hardware schedule for doors

PART 3 - EXECUTION

.1 Examination

.1 Before supplying materials, ensure by a check of Drawings, shop drawings and details prepared for the Project, that listed hardware is suitable by dimension and function for intended purpose. Inform Architect of discrepancies.

.2 Installation

.1 Provide instructions required for preparation of doors and frames to the appropriate fabricators.
.2 Provide instructions required for installation of hardware to Section 06200, and other Sections as applicable.
.3 Provide assistance and supervision of installation when requested.

.3 Adjustment

.1 Verify that installed hardware functions properly, and instruct installers accordingly of requirements and procedures for adjustments to ensure satisfactory operation.

End of Section

1. GENERAL

1.1. GENERAL REQUIREMENTS

a. Division One, General Requirements, shall apply as if repeated here.

1.2. PROTECTION

a. Mark the presence of each light with a large temporary cross.

1.3. SAMPLES AND SUBMITTALS

a. Submit duplicate 300 x 300mm (12 x 12") size samples illustrating insulated glass and spandrel glass units, decorative glass, colouration and fabrication. Submit associated data sheets for glass units. (SB-10)

b. Submit samples as specified in Section 01340.

1.4. RELATED WORK

a. Door and Frame Schedule – General Notes - Section 00865
b. Steel doors and frames - Section 08110

1.5. WARRANTY

a. Provide a written warranty signed and issued in the name of the Client and Project stating that the Contractor warrants insulating glass units against failure of seal of enclosed air space and deposits on inner faces of glass detrimental to vision in accordance with GC 12.3 as amended by the Supplementary General Conditions, but for a period of five years.

2. PRODUCTS

2.1. GLASS MATERIALS

.1 **Insulating Glass Units (GL-1)**

.1 Insulating Glass to: CAN/CGSB – 12.8 Double unit. Glass to : CAN/CGSB -12.1 – Safety Glass.

.2 Warm edge, hermetically sealed, minimum 6mm each lite. Minimum 13 mm space – argon filled double sealed (primary to be polyisobutylene, secondary to be polysulphide or structural silicone glazed units), desiccant filled Bayform "Thermal Edge" spacer (black) with splice connectors at corner of each glass unit.

.1 IGMAC Certified.
.2 Low E coating on surface #3.
.3 Acceptable Products
.4 AGC/AFGD'Comfort Ti-AC 40'
.5 PPG 'Solarban 60'
.6 Cardinal 'LoE2 -172'
.7 Versalux
.8 Viracon 'Solarscreen 2000 VE 1-2M'
.

.3 Glass Thickness: 6mm minimum or as required to meet design requirements.

.4 Glass Type: Annealed, heat strengthened, or tempered as required to meet design requirements.

.5 Performance Requirements:

.1 Visible light: 68 - 70%.

.2 U-value: Fixed=0.38; Operable=0.45

.3 Shading Coefficient: within 0.43 - 0.46.

.4 Solar heat gain coefficient: within 0.37 - 0.40.

.5 Glass Colour: Tinted, as selected by the architect unless otherwise noted.

.6 Type 1 exterior lite: tinted, tempered, body colour by architect.

.7 interior lite: clear, low emissivity coating on third surface

.8 Type 2 exterior lite: tinted, tempered, body colour by architect

.9 interior lite: clear, tempered, low emissivity coating on third surface of interior lite.

.10 Type 3 Spandrel Glass to CAN/CGSB – 12.9, Opaque (opacicoart) Custom Colour, min. 6mm. Type 1 – Tempered, Class A float glass, silicone coated, form I –insulating Glass.

.3 **Tempered Glass (GL-2):**

.1 Shall be 10 mm (3/8") float glass tempered to meet National Building Code Safety Glass requirements in Sub-Section 3.3.1.13 (1) (2) and to conform to current national standards of Canada CAN2-12.1-M79. Refer to drawings for location of clear lites.

.4 **Glass at Fire Rated Doors and Partitions (GL-3):**

Premium Firelite 3/16 ins. (5 mm) thick FireLite supplied by Techniglas.

- Fire-rating: 45 minutes
- Surface Finish: Standard Grade is polished
- Positive Pressure Test: UL 10C
- Glazing Tape: Closed cell polyvinyl chloride (PVC) foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume of 2 percent

2.2. GLAZING AND SEALING COMPOUND MATERIALS

a. Glazing compound: Oil type, to CGSB 19-GP-6M Type 1, colour of frames.

b. Sealant compound: To Section 07910.

c. Glazing tape: Preformed butyl tape, 10-15 durometer hardness, paper release, 3.2mm (0.125") thick x 40mm (1.6") wide, colour to match frames.

d. Setting blocks: Neoprene, Shore "A" 100mm (4") long x 9mm (0.35") thick x 6mm (0.25") high.

e. Spacer shims: Neoprene, Shore "A" 75mm (3") long x 2.4mm (0.09") thick x 6mm (0.35") high.

f. Glazing splines: Neoprene manufacturer's standard dry glazing splines to relate to colour of aluminum.

g. Glazing points and wire spring clips: Corrosion resistant, manufacturer's standard.

h. Primer-sealers and cleaners: to glass manufacturer's standard.

3. EXECUTION

3.1. WORKERSHIP

a. Remove protective coatings and clean contact surfaces with solvent and wipe dry.

b. Apply primer-sealer to contact surfaces.

c. Place setting blocks as per manufacturer's instructions.

d. Install glass, rest on setting blocks, ensure full contact and adhesion at perimeter.

e. Install removable stops, without displacing tape or sealant.

f. Provide edge clearance of 3mm (0.12") minimum.

g. Inset spacer shims to centre glass in space. Place shims at 600mm (24") o.c. keep 6mm (0.25") below sight line.

h. Apply cap bead of sealant at exterior void.

i. Apply sealant to uniform and level line, flush with sight line and tooled or wiped with solvent to smooth appearance.

j. Do not cut or abrade tempered, heat treated, or coated glass.

k. Door and screen glazing to be tempered, unless noted otherwise on Drawings.

l. Exterior glazing to be tinted, tempered glass including windows, doors and screens, unless noted otherwise on the Door Schedule.

m. Fixed exterior glass to be insulated units.

n. Sloped glazing to be insulated with tinted, tempered exterior light, laminated safety glass interior light.

o. Refer to DOOR SCHEDULE for locations of wired glass and fire-rated laminated safety glass.

3.2. EXTERIOR GLAZING: Combination method - tape / sealant:

a. Cut glazing tape to proper length and set against permanent stops, 5mm (0.2") below sight line. Install horizontal strips first, extend over entire width of opening before applying vertical strips. Weld corners together by butting tape and dabbing glass and applied stop with silicone sealant.

b. Fill gap between glass and applied stop with sealant to depth equal to bite of frame on glass but not more than 10mm (0.4") below sight line.

3.3. INTERIOR GLAZING: Dry method - tape / tape:

a. Cut glazing tape to length and install against permanent stop, project 1.5mm (0.06") above sight line.

b. Place glazing tape on free perimeter of glass as described above.

3.4. FIRE-RATED LAMINATED SAFETY GLASS:

a. Fire-rated laminated safety glass shall only be installed into fire-rated frame assemblies of the same rating.

b. Install in vision panels in fire-rated doors to requirements of NFPA 80.

c. All glazing components, tapes, compounds, sealants and stop heights must be chosen and installed according manufacturer's recommendation and appropriate ULC classification.

d. Install so that the ULC or manufacturer's rating label remain permanently visible for each pane.

3.5. FINISHING

a. Immediately remove sealant and compound droppings from finished surfaces. Remove labels after work is completed. Clean both sides of glass.

END OF SECTION 08810

PART 1 - GENERAL

1. **Description**

.1 **General Requirements**

Division 1, General Requirements, is a part of this Section and shall apply as if repeated here.

.2 **Work Performed by Other Sections Related to This Section is Specified in:**

Section 07920: Sealants and Caulking
Section 09300: Tile
Section 09510: Acoustic Ceilings
Section 09900: Painting and Finishing

.3 **Supply of Work Installed by This Section is Specified in:**

Division 15 : To furnish access panels.

.2 **System Description**

.1 **Tolerances**

.1 Install board within 3 mm of dimensioned location unless approved otherwise, and flat to a tolerance of 1 mm maximum in 1000 mm and 1 mm maximum in any running 200 mm.

.2 Install framing members to ensure that deflection of each member does not exceed 1/360 of its span under dead load and loads imposed by mechanical and electrical equipment and fixtures supported by ceiling.

.3 **Quality Assurance**

.1 **Requirements of Regulatory Agencies**

Install fire separations and fire protection exactly as specified in Underwriters' Laboratories test design specification that validates specified rating. Verify installations specified in other Sections, as a part of the entire assembly, meets applicable validating test design specification.

.4 **References**

.1 **Reference Standards**

Reference standards quoted in Contract Documents refer to:
ASTM A116-81, Specification for Zinc Coated (Galvanized) Iron or Steel Farm Field and Railroad Right-of-Way Wire Fencing.
ASTM 153-80, Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
ASTM A525-81, Specification for Steel Sheet, Zinc Coated (Galvanized) by the Hot-Dip Process, General Requirements.

ASTM C475-64, Standard Specification for Joint Treatment Materials for Gypsum Wallboard Construction.
ASTM C646-76a, Specification for Steel Drill Screw for the Application of Gypsum Sheet material to Light-Gauge Steel Studs.
CGSB Specification 1-GP-118M Finish, Interior, Alkyd, Flat.
CAN/CSA-A82.27-M91, Gypsum Board.
CAN/CSA-A82.31-M91, Gypsum Board Application.

.5 **Delivery, Storage, and Handling**

.1 Package finish materials.
.2 Store materials in protected dry areas. Store board flat in piles with edges protected.
.3 Ensure that finish metal members are not bent, dented, or otherwise deformed.
.4 Deliver products supplied only by this Section to those responsible for installation, to the place they direct, and to meet installation schedules.
.5 Package fire rated materials with Underwriters' Laboratories labels attached.

.6 **Site Conditions**

.1 **Environmental Requirements**

.1 Install interior gypsum board systems only in areas closed and protected against weather, and maintained between 10EC and 21EC. In cold weather, ensure that heat is introduced in sufficient time, before installation commences, to bring surrounding materials up to these temperatures and that it is maintained until materials installed by this Section have cured.
.2 Do not install gypsum board systems in any area unless satisfied that construction in place has dried out, and that no further installation of damp materials is contemplated.

PART 2 - PRODUCTS

.1 **Materials**

.1 **Gypsum Board**

.1 To meet specified requirements of CAN/CSA-A82.27, ASTM C 1396.
.2 Plain Gypsum Board: 12.7mm and 15.9mm with tapered edges with maximum practical lengths to minimize joints.
.3 Specilized Gypsum Board: refer to wall types schedule on drawings;
.1 Type X fire rated Gypsum Board to obtain listed fire ratings listed on schedules.
.2 Fire Rated Gypsum Board 15.9mm thick of gypsum mineral core.
Pro-Roc Type C by Certainteed Gypsum Canada.
Firecode C By CGC Inc.
Or approved alternate by G-P Products Inc.
.3 Abuse Resistant Gypsum Board – minimum 16mm thick. All walls
Sheetrock Abuse-Resistant Panels by CGC Inc.
Sheetrock Abuse-Resistant Panels by ToughRock.

.2 **Joint Materials**

.1 Gypsum Board Joint Reinforcing Tape: 50 mm wide glass, fibre mesh.
.2 Fiberbond Joint Reinforcing Tape: 50 mm wide, cross laminated fibre tape.
.3 Gypsum Board Joint Compounds:
.1 Latex, resin base, possessing good adhesion, mixed with fresh, unadulterated water having no detrimental effect on compounds.
.2 Durabond 45 in powder form to be mix on site in accordance with Manufacturer's printed instructions

.3 **Galvanizing**

.1 Zinc Coating: To meet specified requirements of ASTM Specifications A525, zinc coating designation Z275 for sheet steel; A153, Class B.3 Coating for hardware and bolts; A116, Class 3 Coating for wire and rods.
.2 Wiped Coating: ASTM Specification A525 zinc coating designation ZF75.
.3 Hot Dipped: Zinc coating by hot dipping after fabrication to provide a uniform coating of not less than 2.0 ounces per square foot.

.4 **Fastenings and Ties**

.1 Screws: For securing gypsum board to metal furring: Self-drilling, self-tapping, case-hardened, Phillips head, drywall screws, with corrosion resistant finish; to meet requirements of ASTM Specification C646. #6 x 25 mm for single thickness board fastening, and #7 x 41 mm for double thickness board fastening.
.2 Tie Wire: 1.6 mm dia. galvanized soft annealed steel wire.

.5 **Furring System**

.1 Runner (Carrying) Channels: 1.6 mm thick cold rolled steel, prime painted.
38 mm x 13 mm where supported at centers of 900 mm maximum.
38 mm x 19 mm where supported at centers of 1200 mm maximum.
.2 Furring Channels: 0.55 mm thick cold rolled steel, wiped coated, nominal size of 19 mm deep x 32 mm face, hat type with knurled face.
.3 Metal trim: 13 mm, J - trim, no. 200-A; 13 mm, L - trim, No. 200-B, both as manufactured by Canadian Gypsum Company Inc.
.4 Control Joints: No. 093 as manufactured by Canadian Gypsum Company Inc.
.5 At areas of high humidity, use zinc coated runners, furring channels and accessories.

.6 **Partition System**

.1 Steel Studs: 0.85 mm (20 gauge) thick steel, wiped coated, having knurled flanges 32 mm wide with edges doubled back at least 4.8 mm, with girts as required, and with service access holes.

.2 Partition Runners: As specified for studs, with flanges a minimum of 22 mm high at floor, and 51 mm high for double runners at top of partitions and to suit width of studs.

.3 Control Joints: No. 093 as manufactured by Canadian Gypsum Company Inc.

.7 **Ceiling Hanger System**

.1 Hanger Anchoring Devices:
Phillips Red Head by Phillips Drill Company of Canada Limited, Thornhill, Ontario
: T32 self drilling for use in concrete deck.
: WS-3822 wedge anchor with tie wire insert for use in composite concrete .

.2 Hangers:
Zinc coated annealed steel wire:
: 2.8 mm dia. to support a maximum weight of 68 kg per hanger.
: 3.8 mm dia. to support a maximum weight of 140 kg per hanger.
Zinc coated annealed steel rod.
: 4.8 mm dia. to support a maximum weight of 250 kg per hanger.

.8 **Sealant**

.1 Acoustical Sealant: As manufactured by Tremco Manufacturing Co. (Canada) Ltd. or Presstite Acoustical sealant No. 579.64 as manufactured by Inmont Presstite Ltd.

.2 Fire Separation Sealant: Sealant Type 1 as specified in Caulking Schedule of Section 07920 where exposed to view, and acoustical caulking at concealed locations.

PART 3 - EXECUTION

.1 **Examination**

.1 Before application of board systems commences, ensure that services have been installed, tested, and approved; that conduits, pipes, cables, and outlets are plugged, capped, or covered; and that fastenings and supports installed by other Sections are in place.

.2 Ensure that environmental conditions and construction completed before installation of gypsum board systems commences are satisfactory and will permit compliance with quality and dimensions required for gypsum board installation specified in this Section. Do not permit installations of others to touch the back of gypsum board.

.3 Verify that installations performed by other Sections which are a part of an underwriter specification for a fire rated assembly have been done in accordance with that specification.

.4 Verify that channels installed for rigid insulation are located properly and are well secured.

.2 **Installation**

.1 **General**

.1 Coordinate installation of systems specified in this Section with installations of other Sections for
: attachment of hangers, fasteners, stiffeners, and reinforcing.
: support and incorporation of flush-mounted and recessed components.
Ensure adequacy of supports by consultation and verification of methods specified in Divisions 15 and 16.

.2 Install systems in accordance with approved manufactured' specifications and printed directions, as applicable for materials incorporated.

.3 Do not install metal framing, trim, casings, or accessories which have been bent, dented, or otherwise deformed.

.4 Securely attach trim, casings, framing, and accessories.

.5 Framing and furring shown on Drawings is indicative but do not regard it as exact or complete. Construct systems to provide adequate strength to withstand stresses imposed by use without distortion, and to maintain dimensions indicated on Drawings.

.6 Provide continuous backing for all edges of board.

.7 Erect supporting and finish materials to dimensions indicated on Drawings; plumb, level, straight, and square to adjoining elements.

.8 Provide for movement at intersections with structural members to avoid transference of loads to systems.

.9 Make allowances for thermal movements in systems.

.10 Do not support systems from, nor make attachment to, ducts, pipes, conduit, or the support framing installed by other Sections.

.11 Install materials with the minimum of joints.

.12 Splice, framing members only where continuous lengths are not available from manufacturer.

.13 Frame openings on every side with suitable sections. Provide clearances required at mechanical and electrical services, such as grilles, diffusers, access panels, and lighting fixtures only after verification of requirements in each case.

.14 Cooperate with other Sections. Where the installations of other Sections penetrate board construction, fit openings snugly, and to ensure cover by escutcheons and plates utilized.

.15 Attach to framing, adequate steel reinforcing members to support the load of, and to withstand the withdrawal and shear forces imposed by, items installed by other Sections upon systems. Such items are, but not restricted to, coat hooks, washroom accessories, handrail anchors, guards, wall-hung cabinets and fitments, shelving, curtain and drapery tracks, and minor mechanical and electrical equipment and fixtures. Heavy mechanical and electrical equipment shall be self-supporting as specified in Divisions 15 and 16.

.16 Provide fire stopping; bulkheads over doors, frames, screens, and changes in ceiling levels; stair soffits; furred beams; pipe spaces; all as indicated on Drawings.

.2 **Suspended Ceiling Framing and Furring**

.1 Anchor hangers to structural frame or to hanger anchoring devices installed by this Section.

.2 Space hangers for runner channels to suit structure, to support ceiling load, at a maximum distance of 1200 mm o.c., and at no greater distance than 150 mm from ends of runner channels.

.3 Install runner channels at 900 mm o.c., generally, and at no greater distance than 150 mm from terminations of supported cross furring members. Bend rod hangers sharply under bottom flange of runners, and wire securely in place with saddle ties.

.4 Splice runner channels by lapping at least 300 mm, with interlocking flanges, and wired at each end with two loops. Do not bunch or line up splices.

.5 Install cross furring at 400 mm o.c, generally, and at no greater distance than 150 mm from walls, openings, breaks in continuity of ceiling, and changes of direction. Space furring in all cases to suit incorporated services, and so as to avoid contact with perimeter walls. Span hat-type furring no greater 1200 mm. Use metal studs for greater spans: 42 mm deep spanning to 1525 mm, 63 mm deep to 1800 mm, and 92 mm deep to 2400 mm.

.6 Secure cross furring to supports with double wire ties or approved equivalent attachment. Splice by nesting and tying together with 200 mm overlap.

.7 Erect entire hanger and suspension system to adequately support the ceiling assembly, including services incorporated, with a maximum specified deflection for each component member, and free from horizontal movement.

.8 Enclose ducts, pipes, beams or other components that occur outside the general finished lines of ceilings, soffits and bulkheads with metal furring and gypsum board, in rooms where acoustic treatment for ceilings is specified.

3. **Metal Stud Framing**

.1 Secure runner channels at floor and tops of partitions for their full length, at 600 mm o.c with concrete nails, square cut nails, toggle bolts, or sheet metal screws as suitable for base material. Install runner channels also at heads and sills of openings. Secure runners at openings by butting flanges, turning up webs, and screwing to studs.

.2 Provide partition runners with deep flanges at heads of partitions where deflection and/or creep of structure will occur.

.3 Butt, not mitre, runners at wall intersections and corners. Lap runners and screw channels together.

.4 Space studs at 400 mm o.c., generally, or as indicated on Drawings, and at no greater distance than 50 mm from abutting walls, partitions, and corners.

.5 Secure studs to runners by screws, crimping, or welding, as required by stud type, and in accordance with manufacturer's design specification. Include provisions for deflection of building structure to ensure that structural loads are not transferred to studs.

.6 Install studs of depth indicated on Drawings: but in no case span studs 42 mm deep more than 2700 mm between supports; 63 mm deep, 3600 mm; and 92 mm deep, 4.5 m.

.7 Double studs at door jambs. At each jamb or doors exceeding either 900 mm in width or 57 mm in thickness, or both, install a 100 mm hot rolled structural channel, to structure above, and adequately anchored at each end.

.8 Double studs at all control joints.

.9 Erect three studs at corner and intermediate intersections of partitions.

.10 Install partition runners at heads and sills of openings in partitions. Form 150 mm bends in runners and secure bent portion to studs.

.11 Splice studs by nesting, with an 200 mm minimum lap, and fastened with one screw in each flange.

.12 Ensure that electrical boxes are not installed back to back in same stud space.

.13 Install blocking for bases, frames and supports before board in applied.

.14 Coordinate installation of board systems with other Sections installing horizontal runs of service lines so that all installations are done simultaneously. Where standard holes are too small for installed services, notch studs, and splice notched flanges with splice pieces 300 mm longer than notches, each fastened with two screws.

.15 Screw, or weld, frame anchor clips, of frames, supplied by Section 08110, to jamb studs, and head and sill runners. Ensure adequate fastenings to prevent movement of the frame within the partition. Remove spreaders at floor after frames are anchored.

.16 Unless shown otherwise on Drawings, partitions, together with gypsum board facings, shall extend above ceilings to underside of structure above.

.4 **Accessories**

.1 At External Corners: Install corner beads secured to framing at 150 mm o.c. on alternate flanges.

.2 At Board Edges: Secure “J” shaped casing beads at 150 mm o.c. at edges exposed to view, where board butts against other materials with no trim to conceal junction, at control joints, at perimeter of ceiling surfaces, at tops of partitions where they stop against continuous ceiling surfaces, and where otherwise indicated on Drawings.

.3 Install control joints in interior gypsum board systems at no greater spacing than 7.3 m for walls and 9 m for ceilings in each direction, at perimeters of ceilings where they abut walls and other vertical surfaces, or as otherwise indicated. Line up control joints with joints in other construction or with centre lines of mullions, columns, piers, or similar building elements.

.4 Install casings and thermal breaks at junctions of gypsum board with exterior door, window, or screen frames.

.5 **Application of Gypsum Board to Framing**

.1 Extend board into door, window, and other opening reveals; behind

mirrors, fitments, and other applied items of a fixed nature; and on metal stud partitions to structure above, unless noted otherwise on Drawings.

.2 Apply board with long dimension perpendicular to supports except at stud partitions where they shall parallel studs.

.3 Back all joints with a framing member. Locate joints on opposite sides of partitions on different studs, and at least 300 mm from opening jambs.

.4 Install board in maximum lengths and widths to minimize joints, and in lengths of 1800 mm minimum, and stagger end joints where they are unavoidable. Locate joints in ceilings where least prominently discerned, and never line them up with opening edges.

.5 Tightly butt board joints, without force, and align them neatly.

.6 Form neat joints at mill ends and at edges of board panels cut in field. Cut paper on face with a knife. Smooth by sanding and rubbing edges together.

.7 Do not install board in close proximity to hot pipes or heating ducts.

.8 Fasten board to metal support members by metal drywall screws.

.9 Locate fasteners at 10 mm minimum to, and 13 mm maximum from, centre of joints. Space fasteners at walls and ceilings at 300 mm o.c. at edges and in field, unless otherwise specified. At ceilings of fire rated board, space fasteners at 200 mm o.c. at edges and in field, unless otherwise specified. At walls of fire rated board space fasteners at 200 mm o.c. at edges and 300 mm o.c. in field. Locate fasteners opposite one another in adjacent panels.

.10 Start application on walls at corners of rooms, and on ceilings from centre line of spaces. Do not force adjacent boards into place; allow moderate contact. Install extension clips where required. Drive screws to form a slight depression, but not so paper cover is broken.

.11 Install board with casing bead at termination of gypsum board edge abutting adjoining surfaces to provide for differential movement at internal corners

.6 **Finishing of Joints and Depressions at Gypsum Board**

.1 Fill joints, casing beads, corner beads, holes at board fasteners and depressions on board surfaces exposed to view to ensure smooth seamless surfaces and square neat corners. Use jointing compounds and reinforcing tapes in conformance with manufacturer's specifications. Ensure that board is tight against framing members, fasteners are properly depressed, and adhesives have sufficiently cured.

.2 Fill joints by three-coat method.
: Embed reinforcing tape in a cover coat of joint filler.
: Apply level coat of joint filler when cover coat has dried.
: Feather edges of compounds into surfaces of boards. After skim coat has dried for at least 24 hours, sand to leave smooth for decoration. Do not sand paper face of board.

.3 At bevelled joints, apply cover coat 180 mm wide, level coat 250 mm wide, and skim coat 300 mm wide.

.4 At end joints and butt joints formed at cut edges of board, apply cover coat 355 mm wide, level coat 500 mm wide, and skim coat 600 mm wide. Camber treatment over end joints to 0.8 mm thick at most.

.5 At Internal Corners: First fill gaps between boards with joint filler.

Embed creased reinforcing tape in a thin coat of joint filler applied 50 mm wide at each side of corner. Apply cover coat as specified for bevelled joints. Apply skim coat (as specified for bevelled joints) to just one side of joint, and when dry, apply skim coat to other side.

.6 At External Corners: Fill to nose of corner bead with joint filler and topping cement as specified for bevelled joints.

.7 At Casing Beads: As specified for bevelled joints.

.8 At Board Fasteners: Fill holes and depressions with 2 coat application of joint filler.

.7 **Caulking**

.1 Caulk between casing beads and other construction where junction exposed to view.

.2 Caulk junctions between gypsum board fire separations and protection, and other construction to ensure that integrity of fire rating is maintained. Ensure that caulked joints provide a continuous seal and that they are caulked before other installations enclose them.

.3 Clean joints, and prime and install sealants in accordance with the requirements of Joint Sealants, Section 07920.

.3 **Adjustment and Cleaning**

.1 Remove droppings and excess of joint compound from property, materials and surfaces of others, and from board and accessories installed by this Section, before it sets.

.2 Make good to cut-outs for services and other installations, fill in defective joints, holes and other depressions with joint compound.

.3 Make good defective board installations, and ensure that surfaces are smooth, evenly textured and within specified tolerances to receive finish treatments.

.4 Clean off beads, casings and other metal trim, and leave all surfaces ready for specified finishes.

End of Section

PART 1 - GENERAL

.1 **Description**

.1 **General Requirements**

Division 1, General Requirements, is a part of this Section and shall apply as if repeated here.

.2 **Work Performed by Other Sections related to this Section is specified in:**

Section 04200 – Unit Masonry
Section 09250 - Gypsum Drywall

.2 Material Supply

.1 All tile will be supplied new to the work of this section.

.3 Quality Assurance

.1 **Subcontractor Qualifications**

Perform tile installation specified in this Section only by a Subcontractor who has adequate plant, equipment, and skilled tradesmen to perform it expeditiously, and is known to have been responsible for satisfactory installations similar to that specified during a period of at least the immediate past five years.

.4 References

.1 **Reference Standards**

Reference standards quoted in Contract Documents refer to:
ANSI A108.1-1976, American National Standard Specifications for Installation of Ceramic Tile.
ANSI A118.1-1976, American National Standards Specifications for Dry-Set Portland Cement Mortar.
ANSI A118.3-1976, American National Standard Specifications for Chemical Resistant Water-Cleanable Tile-Setting and Grouting Epoxy.
ASTM C206-79, Specification for Finishing Hydrated Lime.
ASTM C207-79, Specification for Hydrated Lime for Masonry Purposes.
CAN/CGSB-75.1-M77, Tile, Ceramic.
CAN/CSA-A5-M83, Portland Cements.

.5 Submittals

.1 **Samples**

Submit 300mm x 300mm panels, or at least 4 units, of tile selected at random from stock.

.2 **Maintenance Instructions**

Submit maintenance instructions for incorporation in Project Data Book.

.6 Site Conditions

.1 **Environmental Requirements**

Install tile only when base surfaces and air temperatures have been maintained between 10°C and 21°C for 72 hours preceding installation and until setting materials have cured.

.7 Warranty

.1 **Extended Warranty**

Submit a warranty of tile products and installation specified in this Section covering the period for one year beyond the expiration of the warranty period specified in the General Conditions to the Contract. The total warranty period is three (3) years.

PART 2 - PRODUCTS

.1 **Materials**

.1 **Setting**

.1 Floor Tile 12 x 24, Medium bed mortar
.2 Portland Cement: To meet specified requirements of CAN/CSA-A5-M83.
.3 Hydrated Lime: To meet specified requirements of ASTM Specification C206 or C207 for Type S.
.4 Sand: To meet specified requirements of CSA Specification A82.56, passing 1.6mm sieve. Use white sand for white grout.
.5 Water Potable, containing no contaminants which cause efflorescence.
.6 Thin (Dry) Set Mortar: Bond coat to meet specified requirements of ANSI Standard A118.1, and CGSB Specification 71-GP-30M, Type 2; Keroflex by Mapei, or approved alternative by Laticrete International.
.7 Setting and Grouting Epoxy; To meet specified requirements of ANSI Specification A118.3, Kera color Floor or Kera color Wall by Mapei or approved alternative by Laticrete International.
.8 Additives: for mortar: to meet specified requirements of ANSI Standard A118.4 and CGSB Specification 71-GP-30M, Type 2; acrylic latex; Keraply by Mapei.
: for grout: to meet specified requirements of ANDI Standard A118.6, Kerapoxy by Mapei.
.9 Colour Pigment: Non-fading mineral oxides or carbon black emulsion, unaffected by lime or cement, and which will not stain tile.
.10 Primer: To meet requirements of supplier of bond coat.
.11 Dry Curing Grout: Premixed, dry set, as recommended by tile supplier.

.2 **Ceramic Floor Tile**

.1 Purestone series –by Centura, or approved alternate
.2 Size: 300mm x 600mm
.3 Colour: 2 colours, to be selected by the Board
.4 Base: 100mm Purestone series with Aluminum edging

.3 **Grout**

.1 Kerapoxy by Mapei for all wall tile applications.

.4 **Cleaner**

To meet specified requirements of #1000 Series of Terrazzo, Tile and Marble Association of Canada.

.5 **Galvanizing**

To meet specified requirements of ASTM Specifications A525, AF275 Coating Designation for sheet steel: A153 Class B.3 Coating, for hardware, Class 3 Coating, for wire and rods.

.2 **Flooring Accessories**

.1 Schluter finishing strip. Finish to be brushed nickel.

1.1. Porcelain Tile to VCT: Schluter Systems RENO-RAMP. Provide accessible slope.

1.2 Porcelain Tile to Terrazo: Schluter Systems SCHIENE.

PART 3 - EXECUTION

.1 **Examination**

.1 Ensure that environmental conditions and backing surfaces have been provided according to specified requirements.

.2 Defective tile installation resulting from application to unsatisfactory surfaces will be considered the responsibility of this Section.

.2 **Preparation**

.1 **Protection**

Prevent traffic and construction by other Sections on newly laid tile by barricading areas for at least 48 hours following installation.

.3 **Installation**

.1 **General**

.1 Install tile in accordance with details and specifications of Terrazzo, Tile and Marble Association of Canada Installation Manual 200-1979, Ceramic Tile, as applicable, and otherwise in accordance with ANSI Specification A108.1

.2 Lay out tile according to architectural drawings such that fields are centered on areas, with no tiles of less than half size included. Maintain heights of panels in full courses to nearest indicated dimension.

.3 Lay tile on vertical surfaces with joints plumb and level.

.4 Lay tile on floors with joints parallel to walls, at right angles to each other except where pattern is indicated on drawings.

.5 Lay tile so that wall and floor joints are in line.

.2 **Setting**

.1 Place as much tile as possible in one operation before setting bed reaches initial set. Clean back and remove bed when it has set before tile is laid.

.2 Prime entire backing surface for bond coats.
.3 Immediately prior to applying mortar bed over concrete or concrete block, evenly saturate substrate with clean water.
.4 Line up joints between tile installed on stairs from tread to tread.

.3 **Tile**

.1 Leave or cut openings to correct sizes to receive accessories, fittings, or other items built into tile.
.2 Cut and grind tile accurately, and without damage, to fit openings, at intersections and against trim finish. Rub exposed cut edges smooth with abrasive stone.
.3 Drill tile for hardware and for pipes where possible. Otherwise at pipes and fittings, fit tile closely so that escutcheons cover cuts.
.4 Extend tile into recesses at windows, doors, or other openings.
.5 Extend wall tile behind fitments, mirrors and other applied items of a fixed nature, by a sufficient amount to ensure overlap.
.6 Joint Width: 1.6mm wide between ceramic tile units.
.7 Provide joints coloured to match tile.

.4 **Grouting**

.1 Remove spacers, strings, ropes or pegs before grouting.
.2 Grout tile joints in accordance with grout manufacturer's directions and to fill joints solidly.
.3 Fill all gaps and skips, cover setting bed completely. Ensure finish grout is uniform in colour, smooth and without voids, pinholes or low spots.
.4 Damp cure grout for at least 72 hours.

.4 Adjustment

.1 Before Project completion, remove and replace defective, damaged, loose, and unbonded tile; and point defective joints.
.2 Wash tile surfaces with water.
.3 Wash unglazed surfaces with #1000 Series cleaner. Use 5% solution of muriatic acid only when preceded and followed by a complete drenching of clean water, and only when other cleaning methods are insufficient.

.5 Cleaning

.1 **Cleaning on Completion of Installation**

.1 Remove deposits which affect appearance.
.2 Remove protective materials.
.3 Clean surfaces by washing with clear water; or with water and soap or detergent; followed by a clear water rinse.
.4 Clean and restore stained metal surfaces in accordance with manufacturer's recommendations. Replace if cleaning is impossible.
.5 Final cleaning is specified in Section 01711.

.6 Extra Stock

.1 At the completion of the work, provide ten (10) new, clean packaged ceramic floor tiles of each colour to be turned over to the owner.
.2 At the completion of the work, provide an equivalent to 30 sq.ft. of wall coverage, clean packaged ceramic wall tiles of each colour to be turned over to the owner.

End of Section

PART 1 - GENERAL

1.1 **Description**

.1 **General Requirements**

.1 Division 1, General Requirements, is a part of this Section and shall apply as if repeated here.

.2 **Work Performed by Other Sections Related to This Section is Specified in:**

.1 Section 09650: Resilient Flooring.

.3 **Intent**

.1 It is the intent that the work of this section is the entire scope of work to prepare all existing floor finishes to receive final finish flooring.

.2 The intent of this section is that a single subcontractor is engaged by the general contractor to carry out all floor repair and preparation prior to the commencement of the main body work.

.3 The scope of work is to include, but not be limited to:

.1 Concrete or Grout infill of existing floor trenches.

.2 Concrete or Grout infill of all floor penetrations.

.3 Infill of all cracks and slab damages.

.4 Levelling of low areas as may be required for the installation of finish flooring.

.5 All work to prepare the floor shall be completed as one scope of work and the finish of the floor shall be resilient to withstand general interior construction activities.

.6 All work required to install through floor services as part of the scope of work for Division 15 and Division 16 shall occur after the scope of work of this section.

1.2 **Quality Assurance**

.1 **Subcontractor Qualifications**

.1 Provision of the scope of work specified in this Section only by a Subcontractor who has adequate equipment and skilled tradesmen to perform it expeditiously, and is known to have been responsible for satisfactory installations similar to that specified during a period of at least the immediate past five years. Subcontractors must have Levelmaster Elite Certification.

1.3 **Delivery, Storage, and Handling**

.1 Package flooring materials and identify contents of each package.

.2 Store materials for a minimum 24 hours immediately before installation at not less than 18° C.

1.4 **Site Conditions**

.1 **Environmental Requirements**

.1 Install all materials only when surfaces and air temperatures have been maintained between 18 degrees C and 24 degrees C for 24 hours preceding installation, and will be so maintained during installation and for 48 hours thereafter. Maintain a minimum temperature of 13degrees C after above period.

.2 Ensure that adequate ventilation is provided as required by manufacturers recommendations.

PART 2 – PRODUCTS

2.1 **Materials**

.1 Provide each flooring material from the same manufacturer for entire project.

.2 **Filler/Subfloor Preparation.**

.1 The intent of this section is to provide for a full fill and level of existing floors to receive all floor finishes. Contractor is to cover all costs associated with the intent to provide an acceptable

substrate for all finishes.

.1 Assume an overall average levelling compound thickness of 4mm over entire floor area

.2 Provide for shotblasting of all existing surfaces in preparation for filler and levelling compound.

.3 Provide Bonding agent as recommended by manufacturer.

.4 Cementitous bulk concrete filler: TEC fast set deep patch for trench infill.

.5 Primer: TEC Multipurpose Primer.

PART 3 - EXECUTION

3.1 **Examination**

.1 Test substrate to ensure that moisture level and acid-alkali balance does not exceed limits recommended by adhesive manufacturer.

.2 Ensure that environmental conditions have been provided as requested and specified.

.3 Ensure subfloors have been provided as specified without holes, protrusions, cracks greater than 2 mm wide, unfilled control joints, depressions greater than 3 mm deep, or other major defects.

3.2 **Preparation**

.1 Remove dirt, soil, oil, grease, and other deposits which would lessen the adhesive bond of flooring, and which would telegraph through flooring.

.2 Remove chalking and dusting from concrete surfaces with wire brushes.

.3 Remove prime paint and wire brush steel surfaces.

.4 Fill all defects such as cracks, depressions and scars from damage with filler. Level to smooth surface.

.5 Prime subfloors if recommended by adhesive manufacturer, and as he specifies.

.6 Protection: Prevent traffic and work on newly laid floors by barricading until adhesive cures.

3.3 **Installation**

.1 **General**

.1 Supply and install all products in accordance with the Manufacturers recommendations.

3.4 **Protection**

.1 After materials have set, and until project completion, coordinate with other Sections to ensure that floors are not damaged by traffic, as specified in Section 01010. Ensure that flooring is not subjected to any static loading during the week following installation.

End of Section

PART 1 - GENERAL

.1 **Description**

.1 **General Requirements**

Division 1, General Requirements, is a part of this Section and shall apply as if repeated here.

.2 **Work Performed by Other Sections Related to This Section is Specified in:**

Section 03330: Concrete Floor Finishing

.2 **Quality Assurance**

.1 **Subcontractor Qualifications**

Install resilient flooring specified in this Section only by a Subcontractor who has adequate equipment and skilled tradesmen to perform it expeditiously, and is known to have been responsible for satisfactory installations similar to that specified during a period of at least the immediate past five years.

.3 **References**

.1 **Reference Standards**

Reference standard quoted in Contract Documents refer to:
CSA Standard A126.1-M1984, Vinyl Asbestos and Vinyl Composition Floor Tile.
CSA Standard A126.3-M1984, Sheet Vinyl Flooring Products.

.4 **Submittals**

.1 **Samples**

.1 Submit samples of each specified flooring, base, stair, and accessories that are specified.
.2 Submit full size tiles.
.3 Submit 216 mm X 280 mm pieces of sheet goods.
.4 Submit base and accessories in lengths of 300 mm.

.2 **Affidavits**

Submit for approval, a list of installation materials intended for use with each flooring material and for each subfloor condition, before installation commences. Accompany the list with an affidavit stating that the manufacturer of each material recommends and approves of its use in each case.

.3 **Maintenance Instructions**

Submit maintenance instructions for incorporation in Project Data Book.

.5 **Delivery, Storage, and Handling**

.1 Package flooring materials and identify contents of each package.
.2 Store materials for a minimum 24 hours immediately before installation at not less than 18 degrees C.

.6 **Site Conditions**

.1 **Environmental Requirements**

.1 Install resilient flooring only when surfaces and air temperatures have been maintained between 18 degrees C and 24 degrees C for 24 hours preceding installation, and will be so maintained during installation and for 48 hours thereafter. Maintain a minimum temperature of 13degrees C after above period.

.2 Ensure that adequate ventilation is provided during installation of flooring and curing of adhesive.

.3 Ensure that spark-proof electrical equipment is provided, and smoking is prohibited, in areas where flammable adhesives are used. Store materials to prevent spontaneous combustion.

PART 2 - PRODUCTS

.1 **Materials**

.1 Provide each flooring material from same production run for one area, and from same manufacturer for entire project.

.2 **Flooring**

.1 Sarlon Flooring - IQ HOMOGENEOUS RESILIENT SHEET & TILE FLOORING. Size: 24” X 24” Tile.

.2 **3 Colours** to be selected by Owner’s rep prior order, to create patterns as per architectural drawings.

.

.3 **Resilient Base - Rubber:**

.1 Base Height: 100 mm as specified in Room Finish Schedule for each base type.

.2 Colours: To be selected by Owner’s rep prior order

.4 **Flooring Accessories**

.1 Ensure that accessories are compatible with, and match appearance and thickness of abutting flooring materials.

.2 Transition Strips:

.1 Porcelain Tile to existing Terrazo finish: Schluter Systems RENO-T or approved alternate

.2 VCT tile to existing Terrazo finish: Schluter Systems RENO-Schiene or approved alternate

.5 **Filler/Subfloor Preparation.**

The intent of this section is to provide for a full fill and level of existing floors to receive all floor finishes. Contractor is to cover all costs associated with the intent to provide an acceptable substrate for all finishes.

.1 Assume an overall average levelling compound thickness of 3mm.

.2 Provide for shotblasting of all existing surfaces in preparation for filler

and levelling compound.

.3 Provide Bonding agent as recommended by manufacturer.

.4 Levelling Compound: Ardex K15

.6 **Primers and Adhesives**

As recommended by manufacturer of each material for each subfloor condition. Use clear adhesive for vinyl polymer flooring.

.7 **Cleaner**

Neutral chemical compound that will not damage tile or affect its colour.

.8 **Floor Protection**

Heavy kraft paper laminated with non-staining adhesive to both sides of glass fibre reinforcing ply, minimum weight of 0.18 kg/sq.m.

PART 3 - EXECUTION

.1 **Examination**

.1 Test substrate to ensure that moisture level and acid-alkali balance does not exceed limits recommended by adhesive manufacturer.

.2 Ensure that environmental conditions have been provided as requested and specified.

.3 Ensure subfloors have been provided as specified without holes, protrusions, cracks greater than 2 mm wide, unfilled control joints, depressions greater than 3 mm deep, or other major defects.

.4 Defective resilient flooring resulting from application to unsatisfactory surfaces will be considered the responsibility of this Section.

.2 **Preparation**

.1 Remove dirt, soil, oil, grease, and other deposits which would lessen the adhesive bond of flooring, and which would telegraph through flooring.

.2 Remove chalking and dusting from concrete surfaces with wire brushes.

.3 Remove prime paint and wire brush steel surfaces.

.4 Fill all defects such as cracks, depressions and scars from damage with filler. Level to smooth surface.

.5 Prime subfloors if recommended by adhesive manufacturer, and as he specifies.

.6 Protection: Prevent traffic and work on newly laid floors by barricading until adhesive cures.

.3 **Installation**

.1 **General**

.1 Lay each material in accordance with manufacturer's specification.

.2 Lay flooring with joints closely butted. Scribe, cut and fit around floor outlets and openings, door frames, and heavy equipment supports.

.3 Cut flooring and bases to fit within 0.4 mm of abutting surfaces were exposed to view.

.4 Avoid abrupt variations in shades between adjacent flooring material. Do not install units that are off-colour or contain untypical pattern variations.
.5 Carry floor patterns through openings.
.6 Roll flooring with three-section, 45 kg roller, in two directions from centre of area. Maintain rollers clean and polished.

.2 **Adhesives**

.1 Apply adhesive uniformly over surfaces with a notched trowel, at rate recommended by manufacturer.
.2 Cover only an area into which flooring can be set during working time of adhesive: do not lay flooring over hardened adhesive.
.3 Use only waterproof type adhesive in all areas where plumbing fixtures or floor drains are installed.
.4 Protect adjacent surfaces from soil by adhesive.
.5 Clean trowels and maintain profile of notches as installation of flooring progresses to ensure a constant rate of application.

.3 **Resilient Sheet Flooring**

.1 Install flooring with joints parallel to long axis of rooms, in full width sheets, with border sheets not less than 600 mm wide, and with cross joints no closer than 1800 mm from each other and not concentrated in isolated areas.
.2 Cut sheets to sizes required, lay them out flat and allow them to reach room temperature before installation.
.3 Double cut seams.
.4 Remove wrinkles and air pockets.
.5 At seams, using a welding rod, butt sheet tightly together and weld in accordance with manufacturer's written instructions.
.6 Trim ends of sheets, mitre cut corners, turn flooring up walls to form coved self-bases. Install fillet at intersection of wall and floor to support cove. Apply heavy coat of adhesive to wall, firmly bed base in place. Completely seal mitred and other joints in bases. Mask wall above top of base to prevent soiling with adhesive.

.4 **Rubber Bases**

.1 Install bases in lengths as long as possible: do not make up runs of short lengths.
.2 In areas where bases are indicated, install them on built-in fitments, columns, walls.
.3 Cut and mitre internal corners.
.4 Double cut seams between adjoining lengths.
.5 Apply adhesive to wall, masked to prevent spreading above base, and firmly bed base in place.
.6 Press top set base down to force cove against flooring.
.7 Install straight base before flooring, with bottom edge against subfloor and top edge level.
.8 Install top set base in all areas except as noted on Drawings.

.5 **Reducer/Transition Strips**

.1 Install strips at terminations of flooring where edges are exposed to view.
.2 Install strips in straight lines and relate their terminations to significant building features and within tolerance of 3 mm in 3 m.
.3 Install strips under doors at openings.
.4 Cut and fit strip terminations to profile of abutting construction.
.5 Secure strips to subfloor with contact bond adhesive to ensure complete bond.

.4 **Adjustment, Cleaning, Sealing, and Waxing**

.1 Replace defective resilient flooring installations so that there is no discernible variation in appearance between installed and replaced materials.
.2 Clean off excess adhesive as installation of flooring progresses and before it sets.
.3 Clean resilient flooring, but no sooner than 48 hours following installation. Use neutral floor cleaner where required, and proceed as recommended by manufacturer.
.4 Clean floors on a regular basis at least once per week if no other protection is provided.
.5 Clean floors before acceptance by Owner.

.5 **Protection**

.1 After materials have set, and until project completion, coordinate with other Sections to ensure that floors are not damaged by traffic, as specified in Section 01010. Ensure that flooring is not subjected to any static loading during the week following installation.
.2 At completion of flooring installation, install floor protection in areas where finishing operations, repairs and installation of equipment, and foot traffic will occur. Lap joints of material by 150 mm and seal with non-asphaltic tape.

End of Section

PART 1 - GENERAL

.1 Description

.1 General Requirements

Division 1, General Requirements, is a part of this Section and shall apply as if repeated here.

.2 Work Performed by Other Sections related to this Section is specified in:

Section 03300 - Concrete floor finishing
Section 09650 - Resilient Flooring

.2 System Description

.1 Testing Criteria

.1 Flammability

: Rating tests shall be in accordance with CGSB 4-GP-129, Section 6.2.5-1.2.3.4,outlining the ignition Media-Methenamine Timed Burning Tablet (Eli-Lilly No.1588) and procedure.
: The flame resistance (Section 4.8) of carpet shall be such that the longest diameter of the charred area shall not exceed 50.8mm when tested.

.2 Colour Fastness

A minimum light fastness rating of L5 is required and rating shall be in accordance with CAN/CGSB-4.2-M77 Canadian Government Test Method 18.1 or 18.2.

.3 Static

A maximum peak potential of 3.0 kilovolts is acceptable using walking test approved by American Carpet Institute Technical Committee.

.3 Quality Assurance

.1 Subcontractor Qualifications

Install carpet specified in this Section only by a Subcontractor who has adequate skilled tradesmen to perform it expeditiously, and is known to have been responsible for satisfactory installations similar to that specified for a period of at least the immediate past five years.

.2 Requirements of Regulatory Agencies

Ensure that carpet meets fire hazard classification requirements of jurisdictional authorities for each installation location.

.4 Submittals

.1 Shop Drawings

Submit shop drawings showing layout of seams and edging.

.2 Samples

Submit 216mm x 280mm samples of each specified carpet, of each colour, edge binding tape and accessories.

.3 **Inspection Company Reports**

Submit data and reports of an approved testing laboratory to validate that specified testing criteria has verified that carpet intended for installation meets specified requirements, if requested.

.4 **Maintenance Instructions**

Submit maintenance instructions for incorporation in Project Data Book.

.5 **Carpet Waste**

On completion of carpet installation, determine with Owner whether he requires waste carpet of significant size, and deliver selected material to him as he directs, wrapped and identified.

.5 **Delivery, Storage, and Handling**

.1 Package carpet materials and label each package to indicate contents. Include register number on each carpet label.
.2 Deliver carpet materials to the site only immediately before installation, but to allow time for complete acclimatization.
.3 Protect carpet during storage and handling to ensure that it is not damaged or soiled.
.4 Store materials in protected dry area.
.5 Store adhesive materials at a minimum temperature of 4 deg.C.
.6 Ensure that health and fire regulations are complied with in storage and installation areas.

.6 **Warranty**

.1 **Extended Warranty**

Submit a warranty on carpet material and carpet installation specified in this Section covering the period for nine (9) years beyond the expiration of the warranty period specified in the General Conditions to the Contract which must include a statement that warrants the carpet against zippering for the life of the warranty.

PART 2 - PRODUCTS

.1 **Materials**

.1 **General**

.1 Provide carpet in colours and patterns selected from manufacturer's standard range.
.2 Permanently treat carpet materials to ensure resistance to insect attack.

.2 **Carpet tile:**
QUICKSHIP – Interface - Aerial, Open air Collection
Carton Size: 12 tiles (32.3 feet^2, 3 meters^2)
Gauge: 1/12”
Pattern and Color: To be selected by Owner

.3 Accessories

.1 Schluter finishing strip. Finish to be brushed aluminum.

.1 Transition strip: Schluter Systems SCHIENE or approved alternative

PART 3 - EXECUTION

.1 **Adjustment and Cleaning**

.1 Remove soil and spots and excessive adhesive from carpet surfaces with solvent which will not harm carpet.
.2 Remove loose pieces of face yarn with sharp scissors.
.3 Clean off adhesive spread on adjacent exposed surfaces.
.4 Vacuum clean carpets at completion of installation.
.5 Final cleaning is specified in Section 01710.

.2 **Protection**

.1 After installation, and until Project completion, coordinate with other Sections to ensure that carpet is not damaged by traffic or by subsequent construction operations, as specified in Section 01010.

End of Section

1. GENERAL

.1

.1 Section Includes

Provision of all labour, materials, equipment and incidental services necessary to provide painting and cover the exposed surfaces of the building, components and accessories not otherwise protected or covered, to the full intent of the drawings and specifications as illustrated in accompanying drawings or called for elsewhere in the Contract Documents.

.2 Surface preparation of substrates to receive painting and finishing is not included in this section of work, except for specific pre-treatments specified herein or in the Canadian Painting Contractors' Architectural (CPCA) Painting Specification Manual.

.3 This section of work shall include, but is not limited to, the painting and finishing of all exposed surfaces of the following substrates.

.4 .1 Exterior

- .1 Steel (Prime painted)
- .2 Steel (Galvanized)

.5 .2 Interior

- .1 Steel (Prime painted)
- .2 Steel (Galvanized)

.2 Related Sections

.1 Divisions 15, 16 – Colour code marking bands or stencils for identification of piping, ductwork and electrical conduits

.3 Reference Standards

.1 CAN2-85.100-M81, National Standards of Canada, Painting.

.2 Canadian Painting Contractors' Architectural (CPCA) Painting Specification Manual.

.4 Materials and Equipment Not to Be Painted

.1 Surfaces not to be painted shall be left completely free of droppings and accidentally applied materials resulting from the work of this Section.

.2 Items not to be painted include concealed structural elements and equipment furnished with complete factory applied paints and finish systems, including but not limited to the following:

.1 Glazed, rubber, vinyl or acoustical tile.

.2 Non-ferrous metals such as copper, aluminum, stainless steel, bronze, brass or nickel.

.3 Finish hardware, excepting hardware that is factory primed.

.5 Cooperation with Other Trades

.1 Schedule and coordinate this work with other trades and do not proceed until other work and/or job conditions are as required to achieve satisfactory results.

.2 Examine the Specifications for the various other trades and become thoroughly familiar with all their provisions regarding painting.

.6 Quality Assurance

.1 Material Manufacturers

.1 All paint and finish products shall be those listed in the CPCA manual, latest edition unless otherwise specified or listed herein.

.2 Applicators

.1 This contractor shall have a minimum of (5) years documented experience in commercial painting and finishing, and shall maintain a qualified crew of size necessary to fully satisfy the requirements of this section.

.7 Completion Schedule

.1 Furnish the Consultant with a schedule showing expected completion of the respective coats of paint for the various areas and surfaces. Keep this schedule current as the job progresses.

.8 Colour Schedule

.1 The final selection of colours and surface textures of all finishes throughout shall be provided by the Consultant.

.9 Submittals

.1 Samples

.1 Submit samples in accordance with Section 01300.

.2 Submit duplicate 300 x 300mm sample panels of each type of paint and finish application for approval by the Consultant. here manufacturer of paint differs

from that listed in the colour schedule, employ spectrograph technology to ensure accurate colour match, or submit samples of each colour and include mixing code for match comparison.

.3 Finished work to match approved samples.

.2 Mock-up

.1 If requested by the Consultant, finish one complete surface or item of each colour scheme required showing selected materials, colours and textures. If approved, the mock-up shall serve as a standard for similar work throughout the building.

.10 Delivery, Storage and Handling

.1 Paint and finish materials shall be delivered to the site in sealed original labeled containers bearing manufacturer's name, type of paint, brand name, colour designation and instructions for mixing and/or reducing.

.2 Store materials in a heated, dry, well ventilated, indoor place having a minimum ambient temperature of 7°C.

.3 Keep waste rags in metal drums and remove all rags, waste and trash from the building at the end of each working shift.

.4 Provide CO2 fire extinguisher of minimum 20 lb. (9 kg) capacity in storage area.

.5 Ensure that health and fire regulations are complied with in storage area.

.11 General Colour Requirements

.1 Refer to the finish schedule for type and extent of finishes, and to the colour schedule for individual colour and texture selections. Where manufacturer of paint differs from that listed in the colour schedule, employ spectrograph technology to ensure accurate colour match.

.2 The following major items will be painted:

.1 Exterior

.1 Doors and Frames

.1 Interior

.1 Doors

.2 Door Frames

.3 Walls

.12 Environmental Conditions

.1 Temperatures: No painting shall be performed when substrate or ambient air temperatures are below 5°C. Minimum allowable temperatures for application of Latex paints are 7°C (interior work) and 10°C (exterior work).

.2 Relative humidity: shall not exceed 85%.

.3 Moisture content of substrates: Masonry and concrete materials shall be allowed to cure for a minimum of 28 days before application of paints. Substrates shall be measured by electronic moisture meter, to the following maximums:

.1 Plaster and Gypsum board: 12%
.2 Masonry, concrete/concrete block: 12% for solvent based paints.
.3 Wood: 15%

.4 Lighting: Painting shall not proceed unless a minimum of 15 candlepower/ft.2 lighting is provided on the surfaces to be painted.

.5 Ventilation: All areas where painting is proceeding require adequate continuous ventilation and sufficient heating facilities to maintain temperatures above 7°C for 24 hours before during and after paint application.

.13 Maintenance Materials

.1 Supply Owner with one clearly identified, sealed gallon of each colour and type of paint, stain and varnish used for this work, in accordance with Section 01780.

.14 Guarantee

.1 Provide upon completion of the work, a 100% Maintenance Bond stating that the work was performed in accordance with these specifications and the CPCA manual (latest edition), and is guaranteed for a period of two(2) years from Date of Substantial Performance.

2. PRODUCTS

.1 Materials

.1 Paint, varnish, stain, enamel, lacquer and fillers shall be of a type and brand herein specified and/or listed under Chapter 5 of the CPCA manual.

.2 Paint materials such as linseed oil, shellac, turpentine, and any materials not specified herein but required for first class work with the finish specified shall be the highest quality product of an approved manufacturer. All material shall be compatible with finish paint or coating materials.

.3 Two coats of the specified paints are required throughout.

.2 Mixing

.1 Paints shall be ready-mixed unless otherwise specified, except that any coating in paste or powder form or to field-catalyzed shall be field-mixed in accordance with the directions of its manufacturer.

.2 Pigments shall be fully ground and shall maintain a soft paste consistency in the vehicle during storage that can and shall be dispersed readily and uniformly by paddle to a complete homogeneous mixture.

.3 .3 The paint shall have good flow and brush properties and shall dry or cure free of sags or runs to yield the desired finish specified.

.3 Concrete Block (Primer):

.1 Benjamin Moore and Co. Ltd. # M-88 Latex block filler. First coat to be applied at a spread rate of 75 sq.ft. per 3.79 litre container. Each coat wet thickness to be 21.0 mils. Each coat dry thickness to be 8.0 mils.

Benjamin Moore and Co. Ltd. #577 – 1A Moorestyle. Apply two coats at a spread rate of 500 sq.ft. per 3.79 litre container. Each coat wet thickness to be 3.0 mils. Each coat dry thickness to be 1.3 mils.

or

.2 Glidden #36250 concrete block filler.
Apply one coat at a spread rate of 380 sq.ft. per 3.78 litre container. Each coat wet thickness to be 19.0 mils. Each coat dry thickness to be 8.0 mils.

Glidden #4038 Devguard or Glidden #94400 Semi Gloss. Apply two coats at a spread rate of 500 sq.ft. per 3.79 litre container. Each coat wet thickness to be 3.0 mils. Each coat dry thickness to be 1.3 mils.

.4 Hollow Metal Doors/Frames:

.1 Benjamin Moore and Co. Ltd. #023 Fresh Start Primer. Apply one coat: spread rate of 425 sq.ft. per 3.79 litre container. Each coat wet thickness to be 3.7 mils. Each coat dry thickness to be 1.1 mils.

Benjamin Moore and Co. Ltd. C-133-1A Impervo or C-235 Satin Impervo. Apply two coats at a spread rate of 500 sq.ft. per 3.79 litre container. Each coat wet thickness to be 3.0 mils. Each coat dry thickness to be 1.3 mils.

or

.2 Glidden #250 Gripper Primer. Apply one coat at a spread rate of 389 sq.ft. per 3.78 litre container. Each coat wet thickness to be 4.0 mils. Each coat dry thickness to be 2.0 mils.

.3 Devoe #4038 Devguard.
Apply two coats at a spread rate of 320 sq.ft. per 3.78 litre container. Each coat wet thickness to be 5.0 mils. Each coat thickness to be 2.25 mils.

3. EXECUTION

.1 Inspection of Surfaces

.1 Examine surfaces to receive paint finishes for defects which cannot be corrected by procedures specified herein, and which may result in unsatisfactory paint finishes. Report items to Consultant and Contractor in writing, prior to commencement of work of this section, or after initial prime coat shows defects in substrate.

.2 The application of subsequent prime and finish coats shall be construed as acceptance of the surfaces, and thereafter this subcontractor shall be fully responsible for satisfactory work as required herein.

.2 Preparation of Surfaces

.1 Refer to the CPCA manual Chapter 3for surface preparations not specified in the section

.3 Protection

.1 Protect all adjacent surfaces from paint and damage resulting from the work of this section, and make good any damage caused by failure to provide such protection.

.2 Furnish sufficient drop cloths, shields and protective equipment to prevent spray or dropping from fouling surfaces not being painted or where painting has been completed.

.3 Cotton waste, cloths and material which may constitute a fire hazard shall be placed in closed metal containers and removed daily from the site.

.4 Remove and protect, prior to painting operations, all hardware, accessories, device plates, lighting fixtures, factory finished work, and similar items, or provide ample in-protection. Remove all electrical plates, surface hardware, fittings and fastenings. These items shall be labelled, stored, cleaned if necessary and

reinstalled following successful completion of the work in each area. Solvents detrimental to lacquer finishes are not to be used for cleaning these items.

.4 Application

.1 Paint application shall be currently accepted trade method.

.2 Painting coats specified are intended to cover surfaces satisfactorily when applied in strict accordance with manufacturer's recommendations.

.3 Apply each coat at the proper consistency. Sand lightly between coats.

.4 Tint primers to same colour range as finish coats.

.5 Do not apply finishes on surfaces that are not sufficiently dry. Each coat of finish should be dry and hard before a following coat is applied unless specified otherwise by the manufacturer.

.6 Tint filler to match wood for clear finishes. Work filler well into wood grain and remove excess prior to setting.

.7 Exterior woodwork to receive paint finish shall be back-primed upon arrival on site with exterior primer paint, stain or varnish, as required by specified finish.

.8 Spraying of paint will not be allowed, unless approved by the manufacturer of the materials to be applied, and the Consultant.

.9 Provide complete coverage and hide. When colour, stain, dirt or undercoats show through final coat of paint, provide additional coats until the paint film is of uniform finish, colour, appearance and coverage, at no additional cost to the Owner.

.10 Allow all coats to dry to manufacturer's recommendations before applying succeeding coats.

.11 Touch up all suction spots or "hot spots" in concrete after the application of the first coat, before applying the second coat.

.12 Where spray painting is specified, finish 100 ft2 (10m2) by spraying a sample of the finish upon the request of the Consultant, using materials specified. Do not spray paint sound block surfaces on Gymnasium area.

.13 Surfaces to be stained shall appear uniform in shading with colour variations caused only by the natural wood grain.

.14 Barricade areas where finishing is in progress to prevent traffic or other activities, and otherwise protect work until dry. Post “Wet Paint” signs and remove when no longer required.

.15 Replace at the expense of this Section, porous materials soiled or damaged by finishing materials which cannot be removed.

.5 Clean-up

.1 Upon completion of the work, remove all paint and varnish spots from floors, glass and other surfaces. Remove from the premises all rubbish and accumulated materials of whatever nature not caused by others and leave this work in clean, orderly and acceptable conditions.

END OF DOCUMENT

10 28 13.11 Related Work

Rough Carpentry Section 06 10 00

10 28 13.12 Submittals

.1 Submit shop drawings or catalogue illustrations in accordance with Section 01 10 00.

10 28 13.21 Fixtures

.1 Items specified are by Frost Washroom Accessories unless otherwise noted. Equivalent or better products by one of the manufacturers listed above will be acceptable.

.1 Toilet Tissue Dispenser:
A: Supply by owner and install by General Contractor

.2 Robe Hooks: Bobrick B-983 or approved alternative

.3 Soap Dispensers: Supply by owner and install by General Contractor

.4 Paper towel dispensers: Supply by owner and install by General Contractor

.5 Sanitary waste receptacles: Supply by owner and install by General Contractor

.6 Mirrors: 6 mm, 18 Float Glass in accordance with CGSB 12 GP-5. Supply and install as indicated on drawings, with galvanized steel back. Mirror attachment: continuous top and bottom stainless steel J-molds. All mirrors shall be tamperproof.

.7 Grab Bars: Knurled grip with concealed fasteners.
A: straight bar 610 mm
ASI Type 3500-24P or approved alternative.
B: ASI 3807-4P – 38mm DIAMETER L-SHAPED GRAB BAR – 760mm x 760mm

.8 Stainlesss steel Shelf
ASI Type 20692-618 or approved alternative

10 28 13.31 Execution

.1 Install and secure all fixtures level and rigidly in place using the following techniques:
.1 For stud walls install steel back plate to stud prior to plaster or drywall finish. Plate to have threaded studs or plugs provided.

.2 Use tamper proof headed screws and bolts for fasteners.

10 28 13.32 Location and Quantity

.1 Locate accessories where indicated on drawings, and as follows. Exact locations to be determined as per Ontario Building Code (OBC)

END OF SECTION