

Holy Cross Regional Secondary

16193 88 Avenue
Surrey, B.C. V4N 1G3

Specifications

Thinkspace Project No. 210867

Issued for Bid

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Structural Engineer	(BBP)	
Mechanical Engineer	(AME)	
Electrical Engineer	(SA)	
Landscape Consultant	(VDZ)	
Civil Consultant	(CW)	
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Mechanical Engineer	AME Group 200 – 638 Smithe Street Vancouver, B.C. V8B 1E3
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Geotechnical Consultant	Geopacific Consultants 1779 W. Avenue Vancouver, B.C. V6P 6P2

END OF SECTION

Part 1 General

1.1 AUTHORITY HAVING JURISDICTION – BUILDING CODE

- .1 The building code Authority Having Jurisdiction is the City of Surrey
- .2 Building Code: British Columbia Building Code 2018 and all applicable modifications in force as of Specification date.

1.2 WORK BY THE OWNER

- .1 Apply to the Authority Having Jurisdiction for the project Building Permit.
- .2 Obtain and pay for Building Permits required to complete the Work.

1.3 WORK BY THE CONTRACTOR

- .1 Do not commence Work on the site until the Authority having Jurisdiction issues a conditional partial works Permit or a complete Building Permit.
- .2 Obtain and pay for all permits, except the Building Permit, required to complete the Work.
- .3 Obtain and pay for all permits required by Ministry of Transportation and Infrastructure including:
 - .1 Work Notification/Lane Closure Request and Approval.
 - .2 Permit to Construct, use and Maintain Access to a Provincial Public Highway.
- .4 Obtain and pay for Occupancy Permit.
 - .1 Prior to application to Authority Having Jurisdiction for Occupancy Inspection obtain and turn over to Building Permit Coordinating Professional:
 - .1 Final unconditional inspections by provincial agencies or regulating bodies
 - .2 Final unconditional inspections and original BCBC Schedules for field review by Professional Engineers required by the Work of the Contract.
 - .3 Final original Fire Alarm Certificate.
 - .4 Elevator operating permit
 - .2 Coordinate, schedule, arrange and attend inspections required by Authority Having Jurisdiction including:
 - .1 All required attendees.
 - .2 All required systems demonstrations.

Part 2 Products

2.1 NOT USED

- .1 Not used

clarify trade permits, misc city permits or AUJ permits. Allow for such

Part 3 Execution

3.1 NOT USED

- .1 Not used

END OF SECTION

Part 1 General

1.1 WORK COVERED BY CONTRACT DOCUMENTS

- .1 This Section's description of Work does not limit the scope of Work of the Contract as described in the Specifications and shown on the Drawings.
- .2 The responsibility as to which subcontractor provides required articles or materials rests solely with the Contractor.
- .3 No extras will be allowed based on grounds of difference in interpretation of drawings or specifications as to which trade involved shall provide certain specialties or materials or labour.
- .4 All labour and materials as called for on the Drawings and/or Specifications are included in this Bid.
- .5 Work under this Contract includes:
 - .1 A three (3) phase of construction of new facility and Owner occupancy in accordance with the drawings.
 - .2 On-site hard and soft landscaping and civil works.
 - .3 Off-site work beyond property lines:
 - .1 Services, driveways and landscaping.
 - .2 Continue and connect service lines/construction offsite to the point of connection to the primary offsite service line unless it is specifically noted that the work is to terminate at the property.

1.2 CONTRACT METHOD

Group: Contract Method

- .1 The form of Contract is CCDC2 2008, and GC 1.1 Contract Documents.
- .2 Relations and responsibilities between Contractor and subcontractors and suppliers assigned by Owner are as defined in Conditions of Contract. Assigned Subcontractors must, in addition:
 - .1 Furnish to Contractor, bonds covering faithful performance of subcontracted work and payment of obligations thereunder when Contractor is required to furnish such bonds to Owner.
 - .2 Purchase and maintain liability insurance to protect Contractor from claims for not less than limits of liability which Contractor is required to provide to Owner.

1.3 WORK BY OTHERS

- .1 Co-operate with other Contractors in carrying out their respective works and carry out instructions from Owner.
- .2 Co-ordinate work with that of other Contractors. If any part of work under this Contract depends for its proper execution or result upon work of another Contractor, report promptly to Owner, in writing, any defects which may interfere with proper execution of Work.

1.4 EXISTING SERVICES

- .1 Refer to the following sections:
 - .1 Section 01 18 13 Utility Service Connections.
 - .2 Section 01 53 00 Temporary Construction.

Part 2 Products

2.1 NOT USED

- .1 Not used

Part 3 Execution

3.1 NOT USED

- .1 Not used

END OF SECTION

Part 1 General

1.1 EXAMINATION

- .1 Notify the Owners, utility providers, and Authorities Having Jurisdiction of intention to carry out operations near a utility or structure prior to the commencement of such operation and obtain approval for access to any operations carried out on adjacent public and private property.

1.2 OFF-SITE AND ON-SITE WORK

- .1 Restrict areas of operations solely to the on-site areas within protective hoardings except for work areas arranged in advance.

1.3 ACCESS AND EGRESS

- .1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.
- .2 Refer to:
 - .1 Section 01 35 28 Health and Safety Requirement
 - .2 Section 01 53 00 Temporary Construction.

1.4 USE OF SITE AND FACILITIES

- .1 Refer to Section 01 14 13 Use of Site.

1.5 SERVICES

- .1 Refer to:
 - .1 Section 01 18 13 Utility Service Connections.
 - .2 Section 01 51 00 Temporary Utilities.
 - .3 Mechanical, Electrical and Civil documents.
- .2 Determine locations of services prior to commencing work on site.
- .3 Notify Owner and utility companies of intended interruption of services and obtain required permission.
- .4 Provide for, personnel, pedestrian and vehicular traffic.

1.6 BUILDING SMOKING ENVIRONMENT

- .1 Smoking is not permitted on the project site.

1.7 CONSTRUCTION TRAFFIC

- .1 Refer to Section 01 55 26 Traffic Control.
- .2 Confirm offsite construction traffic and parking to municipal authority requirements.

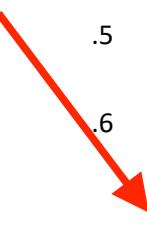
1.8 WORKING HOURS

- .1 The intent of the Contract is that the work be undertaken during Regular Working Hours, except where required otherwise below and elsewhere herein.
- .2 Include all Noisy / Disruptive Work, including all related labour costs, whether completed on Overtime Hours or not, in the base Bid price.
- .3 The requirement for timing of Noisy / Disruptive Work may or may not mandate that such work be done on Overtime Hours, depending on the Definition of Terms herein.

1.9 AVOID DISTURBANCE

- .1 This building is a noise sensitive environment and, as such, exhibit the highest degree of care and caution in undertaking the work under this contract, so as not to disturb the normal operations of the building. Sudden and unplanned stoppages of the Contractor's work may be required by the Owner due to unexpected building activities.

- .2 Schedule all Noisy / Disruptive Work at a date and time that is pre-approved by the Owner. Gain approval for each instance of such work.
- .3 Notwithstanding the requirements relating to Regular Working Hours, Normal Operating Hours, and instructions for Noisy / Disruptive Work specified herein, comply with all applicable city and municipal bylaw requirements for construction noise.
- .4 Conduct all work relating to the project with the intent to eliminate or minimize all unnecessary noise and shouting. Conduct tasks resulting in excessive noise outside normal business hours.

- .5 Provide adequate ventilation to remove fumes, vapours or dust caused by metal cutting, drilling, welding or other such activities.

- .6 The Owner may designate preferable hours for moving equipment and material in and out of the building and the acceptable route; complete such work outside normal operating hours.
- .7 Use rubber wheeled dollies to avoid damage to floors.

1.10 CONDUCT OF CONTRACTOR'S EMPLOYEES

- .1 Comply with the rules, regulations, and policies in force in the building. Carried out the work in such a manner not to hinder the normal operations within the building.
- .2 Should the Owner become dissatisfied with the conduct of any worker, the Owner will so notify the parties involved and dismiss the unsatisfactory or objectionable person from this job.

Group: On
Site
Conditions
(subgroup:
storage)

1.11 STORAGE OF TOOLS AND MATERIALS ON SITE

- .1 Don't leave tools and material in the general public areas or be accessible to the public at any time. The Owner may designate acceptable areas for storage of tools on site.
- .2 The Owner will not be held responsible for the loss of the Contractor's (or any subcontractor's) tools, equipment, and materials.

1.12 FIRE SAFETY

.1 Refer to Section 01 35 28 Health and Safety Requirements.

1.13 PROTECTION OF THE PUBLIC

.1 During the Work, the Contractor is responsible for the protection of the public and other Building occupants from hazards such as obstructions, oil spills, exposed wiring, etc. The public includes the employees, visitors, and any other people who may be in the lobby or corridors

Part 2 Products

2.1 NOT USED

.1 Not used

Part 3 Execution

3.1 NOT USED

.1 Not used

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 During Construction the Site and Facility are:
 - .1 Solely under the Contractor's care and responsibility to carry out the Work within Specification and Drawing requirements.
 - .2 Limit use of premises for Work, for storage and for access, to allow shared use and occupancy by:
 - .1 Contractor.
 - .2 Owner's forces.
 - .3 Owner's Contractors.

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Coordinate the Work including:
 - .1 Owner's Contractors, Owner's Forces.
 - .2 Site and facility life safety, and fire safety.
 - .3 Services installations and connections.
 - .4 Inspections, field reviews, and testing.
- .2 Scheduling: Refer to Section 01 32 16 Construction Progress Schedule.

1.3 CONTRACTOR USE OF PREMISES

- .1 Where security is reduced by work provide temporary means to maintain security.
- .2 Do not use elevators for moving workers and material.
- .3 Closures: protect work temporarily until permanent enclosures are completed.
- .4 Limit use of site and premises to allow work by others.
- .5 Limit use of site and premises to allow:
 - .1 Work by Others.
 - .2 Work by Owner.

allow security camera for entire project, some labour for 24/7 security labour

1.4 ACCESS TO SITE

- .1 Refer to Section 01 55 26 Traffic Control
- .2 Do not close or obstruct streets, sidewalks, lanes or other public rights of way without obtaining required permits from the Authorities Having Jurisdiction.
- .3 Maintain adequate traffic control procedures during operations, including delivery and off-loading of materials, on or adjacent to streets, sidewalks, lanes, public rights of way and parking areas available to the public.
- .4 During progress of the Work maintain adequate means of egress from the Project in the event of fire or another emergency. Do not store materials in a manner that will impair means of egress.
- .5 Over excavation of site soils for use on or off site is prohibited.

Group: On site conditions (subgroup: parking)

- .6 Import of soils not in compliance with project requirements for storage or fill, is prohibited.
- .7 **The Owner will not provide parking for the Contractor's vehicle(s).**
- .8 Smoking within the premises of the building is not acceptable and will not be tolerated.
- .9 Wear a visible name tag ID when working on site for any period of time.

Group: On site conditions (subgroup: site access)

- .10 **Time Restrictions for Performing Work:**
 - .1 Granted access to the site from 06:30 hrs to 23:00 hrs, Monday to Friday and 07:00 hrs to 19:00 hrs on weekends and holidays.
 - .2 Upon request, the owner may grant the Contractor additional access, as required. Weekend and extended access must be pre-arranged and approved in writing with the Owner's Representative, at least, two working days in advance.
- .11 Submit schedule in accordance with Section 01 32 16 Construction Progress Schedule.
- .12 Occupant disruption: Contractor to confirm with the Owner's Representative. Coordinate all disruptions to facility use of spaces with the Owner's Representative and approved a minimum of three (3) working days prior to work.
- .13 Utility Outages and Shutdown: Contractor to confirm with the Owner's Representative. Coordinate all shutdowns with the Owner's Representative and approved a minimum of three (3) working days prior to shut down.

***Group: On site conditions (subgroup: Noise sensitive area)**

- .14 Don't take photos of people, other than those directly involved in Construction activities.
- .15 NO SMOKING permitted within the building or on the property at any time.
- .16 **Comply with the regulations regarding noise abatement and take precautions to minimize the effects of structure borne noises caused by drilling, coring or insert guns. Correct any such noise or vibration that is found to be objectionable, at no extra cost, to the satisfaction of the Owner.**
- .17 Fires, explosives or similar dangerous activities are not permitted on the property

allow for noise vibration reduction costs in GC's

1.5 CONSTRUCTION LAYDOWN AREA

- .1 Fence Contractor's designated site area in accordance with Section 01 53 00 Temporary Construction.

1.6 SECURITY

- .1 Refer to Section 01 52 00 Construction Facilities.

1.7 SERVICES

- .1 Refer to Section 01 18 13 Utility Service Connections.
- .2 Refer to Section 01 51 00 Temporary Utilities.
- .3 **Determine locations of all underground services prior to commencing work on site.**
- .4 **Determine service line routing within existing facility prior to commencing work within the existing facility.**

allow for coordination and review (clarify with trades) for u/g services (all u/g works in the foundation of the building)

1.8 OFFSITE WORK

- .1 Notify the Owner, utility provider and Authorities Having Jurisdiction of intention to carry out operations near a utility or structure prior to the commencement of such operation and obtain approval for access to any operations carried out on adjacent public and private property.
- .2 Restrict areas of operations solely to the on-site areas within protective hoardings with the exception of work areas arranged in advance with the Owner, utility provider and Authorities Having Jurisdiction.
- .3 Comply with Authority Having Jurisdiction and service provider's requirements for offsite Work.

1.9 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store and handle materials within confines of the Contractor's defined work area and access routes.

1.10 WASTE MANAGEMENT

- .1 Refer to Section 01 74 00 Cleaning and Waste Management.

Part 2 Products

2.1 NOT USED

- .1 Not used

Part 3 Execution

3.1 NOT USED

- .1 Not used

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Section Includes new utility service connections to:
 - .1 New off-site services.
 - .2 Refer to Civil, Mechanical and Electrical Drawings and Specifications.
- .2 Removal of abandoned service lines.

1.2 ALLOWANCES

- .1 Refer to Section 01 21 13 Cash Allowances.

1.3 ADMINISTRATIVE REQUIREMENTS

- .1 Coordination: Coordinate work with service providers and Authorities Having Jurisdiction.
- .2 Permits: Obtain permits from service providers and Authorities Having Jurisdiction.
- .3 Pre-installation Meetings:
 - .1 Confirm documentation requirements to service providers and Authorities Having Jurisdiction have been completed and accepted.
 - .2 Review, schedule and coordinate service interruptions and impacts.
- .4 Scheduling: Provide detailed scheduling information in addition to Section 01 32 00 Construction Progress Documentation.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submittals: Provide in accordance with Section 01 33 00 Submittal Procedures.
- .2 Product Data: Shop Drawings and manufacturer's product documentation for equipment and components.
- .3 Samples: Provide samples as may be requested by Consultant.
- .4 Manufacturer's Certificate.
- .5 Test and Evaluation Reports: For components designed or engineered by others upon which the Consultant has determined his design.
- .6 Manufacturer's Installation Instructions.
- .7 Source Quality Control: provide compliance documentation with applicable ULC, ASTM and other industry related standards as they may apply.
- .8 Field or Site Quality Control.
- .9 Manufacturer's Report.
- .10 Special Procedure Submittals.

1.5 QUALITY ASSURANCE

- .1 Qualifications: Provide applicable documentation demonstrating qualifications of on site fabricators and installers.
- .2 Regulatory Agency Approvals: Provide applicable agency inspections and approvals of installation.
- .3 Testing: Provide applicable test reports of installation and system in accordance with service providers and Authority Having Jurisdiction requirements.
- .4 Field or Site Samples: Provide applicable test reports in accordance with service providers and Authority Having Jurisdiction requirements.
- .5 Mock-ups: Provide mock-ups of unusual conditions prior to actual installation to allow Consultant review prior to actual installation.

1.6 CLOSEOUT SUBMITTALS

- .1 Operation and Maintenance Data
- .2 Warranty Documentation
- .3 Record Documentation

exclude all project mock ups or CA value to be inserted

1.7 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 Common Product Requirements.

1.8 SITE CONDITIONS

- .1 Verify the locations and elevations of all utilities to be crossed by the work prior to construction. Any deviation from the drawings which affect the design is to be immediately reported to the Consultant.
- .2 Locate all existing utilities including drains, sewers, water gas, hydro, telephone and cable together with tie-in points.
- .3 Preserve and protect services from damage during construction activities.

Part 2 Products

2.1 GENERAL

- .1 Refer to Civil, Mechanical and Electrical drawings and specifications.

Part 3 Execution

3.1 VERIFICATION OF CONDITIONS

- .1 Prior to commencing work review with Owners Representative existing conditions and operational requirements to determine readiness to proceed.

3.2 GENERAL

- .1 Refer to Civil, Mechanical and Electrical drawings and specifications for new services on-site and off-site.
- .2 Remove all abandoned service lines unless noted otherwise on the drawings.

3.3 NEW OR MODIFIED EXISTING SERVICE CONNECTIONS

- .1 Provide all work as noted below and shown on drawings.
- .2 Restore all off-site service provider works and municipal improvements disturbed by Work of this Contract.
- .3 Restore all on-site service provider works and municipal improvements disturbed by Work of this Contract.
- .4 Extend new service lines to service connection location within facility.
- .5 Coordinate all work with service providers and municipal authorities.

- Group: Utilities**
- 
- .6 Pay for all charges and work by service providers and municipal authorities as noted below.
 - (1) Fire Service Water:
 - 1 Complete new service with connection from existing line on-site.
 - 2 Utility connection charges.
 - (2) Storm:
 - 1 Complete new service with connection from existing line on-site.
 - 2 Utility connection charges.
 - (3) Sanitary:
 - 1 Complete new service with connection from existing line on-site.
 - 2 Utility connection charges.
 - (4) Power:
 - 1 Complete new service with connection from existing line on-site.
 - (5) Cable:
 - 1 Complete new service with connection from existing line on-site.

3.4 RECORD DRAWINGS

- .1 Record locations of new, maintained and re-routed service lines.

END OF SECTION

exclude service/utility fees
or CA value to be inserted

Part 1 General

1.1 WORDS AND TERMS

- .1 Refer to and conform to definitions and their defined meanings in the Agreement and Definitions portion of CCDC 2®-2008. Acknowledge supplementary words, terms, and definitions cited in Supplementary Conditions.

1.2 PRECEDENCE OF DOCUMENTS

- .1 Should any conflict or discrepancy appear between documents, which leaves doubt as to the intent or meaning, abide by Precedence of Documents in CCDC 2®-2008 and advise the Consultant.

1.3 COPYRIGHT

- .1 Documentation in any form issued by the Consultant remains the property of the Consultant unless express permission is specifically otherwise given.
- .2 Return Drawings and Specifications before issuance of the Final Certificate.

1.4 DOCUMENTS PROVIDED

- .1 The Consultants' CAD and Revit drawings are copyright protected and prepared solely for the use of the Consultants.
- .2 The Consultants are under no obligation nor contract to provide CAD and Revit drawing files to others.

1.5 COMPLEMENTARY DOCUMENTS

- .1 Drawings, specifications and schedules complement each other and what is called for by one to be binding as if called for by all.
- .2 Examine Contract Documents and related Work to ensure that Work can be satisfactorily executed. Conflicts or additional work beyond work described to be brought to attention of the Consultant prior to Tender closing.
- .3 The requirements of Specification Division 01 Sections apply to all Specification Sections and Drawings.
- .4 Divisions and Sections of the Specifications generally follow trade practices and are made for convenience only. Ensure that all labour and materials as called for in the Contract Documents are included in the Bid.
- .5 Be solely responsible for Division of the Work among Subcontractors, suppliers or vendors. The Consultants assume no responsibility to act as an arbiter to establish subcontract terms between sectors or disciplines of work.
- .6 The responsibility as to which sub trade provides required articles or materials rests solely with the Construction Manager. No extras will be allowed based on grounds of difference in interpretation of drawings or specifications as to which trade involved shall provide certain specialties or materials.

- .7 The Consultants may furnish additional documents to assist proper execution of the work for clarification only. Such documents have the same meaning and intent as if they were included with the drawings referred to in the Contract Documents.

1.6 SPECIFICATION GRAMMAR

- .1 Specifications are written in the imperative (command) mode, in an abbreviated form.
- .2 Language of technical sections is always directed to the contractor, unless specifically noted otherwise.
- .3 This form of imperative (command) mode statement requires the contractor to provide materials, equipment and perform such action or Work.
- .4 Complete all requirements of the Contract Documents whether stated imperatively or otherwise.

Part 2 Products

2.1 NOT USED

- .1 Not used

Part 3 Execution

3.1 NOT USED

- .1 Not used

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2®-2008, Stipulated Price Contract.

1.2 CASH ALLOWANCES

- .1 Include in Contract Price specified cash allowances.
- .2 Allowances, unless otherwise specified, cover net cost to Contractor of services, products, construction machinery and equipment, freight, handling, unloading, storage installation and other authorized expenses incurred in performing Work.
- .3 Contract Price, and not Cash Allowance, includes Contractor's overhead and profit in connection with such Allowance.
- .4 Contract Price will be adjusted by written order to provide for excess or deficit to each Allowance.
- .5 Where costs under an Allowance exceeds amount of Allowance, Contractor will be compensated for excess incurred and substantiated plus allowance for overhead and profit as set out in Contract Documents.
- .6 Include progress payments on accounts of work authorized under Allowances in monthly certificate for payment.
- .7 Prepare schedule jointly with Consultant and Contractor to show when items called for under Allowances must be authorized by Consultant for ordering purposes so that progress of Work will not be delayed.
- .8 **Consultant Responsibilities:**
 - .1 Consult with Contractor for consideration and selection of Products, suppliers, and installers.
 - .2 Owner and Consultant to select Products.
 - .3 Prepare Change Order.
- .9 **Contractor Responsibilities:**
 - .1 Assist Consultant in selection of products, suppliers and installers.
 - .2 Obtain proposals from suppliers and installers and offer recommendations.
 - .3 On notification of selection by Consultant or Owner, execute purchase agreement with designated supplier and installer.
 - .4 Arrange for and process shop drawings, product data, and samples. Arrange for delivery.
 - .5 Promptly inspect Products upon delivery for completeness, damage, and defects.
- .10 Amount of each allowance, for Work specified in respective Specification Sections is as follows:

Part 2 Products

2.1 NOT USED

.1 Not used

Part 3 Execution

3.1 NOT USED

.1 Not used

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Canadian Construction Documents Committee (CCDC).
 - .1 CCDC 23-2008, A Guide to Calling Bids and Awarding Contracts.

1.2 REQUIREMENTS

- .1 Referenced specification Sections stipulate pertinent requirements for products and methods to achieve Work stipulated under each Alternative.
- .2 Co-ordinate affected related Work and modify surrounding Work to integrate Work under each Alternative.

1.3 AWARD/SELECTION OF ALTERNATIVES

- .1 Indicate variation of Bid Price for Alternatives described below and listed in Bid Form. Note that this form requests a 'difference' in Bid Price by adding to or deducting from base Bid price.
- .2 Bids will be evaluated on 'Base Bid' price. After determination of preferred Bidder, consideration will be given to Alternatives and Bid Price adjustments.

1.4 ALTERNATIVES

- .1 Alternatives quoted on Bid Forms will be reviewed and accepted or rejected at the Owner's option.
- .2 Accepted alternatives will be identified in the Owner-Contractor Agreement.
- .3 Coordinate related work and modify surrounding work to integrate the Work of each alternative.
- .4 Clearly indicate the variation of Contract Price for alternatives described below and listed in the Bid form. Note that this form requests a "difference" in Bid Price by adding to or deducting from the base bid price, excluding value added taxes (GST).
- .5 This Section identifies each Alternative by number and describes the basic changes to be incorporated into the Work but only when that Alternative is made a part of the Work by specific provisions in the Contract Documents.
- .6 Referenced Sections of the Specification and Drawings stipulate pertinent requirements for products and methods to achieve the Work stipulated under each Alternative.
- .7 Co-ordinate the pertinent related Work and modify surrounding Work as required to properly integrate the Work under each Alternative and to provide the complete construction required by the Contract Documents.

offer letter to show all CA's

Part 2 Products

2.1 NOT USED

.1 Not used

Part 3 Execution

3.1 NOT USED

.1 Not used

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Section includes administrative and procedural requirements for substitutions.

1.2 DEFINITIONS

- .1 Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- .1 Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
- .2 Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner. No substitutions for convenience are allowed.

1.3 PRODUCT EQUIVALENCY

- .1 Some products are standard for and integral to Owners systems and operations, and for which substitutions may not be made. They include but are not limited to:
- .1 DDC Controls to HVAC systems.
- .2 Door Hardware
- .2 Submit only goods of equal or better quality and appearance to referenced products to the Consultant for approval. Approval is subject to the Owners and Consultants discretion and written approval.

1.4 SUBMITTALS

- .1 Refer to Part 3 of this section; Substitution Request Form.
- .2 Substitution Requests: Submit of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
- .1 Substitution Request Form: Use form provided in this Project Manual.
- .2 Documentation: Show compliance with requirements for substitutions and the following, as applicable:
- .1 Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
- .2 Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
- .3 Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.

- .4 Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - .5 Samples, where applicable or requested.
 - .6 Certificates and qualification data, where applicable or requested.
 - .7 List of similar installations for completed projects with project names and addresses and names and addresses of architect/consultant and owners.
 - .8 Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - .9 Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
 - .10 Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - .11 Cost information, including a proposal of change, if any, in the Contract Sum.
 - .12 Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - .13 Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
- .3 Architect/consultant Action: If necessary, Architect/Consultant will request additional information or documentation for evaluation within seven (7) days of receipt of a request for substitution. Architect/consultant will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven (7) days of receipt of additional information or documentation, whichever is later.
- .4 Forms of Acceptance: Change Order, Construction Change Directive, or Architect/Consultant Supplemental Instructions for minor changes in the Work.
- .5 Use product specified if Architect/Consultant does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

- .1 Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

- .1 Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

Part 2 Products

2.1 SUBSTITUTIONS

- .1 Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
 - .1 Conditions: Architect/Consultant will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect/Consultant will return requests without action, except to record noncompliance with these requirements:
 - .1 Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - .2 Requested substitution provides sustainable design characteristics that specified product provided.
 - .3 Substitution request is fully documented and properly submitted.
 - .4 Requested substitution will not adversely affect Contractor's construction schedule.
 - .5 Requested substitution has received necessary approvals of authorities having jurisdiction.
 - .6 Requested substitution is compatible with other portions of the Work.
 - .7 Requested substitution has been coordinated with other portions of the Work.
 - .8 Requested substitution provides specified warranty.
 - .9 If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- .2 Substitutions for Convenience: Consultant will consider requests for substitution if received within twenty (20) days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Consultant, only when there is an advantage to the Owner.
 - .1 Conditions: Consultant will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - .1 Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 - .2 Requested substitution does not require extensive revisions to the Contract Documents.
 - .3 Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - .4 Substitution request is fully documented and properly submitted.

- .5 Requested substitution will not adversely affect Contractor's construction schedule.
 - .6 Requested substitution has received necessary approvals of authorities having jurisdiction.
 - .7 Requested substitution is compatible with other portions of the Work.
 - .8 Requested substitution has been coordinated with other portions of the Work.
 - .9 Requested substitution provides specified warranty.
 - .10 If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- .3 System Substitution: No changes should be anticipated in major building system types or approved manufacturers in pricing or schedule; the Owner has standardized materials in place in existing buildings, and will not change for the convenience of the contractor.

Part 3 Execution

3.1 SUBSTITUTION REQUEST FORM

Substitution Request Form			
Project Name:		Issued by:	
Address:		Address:	
Project No:		Copies To:	
Subst. Request #:		Date Issued:	

Specified Product, Material, System or Equipment in the Contract Documents:

Specification Number:		Article/Paragraph/Page#:	
Drawing No./Detail:		Drawing Issue Date:	
Item Specified:			

Proposed Substitution:

Description:				
Manufacturer:				
Address:			Tel:	
Trade Name:		Model #:		
Installer:				
Address:			Tel:	
History	<input type="checkbox"/> New Product	<input type="checkbox"/> 2-5 years old	<input type="checkbox"/> 5-10 years old	<input type="checkbox"/> more than 10 years old
Attachments Included:	<input type="checkbox"/> Drawings	<input type="checkbox"/> Product Data	<input type="checkbox"/> Samples	
	<input type="checkbox"/> Test Reports	<input type="checkbox"/> Comparative Data	<input type="checkbox"/> Research & Evaluation Reports	

Reason for Substitution:

SPECIFIED PRODUCT:	PROPOSED PRODUCT:
<input type="checkbox"/> Is no longer available.	<input type="checkbox"/> Will reduce construction time by _____ days to Project.
<input type="checkbox"/> Is unable to meet project schedule.	<input type="checkbox"/> Will result in cost savings of \$_____.
<input type="checkbox"/> Is unsuitable for the designated application.	<input type="checkbox"/> Is for Supplier's Convenience
<input type="checkbox"/> Cannot interface with adjacent materials	<input type="checkbox"/> Owner Initiated Substitution
<input type="checkbox"/> Is not compatible with adjacent materials.	<input type="checkbox"/> Other:
<input type="checkbox"/> Is not compatible with adjacent materials.	
<input type="checkbox"/> Cannot provide the specified warranty	
<input type="checkbox"/> Cannot be constructed as indicated.	
<input type="checkbox"/> Other:	
<input type="checkbox"/> Cannot be obtained due to one or more of the following:	
<input type="checkbox"/> Strike	<input type="checkbox"/> Bankruptcy of manufacturer or supplier
<input type="checkbox"/> Lockout	<input type="checkbox"/> Similar occurrence
Explanation of each item marked above (Attach Documentation):	

COMPARISONS OF THE SPECIFIED ITEM AND THE PROPOSED SUBSTITUTION:			
1. Compare proposed substitution with specified quality, size, weight, visual appearance, durability, and performance using the fields below:			
QUALITY:	SPECIFIED PRODUCT:		PROPOSED PRODUCT:
Manufacturer:			
Name/Brand/No:			
Supplier/ Distributor:			
Mfr/Rep:			
Size:			
Weight:			
Appearance:			
DURABILITY: Identify at least three (3) similar local projects on which proposed substitution was used:			
1	Project:	Date Installed:	
	Address:		
	Owner/Contact:	Tel:	
2	Project:	Date Installed:	
	Address:		
	Owner/Contact:	Tel:	
3	Project:	Date Installed:	
	Address:		
	Owner/Contact:	Tel:	
PERFORMANCE CRITERIA:		SPECIFIED PRODUCT:	PROPOSED PRODUCT:
Features/Attributes	Test Protocol		
2. Verify specified warranties, maintenance service, parts, code (including relevant ASTMs) and accessibility compliance, sustainability, and other requirements are met:			
a. WARRANTY: Proposed product offers the same warranty? <input type="checkbox"/> Yes <input type="checkbox"/> No; explain			
		SPECIFIED PRODUCT:	PROPOSED PRODUCT:
Item:			

b. MAINTENANCE SERVICE: Same day service available? <input type="checkbox"/> Yes <input type="checkbox"/> No; explain:			
Item:			
c. SPARE PARTS: Source/Location:			
Item:			
CODE REQUIREMENTS:	SPECIFIED PRODUCT:		PROPOSED PRODUCT:
ASTM:			
ADA Compliance:			
SUSTAINABLE DESIGN			
FEATURES/ATTRIBUTES:	SPECIFIED PRODUCT:		PROPOSED PRODUCT:

3. Describe changes required in other elements of the Work to accommodate the proposed substitution, including work performed by the Owner and separate contractors:

4. Describe changes of the Work required by the Owner, separate Contractors, or Consultants:

5. Describe the impact the proposed substitution will have on the work schedule in comparison to the work schedule without approval of the proposed substitution:
6. Define detailed cost impact of the proposed substitution in relation to the originally specified item, including related modifications required to other Work:
7. Proposed Substitution Summary:
Savings to the Owner for accepting substitution \$_____ (\$_____)
Proposed Change in Contract Time: <input type="checkbox"/> Yes <input type="checkbox"/> No [Add] [Deduct] _____ Days.

Contractor's Certification and Waiver: Permission to make a substitution after Award of Contract shall be affected by Change Order. Change Order shall not relieve the Contractor, a subcontractor, manufacturer, fabricator, or supplier from responsibility for deficiencies that may exist in the substituted product, nor for departure or deviation from the Contract Documents. The Undersigned certifies:

1. Except as otherwise expressly defined by the Contractor in this Request for Substitution (RFS) and approved by Change Order, the Contractor warrants, that the proposed substitution:
 - a. Has been fully investigated and determined to be equal or superior in all respects to the specified product
 - b. Will satisfy all requirements of the original product, material or equipment specified, including but not limited to appearance, quality, performance, code compliance, sustainability (LEED), and warranty.
 - c. Will have the same maintenance service and source of replacement parts as the original
 - d. Will not have an adverse effect on other trades nor affect or delay progress schedule.
 - e. Will not affect dimensions and functional clearances.
2. Cost data and change in contract time stated are complete. Claims for additional costs or additional time related to accepted substitution which may subsequently become apparent are waived.
3. If substitution affects a correlated function, adjacent construction, or the work of other trades or contractors, the necessary changes and modifications to the affected work shall be considered as an essential part of the proposed substitution, to be accomplished by the Contractor without additional expense to the Owner.
4. Payment will be made for changes to building design, including A/E design, detailing and construction costs caused by the substitution.
5. Coordination, installation and changes in the Work necessary for accepted substitution will be complete in all respects.

Contractor's Signature:		Date:	
-------------------------	--	-------	--

Conditions of Acceptance: The Architect/Consultant/Engineer's approval, if granted, relies on data submitted and the opinion, knowledge, information, and belief of the Architect/Consultant/Engineer at the time decision is rendered. The approval is conditional in nature and subject to re-evaluation and reconsideration if additional data or materials are submitted, or coordination with other work is observed to invalidate claims that substitution is equal to items originally specified.

Architect/Consultant/Engineer's Response:					
<input type="checkbox"/> Substitution Approved					
<input type="checkbox"/> Substitution Approved as Noted					
<input type="checkbox"/> Substitution Rejected -- Use specified materials.					
<input type="checkbox"/> Substitution Received too late -- Use specified materials.					
<input type="checkbox"/> More Information Required					
RFS Response by:					Date:
		Thinkspace Architecture Planning Interior Design			
Thinkspace		Contractor:		Owner:	
Accepted By:		Accepted By:		Accepted By:	
Date:		Date:		Date:	

END OF SECTION

Part 1 General

1.1 APPLICATIONS FOR PROGRESS PAYMENT

- .1 Refer to CCDC 2.

1.2 SCHEDULE OF VALUES

- .1 Refer to CCDC 2.
- .2 Make schedule of values out in such form and supported by such evidence as Consultant may reasonably direct and when accepted by Consultant, be used as basis for applications for payment.
- .3 Include statement based on schedule of values with each application for payment.
- .4 The Contractor is responsible for all submissions required by the General Conditions and all Divisions of the specifications. The following list of submissions is consolidated for convenience and may not be complete. Contractor shall review the documents to ensure completeness.
- .5 Submit one (1) PDF file of Schedule of Values prior to commencement of construction or within 10 days after date of Owner-Contractor Agreement, whichever comes first.
- .6 Format: Identify each line item with number and title of the major Specification Section. Identify site mobilization, bonds and insurance. Utilize Schedule of Values for listing items in Application for Payment.
- .7 Include in each line item, the amount of Allowances specified in this section. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by the unit cost to achieve the total for the item.
- .8 Revise schedule to list approved Change Orders, with each Application for Payment.

1.3 PROGRESS PAYMENT

- .1 Refer to CCDC 2.
- .2 Payment Period: 30 days
- .3 Provide the following with application for first payment:
 - .1 Submit one PDF file of the schedule of values for listing items in Application for payment.
 - .2 Include an updated construction progress schedule.
- .4 Provide the following with application for each subsequent payment.
 - .1 Submit one PDF file of the schedule of values for listing items in Application for payment.
 - .2 Statutory Declaration CCDC 9A - latest edition in accordance with General Condition.
 - .3 Include an updated construction progress schedule.

Reject - Format to follow submitted Tender submission

1.4 SUBSTANTIAL PERFORMANCE OF WORK

- .1 Refer to CCDC 2 and the Builder's Lien Act.

- .2 When the Contractor considers that the Work is substantially performed, the Contractor shall submit the following:
 - .1 Contractor's statement that the building is finished sufficiently to become occupied. Contractor's List of Incomplete or Deficient items, associated costs to rectify the deficient items and the proposed completion dates. The Consultant will not review the site until these items are received.
 - .2 If when reviewed by the Consultant, the work is not deemed Substantially Complete, the Consultant will immediately notify the Contractor, in writing, stating reasons the work was considered not substantially performed. The Contractor, Owner and Consultants shall agree to a time period to allow the Contractor to rectify deficient items. The Contractor shall complete the Work and send second written notice to the Consultant, certifying that the Work is substantially performed and all deficiencies have been completed. The Consultant will re-review the work as required.
 - .3 Statement of values for completed work less proposed values of incomplete or deficient work in the format required.
 - .4 Statutory Declaration CCDC 9A – latest edition.
 - .5 Statement indicating reconciliation of all change orders or claims to the contract.
 - .6 Maintenance manuals, operating instructions, maintenance and operating tools, replacement parts or materials reserve maintenance replacement material as specified in the contract.
 - .7 All required "Record" or "As-Installed" drawings in the form specified in the contract documents.
 - .8 All required manufacturer's inspections, guarantees, certifications, and warranties covering articles, equipment and performance as specified in the contract.
 - .9 Extended warranties as specified under the various work sections of this specification.
 - .10 Final certificate from local authority approving the plumbing and electrical installations. Occupancy permit from local Building Inspection Department.
 - .11 Certifications and/or reports by all testing, infection control or inspection authorities as specified.

1.5 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF WORK

- .1 Refer to CCDC 2.
- .2 **Amount authorized by certificate for payment of holdback amount is due and payable on day following expiration of holdback period stipulated in lien legislation applicable to Place of Work. Where lien legislation does not exist or apply, holdback amount is due and payable in accordance with other legislation, industry practice, or provisions which may be agreed to between parties. Owner may retain out of holdback amount any sums required by law to satisfy any liens against Work or, if permitted by lien legislation applicable to Place of Work, other third party monetary claims against Contractor which are enforceable against Owner.**

***Group:
Holdbacks/Liens**

1.6 PROGRESSIVE RELEASE OF HOLDBACK

- .1 Refer to CCDC 2.
- .2 Provide the following with application for Progressive Release of Holdback:
 - .1 CCDC 9A – latest edition in accordance with General Condition.
 - .2 Evidence of Compliance from the Workers Compensation Board of BC in accordance with General Condition. Provide verification attached from the Worker's Compensation Board of BC stating that the Subcontractor is in current good standing.
 - .3 Evidence of Compliance by the Subcontractor with the Social Services Tax Act.

Group:
Holdbacks/Liens

1.7 FINAL PAYMENT

- .1 Refer to CCDC 2
- .2 Provide the following with application for Final Payment.
 - .1 Contractor's statement that all incomplete items have been completed and deficiencies addressed.
 - .2 Statutory Declaration CCDC 9A – latest edition.
 - .3 Evidence of Compliance from the Workers Compensation Board of BC. Provide a tabulated list, with letters attached from the Worker's Compensation Board of BC stating that the General Contractor and all Subcontractors are in current good standing with the Board.
 - .4 Final statements of accounts to be submitted to the Consultant reflecting all adjustments and the following:
 - .1 Original Contract Sum.
 - .2 Additions and deductions resulting from: Change Orders; Unit Prices; Other Adjustments; Deductions for uncorrected Work.
 - .3 Total Contract Sum as adjusted.
 - .4 Previous payments certified.
 - .5 Remaining Balance.

confirm if acceptable?

confirm if acceptable?

Group:
Holdbacks/Liens

Part 2 Products

2.1 NOT USED

- .1 Not used

Part 3 Execution

3.1 NOT USED

- .1 Not used

END OF SECTION

Part 1 General

1.1 COOPERATION AND COORDINATION

- .1 Perform coordination of progress schedules, submittals, use of site, temporary utilities, construction facilities, and construction Work, with progress of Work of other contractors.
- .2 Take common and reasonable precaution to avoid damage and minimize interruption to Owner's property and services. Pay for all costs associated with making good any damage and/or providing temporary service or protection.
- .3 Coordinate the work of Subcontractors with efficient and continuous supervision.
- .4 Before commencing work, ensure that each sub-contractor reports any unacceptable substrate or inconsistency between the work of a preceding sub-contractor and the requirements for their work. Pay for all costs associated with to rectify such inconsistencies.
- .5 Coordinate work requiring suspension or fixing devices to be incorporated into the structure. Where required, build into the structure and provide details of devices and methods for review by Consultant.
- .6 Cooperate and coordinate with all Authorities Having Jurisdiction and the Owner any connection or interruption made to any facility services. Notify the Consultant, the Owner and Authorities Having Jurisdiction giving notice of a minimum of 3 working days in advance.
- .7 Coordinate services work. Refer to Section 01 18 13 Utility Service Connections and Section 01 51 00 Temporary Utilities.

1.2 RESPONSIBILITY AND COORDINATION

- .1 Coordinate all aspects of Work. Maintain general orderliness of progress throughout the execution of the Work.
- .2 Be fully aware of the requirements of the specification and assist and prepare for the work of all subcontractors.
- .3 Co-ordinate and co-operate with Owner's forces on work performed by Owner.
- .4 Coordinate use of equipment including those specified in Section 01 52 00 Construction Facilities.
- .5 During construction, coordinate use of site and facilities through Consultant's procedures for intra project communications: Submittals, reports and records, schedules, coordination of drawings, recommendations, and resolution of ambiguities and conflicts.
- .6 Comply with Specifications for use of temporary utilities and construction facilities.
- .7 Coordinate field engineering and layout work.
- .8 Coordinate the work of each subcontractor to ensure that such work is consistent with the requirements for following work. Before commencing any work, each subcontractor reports to the Contractor of any inconsistency between the work of the previous subcontractor and the requirements for its work. Rectify any inconsistencies prior to commencement of work. Commencement of work indicates acceptance of condition.

- .9 Coordinate the work of trades and personnel to minimize the spread of dust and dirt and to eliminate the possibility of damage to the work of other trades. All work damaged is to be restored.

1.3 LOCATION OF EQUIPMENT & FIXTURES

- .1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate unless noted otherwise.
- .2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum useable space and in accordance with manufacturers recommendations for safety access and maintenance and applicable code requirements.

1.4 CONCEALMENT

- .1 Conceal pipes, ducts, and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise. Furr around with same materials as adjacent wall and/or ceiling finishes where pipes or ducts cannot be concealed within wall thickness.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Arrange, obtain, collect, and compile all clearances, certificates, permits, guarantees, maintenance manuals, as-built drawings, etc., as required by specifications or bylaws, demolition permit, temporary crossing permit and road permit.
- .2 Provide the following prior to making application for and a condition of first payment:
- .1 Various construction related Schedules.
 - .2 List of all applicable mechanical permits (i.e. gas, oil, refrigeration, pressure vessels, piping, etc.)
 - .3 List of all mechanical equipment proposed to be installed for approval, prior to ordering.
 - .4 List of all electrical fixtures and equipment proposed to be installed for approval, prior to ordering. With electrical equipment list include a motor schedule complete with voltage and starter information, including elevator requirements.
- .3 Provide the following during progress of the Contract:
- .1 Shop drawings as required by Specifications, including completed Authority Having Jurisdiction Professional Design and Commitment for Field Review Schedules SC and SB.
 - .2 Written inspection reports of field reviews as field reviews are made.
 - .3 Copies of test reports, other than those prepared by Owner appointed independent testing agencies.
 - .4 Copies of inspection reports issued by Authorities Having Jurisdiction.
 - .5 Copies of all permits, licenses, certificates and receipts for fees paid.

Remove this clause

1.6 RECORDING ACTUAL SITE CONDITIONS (RECORD DOCUMENT)

- .1 Record information on set of black line opaque drawings, and within the Project Manual, provided by Consultant.

Clarify in tender - All record drawings are completed via Procore, digitally

- .2 Allow for modifications to the drawings for changes to the Contract not exceeding 5% of the value of the Contract.
- .3 Identify them as "RECORD DOCUMENT".
- .4 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage. Maintain record documents in clean, dry and legible condition.
- .5 Annotate with indelible coloured felt tip marking pens, maintaining separate colours for each major system, for recording changed information.
- .6 Present the "RECORD DOCUMENT" prints for scrutiny at each project meeting and as required by the Consultant.
- .7 Record information concurrently with construction progress. Record locations of concealed components. Do not conceal Work of the Project until required information is accurately recorded.
- .8 Contract drawings and shop drawings: Legibly mark each item to record actual construction, including:
 - .1 Measured depths of elements of foundation in relation to finish first floor datum
 - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - .3 Include all revisions, with special emphasis on items hidden from view, mechanical, electrical, structural steel, reinforced concrete.
 - .4 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
 - .5 Field changes of dimension and detail.
 - .6 Changes made by change orders.
 - .7 Details not on original Contract Drawings
 - .8 References to related shop drawings and modifications
- .9 Specifications: Legibly mark each item to record actual construction, including:
 - .1 Manufacturer, trade name, and catalogue number of each product installed, particularly optional items and substitute items.
 - .2 Changes made by Addenda, revisions, clarifications, change orders, and shop drawings.
- .10 Other Documents: Maintain manufacturer's certifications, inspection certifications, and field test records, required by individual specifications sections.
- .11 In addition to "RECORD DOCUMENT", record all changes to site services on project site drawing sheet. Provide updated copy quarterly.
- .12 On each record drawing, include Contractor's identification, the date of record, the notation, "We hereby certify that these drawings represent the work 'as-built', and the Contractor's signature placed just below that notation.
- .13 Submit completed record documents to Consultant.

Clarify in tender -
All record drawings
are completed via
Procore, digitally.
No 'felt tip pens'.

Record drawings
include SI's, RFI's,
SI's, and addenda
only - revise clause

- .14 The marked-up information from the "RECORD DOCUMENT" documents will be transferred to a set of drawing files by the Consultant.

Part 2 Products

2.1 NOT USED

- .1 Not used

Part 3 Execution

3.1 NOT USED

- .1 Not used

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE

- .1 Representatives attending meetings to be qualified and authorized to act on behalf of the party each represents.
- .2 Contractor, major subcontractors involved in Work, Consultant and Owner's Representative (when required) are to be in attendance.
- .3 Consultant will:
 - .1 Schedule and notify parties prior to meetings.
 - .2 Schedule and administer project meetings throughout the progress of the work.
 - .3 Prepare agenda for meetings.
 - .4 Distribute written notice of each meeting four days in advance of meeting date to Contractor, major subcontractors involved in Work, Consultants and Owner's Representative.
 - .5 Provide physical or virtual space and make arrangements for meetings.
 - .6 Preside at meetings.
 - .7 Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.
 - .8 Reproduce and distribute copies of minutes within three days after meetings and transmit to meeting participants and, affected parties not in attendance.

1.2 PRECONSTRUCTION MEETING

- .1 Within 5 days after award of Contract, request a meeting of parties in Contract to discuss and resolve administrative procedures and responsibilities.
- .2 Senior representatives of Owner, Consultant, Contractor, major Subcontractors, field inspectors and supervisors are to be in attendance.
- .3 Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.
- .4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.
- .5 Agenda to include:
 - .1 Appointment of official representative of participants in the Work.
 - .2 Items for co-ordination and co-operation with Owner and Consultant.
 - .3 Status of items required for the release of Building Permit.
 - .4 Site safety.
 - .5 Schedule of Work.
 - .6 Schedule of submission of shop drawings, samples, colour chips. Submit in accordance with Section 01 33 00 - Submittal Procedures.
 - .7 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
 - .8 Delivery schedule of specified equipment.

- .9 Site security in accordance with Section 01 53 00 - Temporary Construction.
- .10 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, administrative requirements.
- .11 Owner provided products.
- .12 Record drawings in accordance with Section 01 31 00 Project Management and Coordination and Section 01 77 00 Closeout Procedures.
- .13 Maintenance manuals in accordance with Section 01 77 00 Closeout Procedures and Section 01 78 00 Closeout Submittals.
- .14 Take-over procedures, acceptance, warranties in accordance with Section 01 77 00 Closeout Procedures and Section 01 78 00 Closeout Submittals.
- .15 Monthly progress claims, administrative procedures, photographs, hold backs.
- .16 Appointment of inspection and testing agencies or firms.
- .17 Insurances, transcript of policies.

1.3 MEETINGS AND DIARY

- .1 Convene regular meetings with sub-contractors. Ensure orderly execution of the Work, proper co-ordination and conformity with the agreed progress schedule.
- Group: On site conditions (subgroup: Progress meetings)** .2 Maintain a daily site diary indicating, weather conditions, number of workmen on the site by trade, major material deliveries, dates of all meetings and their purpose, dates of visits or inspections by authorities having jurisdiction, work stoppages, accidents, inspections performed by Consultants, local authorities and other requirements of WorkSafeBC etc.
- .3 **In general, hold progress meetings every two weeks, except during final finishing during summer when project nears completion, when weekly meetings are to be scheduled.**

1.4 PROGRESS MEETINGS

- Group: On site conditions (subgroup: Progress meetings)** .1 Schedule and administer project meetings throughout the progress of the work:
 - .1 **At monthly minimum.**
 - .2 At the call of the Consultant.
- .2 Distribute written notice of each meeting four days in advance of meeting date to all parties.
- .3 Agenda for meetings to include:
 - .1 Review, approval of minutes of previous meeting.
 - .2 Review of Work progress since previous meeting,
 - .3 Progress schedule, during succeeding work period.
 - .4 Problems which impede construction schedule.
 - .5 Review of off-site fabrication delivery schedules.
 - .6 Field observations, problems, conflicts.
 - .7 Progress, schedule, during succeeding work period.
 - .8 Corrective measures and procedures to regain projected schedule.
 - .9 Revision to construction schedule.
 - .10 Maintenance of quality standards.

- .11 Request for Information and Submittals log update.
- .12 Review submittal schedules: expedite as required.
- .13 Status report: construction activities, materials, Consultants comments.
- .14 Review status of proposed changes, quotations. Review proposed changes for affect on construction schedule and on completion date.
- .15 Review Progress Claim.
- .16 Other business.

Part 2 Products

2.1 NOT USED

- .1 Not used

Part 3 Execution

3.1 NOT USED

- .1 Not used

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Commence reporting at start of site activities.
- .2 Submitted electronically each month with progress claim.

Part 2 Products

2.1 CONSTRUCTION SCHEDULE

- .1 Refer to Section 01 32 16 Construction Progress Schedule.

2.2 PHOTOGRAPHS

- .1 Digital photos, taken at a minimum of one (1) MByte resolution.
- .2 Identification: location and date of exposure.
- .3 All photographs becomes the Owners property with unrestricted use.

2.3 REPORTS

- .1 Provide written reports and records.

2.4 SURVEY

- .1 Refer to Section 01 71 23 Field Engineering for foundation and slab elevation survey.
- .2 Refer to Section 01 32 23 Survey and Layout.

Part 3 Execution

3.1 PHOTOGRAPHS

- .1 Weekly
 - .1 General Construction Progress: Provide a minimum of 10 photos of major site construction activities taken over each one week period.
- .2 Provide monthly panorama photos from two Locations of viewpoints determined by the Consultant. Maintain consistent locations unless otherwise directed by the Consultant.
- .3 Final Photographs:
 - .1 Electronic copy on flash drive(s) of 32Mb minimum capacity.
 - .2 Identification: Machine printed name of project, location and date of exposure.
 - .3 Viewpoints:
 - .1 Each side of building/project.
 - .2 Interior of building and finishes.
 - .3 Locations of viewpoints determined by Consultant.

- .4 Place photographs and flash drive(s) into purpose made holder/protector sheets. Place items into suitably sized three ring binder labelled on front and spine with School District project name and number.

3.2 DOCUMENTATION

- .1 Submit documentation as identified in Specifications.

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Submit preliminary construction progress schedule within ten (10) days after date of Owner's Letter of Intent to Contractor.
- .2 After review, revise and resubmit schedule to comply with revised project schedule.
- .3 During progress of Work revise forecast of activities and resubmit as directed by Consultant.
- .4 Submit updated schedule and tracking forms for discussion at project meetings immediately prior to application for payment.

1.2 DEFINITIONS

- Reject This specification and clause is very detailed and will be very time consuming- amend clause for a typical Schedule update that will follow submitted and approved contract schedule.**
- If required, will need additional labour for this Specification
- .1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
 - .2 Actual Finish Date (AF): point in time that Work actually ended on activity
 - .3 Actual Start Date (AS): point in time that Work actually started on activity.
 - .4 Bar Chart (Gantt chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars.
 - .5 Baseline: original approved plan (for Project, work package, or activity), plus or minus approved scope changes.
 - .6 Completion Milestones: they are firstly Substantial Completion and secondly Final Certificate.
 - .7 Constraint: applicable restriction that will affect performance of Project. Factors that affect activities can be scheduled.
 - .8 Control: process of comparing actual performance with planned performance, analyzing variances, evaluating possible alternatives, and taking appropriate corrective action as needed.
 - .9 Critical Activity: any activity on a critical path. Most commonly determined by using critical path method.
 - .10 Critical Path: series of activities that determines duration of Project. In deterministic model, critical path is usually defined as those activities with float less than or equal to specified value, often zero. It is longest path through Project.
 - .11 Critical Path Method (CPM): network analysis technique used to predict Project duration by analyzing which sequence of activities (which path) has least amount of scheduling flexibility (least amount of float).
 - .12 Data Date (DD) : date at which, or up to which, Project's reporting system has provided actual status and accomplishments.
 - .13 Duration (DU): number of work periods (not including holidays or other non-working periods) required to complete activity or other Project element. Usually expressed as workdays or work weeks.

- .14 Early Finish Date (EF): in critical path method, earliest possible point in time on which uncompleted portions of activity (or Project) can finish, based on network logic and schedule constraints. Early finish dates can change as Project progresses and changes are made to Project plan.
- .15 Early Start Date (ES): in critical path method, earliest possible point in time on which uncompleted portions of activity (or Project) can start, based on network logic and schedule constraints. Early start dates can change as Project progresses and changes are made to Project Plan.
- .16 Finish Date: point in time associated with activity's completion. Usually qualified by one of following: actual, planned, estimated, scheduled, early, late, baseline, target, or current.
- .17 Float: amount of time that activity may be delayed from its early start without delaying Project finish date. Float is mathematical calculation, and can change as Project progresses and changes are made to Project plan. This resource is available to both Owner and Contractor.
- .18 Lag: modification of logical relationship that directs delay in successor task.
- .19 Late Finish Date (LF): in critical path method, latest possible point in time that activity may be completed without delaying specified milestone (usually Project finish date).
- .20 Late Start Date (LS): in critical path method, latest possible point in time that activity may begin without delaying specified milestone (usually Project finish date).
- .21 Lead: modification of logical relationship that allows acceleration of successor task.
- .22 Logic Diagram: see Project network diagram.
- .23 Master Plan: summary-level schedule that identifies major activities and key milestones.
- .24 Milestone: significant event in Project, usually completion of major deliverable.
- .25 Monitoring: capture, analysis, and reporting of Project performance, usually as compared to plan.
- .26 Near-Critical Activity: activity that has low total float.
- .27 Non-Critical Activities: activities which when delayed, do not affect specified Contract duration.
- .28 Project Control System: fully computerized system utilizing commercially available software packages.
- .29 Project Network Diagram: schematic display of logical relationships of Project activities. Always drawn from left to right to reflect Project chronology.
- .30 Project Plan: formal, approved document used to guide both Project execution and Project control. Primary uses of Project plan are to document planning assumptions and decisions, facilitate communication among stakeholders, and document approved scope, cost, and schedule baselines. Project plan may be summary or detailed.
- .31 Project Planning: development and maintenance of Project Plan.
- .32 Project Planning, Monitoring and Control System: overall system operated by Owner to enable monitoring of Project Work in relation to established milestones.

- .33 Project Schedule: planned dates for performing activities and planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy project objectives. Monitoring and control process involves using project schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.
- .34 Quantified days duration: working days based on 5 day work week, discounting statutory holidays.
- .35 Risk: uncertain event or condition that, if it occurs, has positive or negative effect on Project's objectives.
- .36 Scheduled Finish Date (SF): point in time that Work was scheduled to finish on activity. Scheduled finish date is normally within range of dates delimited by early finish date and late finish date.
- .37 Scheduled Start Date (SS): point in time that Work was scheduled to start on activity. Scheduled start date is normally within range of dates delimited by early start date and late start date.
- .38 Start Date: point in time associated with activity's start, usually qualified by one of following: actual, planned, estimated, scheduled, early, late, target, baseline, or current.
- .39 Work Breakdown Structure (WBS): deliverable-oriented grouping of project elements that organizes and defines total Work scope of Project. Each descending level represents increasingly detailed definition of Project Work.

1.3 ADMINISTRATIVE REQUIREMENTS

- .1 Revise and resubmit as required to comply with Contract schedule.
- .2 Submit updated schedules with each Application for Payment, identifying changes since previous version.

1.4 SCHEDULING

- .1 Construction Progress Schedule (Project Time Management): describes processes required to ensure timely completion of Project. These processes ensure that various elements of Project are properly coordinated. It consists of planning, time estimating, scheduling, progress monitoring and control.
- .2 Planning: this is most basic function of management, that of determining presentation of action and is essential.
 - .1 It involves focusing on objective consideration of future, and integrating forward thinking with analysis; therefore, in planning, implicit assumptions are made about future so that action can be taken today.
 - .2 Planning and scheduling facilitates accomplishment of objectives and should be considered continuous interactive process involving planning, review, scheduling, analysis, monitoring and reporting.
- .3 Ensure that planning process is iterative and results in generally top-down processing with more detail being developed as planning progresses, and decisions concerning options and alternatives are made. This implies progressively more reliability of scheduling data. Detail Project schedule is used for analysis and progress monitoring.

- .4 Ensure project schedule efficiencies through monitoring.
 - .1 When activities begin on time and are performed according to estimated durations without interruptions, original Critical Path will remain accurate. Changes and delays will however, create an essential need for continual monitoring of Project activities.
 - .2 Monitor progress of Project in detail to ensure integrity of Critical Path, by comparing actual completions of individual activities with their scheduled completions, and review progress of activities that has started but are not yet completed.
 - .3 Monitoring should be done sufficiently often so that causes of delays are immediately identified and removed if possible.
- .5 Project monitoring and reporting: as Project progresses, keep team aware of changes to schedule, and possible consequences. In addition to Bar Charts and CPM networks, use narrative reports to provide advice on seriousness of difficulties and measures to overcome them.
 - .1 Narrative reporting begins with statement on general status of Project followed by summarization of delays, potential problems, corrective measures and Project status criticality.

1.5 CPM REQUIREMENTS

- .1 Ensure Master Plan and Detail Schedule are practical and remain within specified Contract duration.
- .2 Revised and resubmit for review Master Plan and Detail Schedule deemed impractical by Owner.
- .3 Acceptance of Master Plan and Detail Schedule showing scheduled Contract duration shorter than specified Contract duration does not constitute change to Contract. Duration of Contract may only be changed through bilateral Agreement.
- .4 Consider Master Plan and Detail Schedule deemed practical by Owner, showing Work completed in less than specified Contract duration, to have float.
- .5 First Milestone on Master Plan and Detail Schedule will identify start Milestone with an "ES" constraint date equal to Award of Contract date.
- .6 Calculate dates for completion milestones from Plan and Schedule using specified time periods for Contract.
- .7 Substantial Completion with "LF" constraint equal to calculated date.
- .8 Calculations on updates to be such that if early finish of Substantial Completion falls later than specified Contract duration then float calculation to reflect negative float.
- .9 Delays to non-critical activities, those with float may not be basis for time extension.
- .10 Do not use float suppression techniques other than required by Contract.
- .11 Allow for and show Master Plan and Detail Schedule adverse weather conditions normally anticipated. Specified Contract duration has been predicated assuming normal amount of adverse weather conditions.

- .12 Provide necessary crews and manpower to meet schedule requirements for performing Work within specified Contract duration. Simultaneous use of multiple crews on multiple fronts on multiple critical paths may be required.
- .13 Arrange participation on and off site of subcontractors and suppliers, as required, for purpose of network planning, scheduling, updating and progress monitoring. Reviews by Owner of original networks and revisions do not relieve Contractor from duties and responsibilities required by Contract.
- .14 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Substantial Completion and Final Certificate as defined times of completion are of essence of this contract.

1.6 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures and as noted below.
 - .1 Submit schedules in electronic format, as .pdf and Native file. Format schedule page to single large sheet 910 mm by length required for minimum 2.5 mm text height.
 - .1 Master Plan Bar Chart.
 - .2 Construction Detail schedule Bar Chart.
 - .3 Listing of project activities including milestones and logical connectors, networks (sub-networks) from Project start to end. Sort activities by activity identification number and accompany with descriptions. List early and late start and finish dates together with durations, codes and float.
 - .4 Criticality report listing activities and milestones with zero days' total float used as first sort for ready identification of critical or near critical paths through entire project. List early and late starts and finishes dates, together with durations, codes and float for critical activities.
 - .5 Progress report in early start sequence, listing for each trade, activities due to start, underway, or finished within two months from monthly update date. List activity identification number, description and duration. Provide columns for entry of actual start and finish dates, duration remaining and remarks concerning action required.
 - .2 Submit Project planning, monitoring and control system data as part of initial schedule submission and monthly status reporting in following form.
 - .1 Electronic files in original scheduling software containing schedule and cash flow information, labelled with data date, specific update, and person responsible for update
 - .3 Submit Project Control System to Owner for review; failure to comply with each required submission, may result in progress payment being reduced or withheld
 - .4 Include costs for execution, preparation and reproduction of schedule submittals in bid documents.

Note - withhold \$

*Group:
Holdbacks/Liens

- .5 Submit letter ensuring that schedule has been prepared in co-ordination with major sub-contractors.
- .6 Refer to article "Progress monitoring and reporting" of this specification Section for frequency of Project control system submittals.

1.7 QUALITY ASSURANCE

- .1 Use experienced personnel, fully qualified in planning and scheduling to provide services from start of construction to Final Certificate, including Commissioning.

1.8 PROJECT MEETING

- .1 Meet with Owner within ten (10) working days of Award of Contract date, to establish Work requirements and approach to project construction operations.

1.9 WORK BREAKDOWN STRUCTURE (WBS)

- .1 Prepare construction Work Breakdown Structure (WBS) within ten (10) working days of Award of Contract date. Develop WBS through at least five levels: Project, stage, element, sub-element and work package.

1.10 PROJECT MILESTONES

- .1 Project milestones form targets for both Master Plan and Detail Schedule of CPM construction network system.
 - .1 Phasing
 - .2 Site clearing
 - .3 Utility services
 - .4 Site utilities
 - .5 Demolition
 - .6 Foundation Work
 - .7 Structural framing
 - .8 Exterior wall envelope
 - .9 Roofing
 - .10 Special Subcontractor Work
 - .11 Equipment Installations
 - .12 Equipment start-up
 - .13 Finishes
 - .14 Commissioning period after total completion of mechanical and electrical
 - .15 Landscaping
 - .16 Occupancy inspection
 - .17 Substantial Completion.

1.11 MASTER PLAN

- .1 Structure and base CPM construction networks system on WBS coding in order to ensure consistency throughout Project.

- .2 Prepare comprehensive construction Master Plan (CPM logic diagram) and dependent Cash Flow Projection within twenty (20) days of Owners Letter of Intent to confirm validity or alternates of identified milestones.
 - .1 Master Plan will be used as baseline.
 - .1 Revise baseline as conditions dictate and as required by Owner.
 - .2 Owner will review and return revised baseline within five (5) days.
 - .3 Reconcile revisions to Master Plan and Cash Flow Projections with previous baseline to provide continuous audit trail.
 - .4 Initial and subsequent Master Plans will include:
 - .1 Schedule and cash flow information, clearly labelled with data date, specific update, and person responsible for update.
 - .2 Bar chart identifying coding, activity durations, early/late and start/finish dates, total float, completion as percentile, current status and budget amounts.
 - .3 Network diagram showing coding, activity sequencing (logic), total float, early/late dates, current status and durations.
 - .4 Actual/projected monthly cash flow: expressed annually and monthly and shown in both graphical and numerical form.

1.12 DETAIL SCHEDULE

- .1 Provide detailed project schedule (CPM logic diagram) within thirty (30) working days of Owners Letter of Intent date showing activity sequencing, interdependencies and duration estimates. Format for listings: Table of Contents of the Project Manual. Include listed activities as follows:
 - .1 Shop drawings.
 - .1 Allow a minimum of twenty working days plus four additional working days for sub-consultants for review of shop drawings after submission to Consultant.
 - .2 Include dates when reviewed submittals will be required from Consultant.
 - .2 Samples.
 - .1 Allow the construction schedule for twenty (20) working days for colour selection after all required samples have been submitted.
 - .3 Mock-ups.
 - .1 Allow the construction schedule for five (5) working days for colour selection after all required samples have been submitted.
 - .4 Procurement.
 - .1 Indicate dates for submitting, review time, resubmission time, and last date for meeting fabrication schedule.
 - .2 Include dates when delivery will be required for Owner furnished products.
 - .5 Reviews.
 - .1 Include and identify Consultant field review time periods, subject to revision, for review of any work prior to concealment. The following is a general list: Soils, underground piping and electrical, reinforcing steel, membranes for water, moisture, air and/or vapour retarders, insulation, fire stopping, fire

proofing, rough-in for mechanical and electrical, mechanical prior to insulation, finishes, pre-occupancy.

- .6 Construction.
 - .7 Installation.
 - .8 Service shutdown or closure activity.
 - .9 Site works.
 - .10 Testing.
 - .11 Commissioning and acceptance.
 - .12 Occupancy inspection.
- .2 Detail CPM schedule to cover in detail minimum period of four (4) months beginning from Award of Contract date with each activity duration.
- .1 Show remaining activities for CPM construction network system up to Final Certificate and develop complete detail as project progresses.
 - .2 Update Detail activities completely and comprehensively throughout duration of project monthly
- .3 Relate Detail Schedule activities to basic activities and milestones developed and approved in Master Plan.
- .4 Clearly show sequence and interdependence of construction activities and indicate:
- .1 Start and completion of all items of Work, their major components, and interim milestone completion dates.
 - .2 Activities for procurement, delivery, installation and completion of each major piece of equipment, materials and other supplies, including:
 - .1 Time for submittals, resubmittals and review.
 - .2 Time for fabrication and delivery of manufactured products for Work.
 - .3 Interdependence of procurement and construction activities.
 - .3 Include sufficient detail to assure adequate planning and execution of Work.
- .5 Provide level of detail for project activities such that sequence and interdependency of Contract tasks are demonstrated and allow co-ordination and control of project activities. Show continuous flow from left to right.
- .6 Ensure activities with no float are calculated and clearly indicated on logical CPM construction network system as being, whenever possible, continuous series of activities throughout length of Project to form "Critical Path". Increased number of critical activities is seen as indication of increased risk.
- .7 Insert Change Orders in appropriate and logical location of Detail Schedule. After analysis, clearly state and report to Owner for review effects created by insertion of new Change Order.

1.13 REVIEW OF THE CONSTRUCTION DETAIL SCHEDULE

- .1 Allow five (5) days for review by Owner of proposed construction Detail Schedule.
- .2 Upon receipt of reviewed Detail Schedule make necessary revisions and resubmit within five (5) days.

- .3 Promptly provide additional information to validate practicability of Detail Schedule as required by Owner.
- .4 Submittal of Detail Schedule indicates that it meets Contract requirements and will be executed generally in sequence.

1.14 COMPLIANCE WITH DETAIL SCHEDULE

- .1 Comply with reviewed Detail Schedule.
- .2 Maintain construction progress in compliance with the accepted Construction Schedule. If the progress of Work falls behind, or is delayed, engage additional labour and equipment and work additional hours, to bring the Work back on schedule at no additional cost to the Owner.
- .3 Proceed with significant changes and deviations from scheduled sequence of activities that cause delay, only after written receipt of review by Owner.
- .4 Identify activities that are behind schedule and causing delay. Provide measures to regain slippage.
 - .1 Corrective measures may include:
 - .1 Increase of personnel on site for effected activities or work package.
 - .2 Increase in materials and equipment.
 - .3 Overtime work or additional work shifts.
- .5 Submit to Owner, justification, project schedule data and supporting evidence for approval of extension to Contract Substantial Completion date or interim milestone date when required. Include as part of supporting evidence:
 - .1 Written submission of proof of delay based on revised activity logic, duration and costs, showing time impact analysis illustrating influence of each change or delay relative to approved contract schedule.
 - .2 Prepared schedule indicating how change will be incorporated into the overall logic diagram. Demonstrate perceived impact based on date of occurrence of change and include status of construction at that time.
 - .3 Other supporting evidence requested by Owner.
 - .4 Do not assume approval of Contract extension prior to receipt of written approval from Owner.

Group: Holdbacks/Liens
(both)

1.15 PROGRESS MONITORING AND REPORTING

- .1 On ongoing basis, Detail Schedule on job site must show "Progress to Date". Arrange participation on and off site of subcontractors and suppliers, as, and when necessary, for

purpose of network planning, scheduling, updating and progress monitoring. Review Work with Owner at least once monthly to establish progress on each current activity shown on applicable networks.

- .2 Update and reissue project Work Breakdown Structure and relevant coding structures as project develops and changes.
- .3 Perform Detail Schedule update monthly with status dated (Data Date) on last working day of month. Update to reflect activities completed to date, activities in progress, logic and duration changes.
- .4 Do not automatically update actual start and finish dates by using default mechanisms found in project management software.
- .5 Submit to Owner and Consultant copies of updated Detail Schedule.
- .6 Requirements for monthly progress monitoring and reporting are basis for progress payment request
- ~~.7 Submit monthly written report based on Detail Schedule, showing Work to date performed, comparing Work progress to planned, and presenting current forecasts. Report must summarize progress, defining problem areas and anticipated delays with respect to Work schedule, and critical paths. Explain alternatives for possible schedule recovery to mitigate any potential delay. Include in report:
 - .1 Description of progress made.
 - .2 Pending items and status of: permits, shop drawings, Change Orders, possible time extensions.
 - .3 Status of Contract Substantial Completion date and milestones.
 - .4 Current and anticipated problem areas, potential delays and corrective measures.
 - .5 Review of progress and status of Critical Path activities.~~

Part 2 Products

2.1 NOT USED

- .1 Not used

Monthly report, note the wording and requirements - detailed -

Part 3 Execution

3.1 NOT USED

- .1 Not used

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE REQUIREMENTS

- .1 Coordination
 - .1 Existing property line markers and vertical control points are indicated on the Drawings.
 - .2 Confirm existing site perimeter elevations and clearances prior to setting out the work. Notify the Consultant of any discrepancies to the Contract Documents.
 - .3 Verify figures shown on the drawings, report any discrepancies.
 - .4 Establish reference lines and elevations.
 - .5 Take all precautions to prevent disturbance of official survey monuments or pins marking property lines. Employ registered British Columbia land surveyor to replace if any survey marker is disturbed.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submittals: Provide in accordance with Section 01 33 00 Submittal Procedures.
- .2 Submit required interim and final surveys in both hardcopy and Revit or AutoCAD .dwg format on electronic media.

1.3 QUALITY ASSURANCE

- .1 B.C. Land Surveyor Requirements
 - .1 Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction. Select a reference point unlikely to be affected by on or off-site work related settlements, for reference for the duration of the project.
 - .2 Establish permanent bench marks and record locations, with horizontal and vertical data in Project Record Documents.
 - .3 Report to the Owner when a reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations and retain qualified registered B.C. Land Surveyor to replace control points in accordance with original survey control.
 - .4 Provide submittals as required by this Specification.

Part 2 Products

2.1 NOT USED

- .1 Not used

Part 3 Execution

3.1 PREPARATION

- .1 Setting Out of Work

- .1 Assume full responsibility for and execute complete layout of work to locations, lines and elevations indicated.
- .2 Provide devices needed to lay out and construct work.
- .3 Supply stakes and other survey markers required to lay out the work.
- .4 Establish two (2) permanent bench marks on site and property lines referenced to established bench marks by survey control points.
- .5 Establish permanent bench marks and record locations, with horizontal and vertical data in Project Record Documents.

3.2 B.C. LAND SURVEYOR REQUIREMENTS

- .1 Establish Grid lines and levels, locate and lay out, by instrumentation.
- .2 Stake for grading, fill, topsoil placement and hard landscaping features.
- .3 Establish pipe invert elevations.
- .4 Stake batter boards for foundations and hard landscaping features.
- .5 Establish foundation column locations and floor elevations.
- .6 Establish lines and levels for foundations, slabs, structural, mechanical and electrical work.
- .7 Record locations, with horizontal and vertical data in Project Record Documents.
- .8 Establish Grid lines and levels, locate and lay out, by instrumentation.
- .9 Stake slopes and berms.

*Group:
Survey
(all four)

- .10 Installation and finishing of gymnasium floor slab requirements:
 - .1 Under slab granular fill to be verified by survey be a minimum of concrete slab design thickness below finished slab elevation at any location. Five days prior to concrete pour submit hard copy and electronic AutoCAD .dwg format file to Architect.
 - .11 Verify the following are evenly graded to required grades.
 - .1 Top of subgrade prior to granular fill for asphalt paving.
 - .2 Top of granular fill for asphalt paving, exterior concrete paving and curbs.
 - .3 Top of subsoil for landscape soil surfaces.
 - .4 Provide survey of granular fill below hard surfaces with grid not to exceed 6000 mm x 6000 mm, include perimeter and slope break points, catch basins.
 - .5 Re-survey any areas requiring modification to meet grading requirements.
 - .12 Submit surveys prior to construction of work above referenced items to be surveyed.
 - .13 Structural Steel
 - .1 Verify, with certified steel erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedment's for compliance with requirements.
 - .2 Prepare a certified survey of existing conditions. Include bearing surfaces, anchor rods, bearing plates, and other embedment's showing dimensions, locations, angles, and elevations.

Carry extra survey costs

Group:
**Survey
(both)**

- .3 Report in writing to the Consultant all discrepancies between as constructed measurements and those shown on the Drawings, prior to further Work commencing.
- .14 Submit documents signed by B.C. Land Surveyor certifying that building foundation, slab elevations and locations of completed work are in conformance, or if in non-conformance with Contract Documents highlight those situations.
 - .1 Submit prior to construction of structure above each floor level.
 - .2 Provide documentation in phases as required to suit construction schedule.
- .15 Project completion: Provide As-Built survey of all locations, elevations & grades (no fewer than shown on all drawings) of hard surfaces, services, including inverts, include existing and improvements. Submit hardcopy drawing(s) signed by B.C. Land Surveyor.

END OF SECTION

Carry extra survey costs

Part 1 General

1.1 DEFINITIONS

- .1 Electronic Documents: .pdf format.
- .2 Mock-up: Physical product installation including associated elements to demonstrate actual product(s) final installation conditions, appearance and performance.
- .3 Samples: Physical, actual product component, including colours for selection.
- .4 Shop Drawings: Drawings prepared from all available information including contract documents and field measurements, diagrams, illustrations, schedules, performance charts, brochures and other data provided to illustrate details of a portion of the Work.

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Submit to Consultant submittals listed for review.
 - .1 Submit promptly and in orderly sequence to not cause delay in Work.
 - .2 Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
 - .3 Submit a detailed schedule showing individual products for submission and review of shop drawings and samples. Schedule to correspond with project construction schedule.
 - .4 Include each individual item, date of anticipated submittal, and date upon which review will be required in order to comply with Project Schedule.
- .2 Express dimensions in metric only. Where items or information is not produced in SI, metric units converted values are acceptable.
- .3 Product/trade submissions are to be complete to allow their total review or they will be returned. If permitted by the Consultant to be submitted in sequence, the sequence is to be as follows or they will be returned:
 - .1 Sequential submission will be done only with the subtrade/supplier written acknowledgement sequential submissions may result in rescinding the review of previously reviewed documents.
 - .2 Sequential submission for an item is not considered completed until all required portions of the submission has been made.
 - .3 The following outlines the order of sequential submissions.
 - .1 Materials Schedule.
 - .2 Shop drawings and manufacturer's documentation.
 - .3 Colours samples.
 - .4 Mock-ups.
 - .4 Delete information not applicable to project.
 - .5 Supplement standard information to provide details applicable to project.
 - .6 If required by Specification Section submit drawings stamped and signed by professional engineer registered or licensed in Province of British Columbia. Submit the Design Engineer's signed and sealed BCBC schedules SB and SC. Seal and signature are to be

original, and in colour, on a minimum of one hard copy set of submittal documents to Consultant.

- .7 Review submittals prior to submission to Consultant. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .8 Notify Consultant, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .9 Verify field measurements, conformance to contract documents and Specifications, and that affected adjacent Work are coordinated.
- .10 Where individual Specification sections refer to submittals, the shop drawings are to be prepared from all available information and not rely on a single item such as a schedule. Where conflicts arise, inform the Consultant.
- .11 Contractor's responsibility for errors and omissions in submission is not relieved by review of submittals.
- .12 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by review.
- .13 If upon review by Consultant, no errors or omissions are discovered or if only minor corrections are made, electronic documents will be returned and fabrication and installation of Work may proceed. If submission is rejected, noted document will be returned and resubmission of corrected submission, through same procedure, must be performed before fabrication and installation of Work may proceed.
- .14 The review of submittals is for sole purpose of ascertaining conformance with general concept.
 - .1 This review shall not imply approval of detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.
 - .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.
- .15 After Consultant's review, distribute reviewed submittals.
- .16 Do not proceed with Work affected by submittal until review is complete.
- .17 Keep one reviewed hardcopy of each submission on site.
- .18 Submittals are the property of the Owner.

1.3 COORDINATION

- .1 Refer to individual Specification Sections for additional Section specific requirements and coordinate.

1.4 SCHEDULING

- .1 Schedule, coordinate and submit requirements of this Section in a timely manner consistent with the project schedule.
- .2 Allow 15 Working Days for Consultant's review of each submission. Allow additional 10 Working Days where sub-Consultant review is required.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Product Data
 - .1 Provide manufacturer's printed product literature, Specifications and datasheet and include product characteristics, performance criteria, limitations and colours.
 - .2 Provide Workplace Hazardous Materials Information System (WHMIS) - Material Safety Data Sheets (MSDS).
- .2 Shop Drawings
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of British Columbia.
 - .2 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and Specifications.

not coordinate shop drawings 'design' between trades, remove clause or allow for such \$\$
 - .3 Adjustments made on shop drawings by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work.
 - .4 Make changes in shop drawings as Consultant may require, consistent with Contract Documents. When resubmitting, notify Consultant in writing of revisions other than those requested.
- .3 Accompany submissions with transmittal letter, containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, product data and sample.
 - .5 Other pertinent data.
 - .6 Name and address of:
 - .1 SubContractor.
 - .2 Supplier.
 - .3 Manufacturer.
- .4 Submissions to include:
 - .1 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.

Include in schedule**

- .5 Submittals not identified, stamped, signed, dated by the Contractor, Subtrade and Supplier confirming to their being reviewed will be returned without being examined and considered rejected.
- .6 Specification Section, Article and Paragraph reference.
- .7 Contract Drawing cross references.
- .8 Other pertinent information Including but not limited to:
 - .1 Shipping, handing and delivery.
 - .2 Storage, weather protection, environmental condition.
 - .3 Limitations.
 - .4 Manufacturer's Instructions, data sheets, technical bulletins, product catalogue, installation instructions, product carton installation instructions.
 - .5 Installation.
 - .6 Environmental protection.
 - .7 Cleaning.
 - .8 Operation and maintenance.
- .9 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting and erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.
 - .7 Operating weight.
 - .8 Wiring diagrams.
 - .9 Single line and schematic diagrams.
 - .10 Relationship to adjacent work.
- .10 All text, printed or typed, and graphics must be clear. Repeatedly faxed or copied documents with faded text or graphic quality will not be accepted. Drawings reduced from their original intended print size will not be accepted.

1.6 ELECTRONIC DOCUMENTS

- .1 Hardcopy reproduction of returned electronic submittals is the responsibility of the Contractor.
- .2 **Submit electronic documents for each requirement requested in Specification Sections and as Consultant may reasonably request. Electronic transmissions (email) or electronic media storage devices are acceptable for submittals except as noted below:**
 - .1 Maximum email file size: 9MB.
 - .2 BCBC Schedules.
 - .3 Permit application documents.
 - .4 Payment application support documents requiring signature.

- .5 Engineer sealed shop drawing for Owners, Consultant and Consulting Engineers record purposes.
 - .6 Product samples.
 - .7 Colour samples.
- .3 Submit electronic documents of product data sheets or brochures for requirements requested in Specification Sections and as requested by Consultant where shop drawings will not be prepared due to standardized manufacture of product.
- .4 Submit electronic documents of test reports for requirements requested in Specification Sections and as requested by Consultant.
- .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accordance with specified requirements.
 - .2 Testing must have been within three [3] years of date of contract award for project.
- .5 Submit electronic documents of certificates for requirements requested in Specification Sections and as requested by Consultant.
- .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets Specification requirements.
 - .2 Certificates must be dated after award of project contract complete with project name.
- .6 Submit electronic documents of manufacturer's written instructions for requirements requested in Specification Sections and as requested Consultant.
- .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .7 Submit electronic documents of Manufacturer's Field Reports for requirements requested in Specification Sections and as requested by Consultant.
- .8 Submit electronic documents of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .9 Submit electronic documents of Operation and Maintenance Data for requirements requested in Specification Sections and as requested by Consultant.

1.7 SAMPLES

- .1 Submit for review samples in duplicate as requested in respective Specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Consultant's business address.
- .3 Notify Consultant in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.

- .5 Adjustments made on samples by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work.
- .6 Make changes in samples which Consultant may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.8 CERTIFICATES AND TRANSCRIPTS

- .1 Immediately after award of Contract, submit Workers' Compensation Board status.
- .2 Submit transcription of insurance immediately after award of Contract.
- .3 Submit original of Bonding documents immediately after award of Contract.

1.9 QUALITY ASSURANCE

- .1 Mock-ups
 - .1 Erect mock ups in accordance with Section 01 45 00 Quality Control.

1.10 ENGINEER SEALED DOCUMENTATION AND FIELD REVIEW

- .1 Provide engineered shop drawings and product data required by Specification Sections.
- .2 Documentation requiring an Engineers seal submitted without the seal and signature on the document will be returned without review except:
 - .1 Documentation submitted with a sealed covering letter listing and confirming the Engineer has reviewed the documentation in lieu of actually sealing the documents may be accepted by the Consultant provided:
 - .2 Listed documentation is to be otherwise stamped and signed by the Contractor as being reviewed including that they are complete, Project specific and otherwise comply with submission requirements.
 - .3 If the Consultant accepts the submission, only one copy bearing the review stamps will be returned to the Contractor.
 - .4 The Contractor will have the returned documents copied in quantity as required, have the copies colour stamped and signed by the Engineer and then return one original signed set of documents plus one copy of that set to the Consultant not later than 7 days after return to the Contractor.
- .3 Submit a minimum of one original with colour stamp and signature with additional copies as required with each submission.
- .4 Perform sufficient field reviews to provide a letter of assurance by the Registered Professional Engineer after completion of the Work, that the Work has been installed in general conformance with the sealed shop drawings.
- .5 Approved forms are British Columbia Building Code, Schedule S-B and S-C, Assurance of Professional Field Review and Compliance.

1.11 CLOSEOUT SUBMITTALS

- .1 Refer to Section 01 78 00 Closeout Submittals

1.12 MAINTENANCE MATERIAL SUBMITTALS

- .1 Deliver maintenance materials to Place of Work in location determined by Owner. Provide detailed transmittal describing maintenance materials with delivery. Obtain Owner's or Owner Representative's signature on transmittal. Refer to Section 01 78 00 Closeout Submittals

1.13 WARRANTY

- .1 Manufacturer Warranty
.2 Third Party Guarantee
.3 Special Warranty

Amend clause - submitted electronically

Part 2 Products

2.1 NOT USED

- .1 Not used

Part 3 Execution

3.1 GENERAL

- .1 Maintain log of submittals including document cross reference, anticipated date of submission, date of submission, date of return, status, distribution.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

- .1 Health and safety considerations required to ensure that the Contractor shows due diligence towards health and safety on construction sites.

1.2 REFERENCES

- .1 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
 - .1 Material Safety Data Sheets (MSDS).
- .2 Province of British Columbia.
 - .1 Workers Compensation Act, RSBC 1996 - Updated 2006.
 - .2 Workers Compensation Act RSBC-current edition, including requirements for a "Prime Contractor" as defined by the Act.
 - .3 WorkSafe B.C.

1.3 ADMINISTRATIVE REQUIREMENTS

- .1 Regulatory Requirements.
 - .1 Comply with all applicable laws and regulations of Federal, Provincial and Municipal authorities concerning and including construction safety, environmental regulations, WCB first aid regulations, WHMIS regulations.
 - .2 Comply with the Workers' Compensation Accident Prevention Regulations of British Columbia (latest edition) and provide all necessary safety requirements as prescribed by the regulations for the Work.

1.4 COMPLIANCE REQUIREMENTS

- .1 Comply with Workers Compensation Act, B.C. RSBC 1996 - Updated 2006.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submittals: Provide in accordance with Section 01 33 00 Submittal Procedures.
- .2 Submit site specific Construction Fire Safety Plan (CFSP) and Health and Safety Plan within seven (7) days after date of Letter of Intent and prior to commencement of Work.
 - .1 Construction Fire Safety Plan (CFSP) must include:
 - .1 A report from a professional such as a fire protection engineer or equivalent acceptable to the Fire Chief may be required to address BCFC articles 5.6.1.2., 5.6.1.4. and 5.6.1.6., and form part of the appendix attached to the CFSP.
 - .2 Health and Safety Plan must include:
 - .1 Results of site specific safety hazard assessment.
 - .2 Results of safety and health risk or hazard analysis for site tasks and operation found in Construction Safety Plan.
- .3 Submit Contractor's authorized representative's work site health and safety inspection reports Owner monthly.
- .4 Submit reports or directions issued by Federal and Provincial health and safety inspectors.

*Group: On site conditions
(sub group: safety)

do we need to hire a 3rd party to complete this?

- .5 Submit incident and accident reports in writing to the Owner and all other authorities within two business days.
- .6 Submit WHMIS MSDS - Material Safety Data Sheets.
- .7 Owner will review Contractor's site specific Health and Safety Plan and may provide comments to Contractor within five (5) days after receipt of plan. Revise plan as appropriate and resubmit plan within five (5) days after receipt of comments.
- .8 Owners review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .9 On site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

1.6 FILING OF NOTICE

- .1 File Notice of Project with Provincial authorities prior to beginning of Work.

1.7 SAFETY ASSESSMENT

- .1 Perform site specific safety hazard assessment related to project.

1.8 MEETINGS

- .1 Schedule and administer Health and Safety meeting prior to commencement of Work.

1.9 REGULATORY REQUIREMENTS

- .1 Do Work in accordance with Section 01 41 00 Regulatory Requirements.

1.10 GENERAL REQUIREMENTS

- .1 Develop written site specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
- .2 The Owner may respond in writing, where deficiencies or concerns are noted and may request re submission with correction of deficiencies or concerns.

Group: On
site
conditions
(sub group:
safety)

1.11 RESPONSIBILITY

- .1 Be responsible for health and safety of persons at Place of Work, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site specific Health and Safety Plan.
- .3 The Contractor is formally designated as "Prime Contractor" and shall meet the requirement as set out in Section 118 of the Worker Compensation Act and Part 20.3 of OHS Regulation.

Group:
Contractor
responsibilities
(both)

- .4 The Contractor is the "Prime Contractor", as described by the Workers Compensation Act, is responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .5 The Contractor is to be aware that the Owner has a policy which stipulates that any or all Contractors working "independently" shall comply with all requirements of the WorkSafeBC Regulations and Safety Program as well as payment in full of all assessments required by the WorkSafeBC assessment department. The successful Contractor will be required to have satisfied WorkSafeBC Assessment Remittance Requirements. Forward documentation confirming current status and coverage, such coverage must include not only employees but also management and principals if they will be physically involved in the project.
- .6 Should any unforeseen or peculiar safety related factor, hazard, or condition become evident during performance of Work, and follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Authority Having Jurisdiction. Advise Owner verbally and in writing.
- .7 Verbally report accidents or incidents, that involve Contractor's equipment and another person, immediately to the Owner, facility operators and other authorities. Follow up with a written report to the Owner within two business days.

1.12 UNFORESEEN HAZARDS

- .1 When unforeseen or peculiar safety related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Provincial Acts and Regulations having jurisdiction and advise Owner verbally and in writing.

1.13 HEALTH AND SAFETY COORDINATOR

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Co coordinator.
- .2 Coordinate work activities with consultants, contractor(s), Owner, and facility user groups.
- .3 In conjunction with the Owners representative inform occupants, building operators, all user groups including rentals, about site construction activities.
- .4 Health and Safety Coordinator must:
 - .1 Have site related working experience specific to activities associated with this project.
 - .2 Have working knowledge of occupational safety and health regulations.
 - .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
 - .4 Be responsible for implementing, enforcing daily and monitoring site specific Contractor's Health and Safety Plan.
 - .5 Be on site during execution of Work.

*Group: On site conditions (sub group: safety)

- .6 Contact WorkSafe BC and ask for a representative to attend initial project start up meeting with Owner. Coordinate work with WorkSafe BC as required.
- .7 Ensure the "Notice of Projects" (NOP), as applicable have been submitted to the Workers' Compensation Board (WCB).

1.14 POSTING OF DOCUMENTS

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Provincial Acts and Regulations having jurisdiction, and in consultation with Owner.
- .2 Install project information sign(s) as necessary at all available access points to the construction site, in order to control access. Ensure sign is in a visible location and notes the following information:
 - .1 Name and contact number for Contractors site representative.
 - .2 Location or means of receiving First Aid assistance.
 - .3 General site safety rules, such as wearing hard hats and safety shoes.
 - .4 Post a drawing at the entry point(s) to the site showing project layout, First Aid location, emergency procedures and the evacuation marshalling station (Muster Point).
 - .5 Provide signage prohibiting access to areas where work is in progress.
 - .6 Provide re-directional signage indicating alternate routes of travel for building occupants.
 - .7 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province Having Jurisdiction, and in consultation with Consultant.
- .8 Remove signage and make good at completion of project or as directed by the Consultant.
- .9 Do not display other signage, without prior approval.

Group: On site conditions

1.15 SAFETY ACTIVITIES

- .1 Perform site specific safety hazard assessment related to project.
- .2 Schedule and administer Health and Safety meeting with each person attending the site at their initial arrival to the site.
- .3 Conduct regular Site Safety Meeting with all personnel on site and issue minutes accordingly.
- .4 Perform Work in accordance with Section 01 41 00 Regulatory Requirements and this Section.
- .5 Take precautions to prevent the overloading of any part of the structure, false work, formwork or scaffolding during the progress of the Work, and make good any damage and any claims resulting from such overloading at no expense to Owner or Consultant.
- .6 Do not cut, drill or sleeve load bearing members without the written approval of the Consultant.

Group: On site conditions (sub group: safety)

- .7 All persons employed on the Work are required to wear all Personal Protective Equipment (PPE) safety equipment as required by Work Safe BC, including hard hats and safety boots. Provide spare hard hats for visitors and refuse admission to the premises to those refusing to wear all safety items.

1.16 CORRECTION OF NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by Authority Having Jurisdiction or by Owner.
- .2 Provide Owner with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Owner may stop Work if non-compliance of health and safety regulations is not corrected.

1.17 BLASTING

- .1 Blasting or other use of explosives is not permitted.

1.18 WORK STOPPAGE

- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

1.19 RESTRICTIONS

- .1 Don't take photos of people, other than those directly involved in Construction activities.

1.20 CONSTRUCTION TRAFFIC

- .1 Refer to Section 01 55 26 Traffic Control.

1.21 CONSTRUCTION PERSONNEL AND IDENTIFICATION

- .1 Construction Personnel and Identification.
 - .1 Post signs directing all persons entering the site to obtain and wear badges.
 - .2 Allow entrance only to authorized persons with proper identification.
- .2 Access to Owner occupied building areas and Owner occupied site areas requires:
 - .1 Scheduling of tentative dates in project schedule and during site meetings.
 - .2 Reporting presence to Owner on each occasion.
 - .3 Wearing and displaying of a Contractors issued identification badge at all times.
 - .4 Construction personnel not conforming to this requirement may be requested to leave the property immediately.
- .3 Occupant Safety Post Occupancy.
 - .1 Additional measures are to be undertaken as required to ensure safety on Owners property when construction activities take place during Owners occupied hours.
 - .2 Construction Personnel are required to report their presence to the facility office at each visit and to wear a identification badge while on Owners premises.
- .4 Coordinate all construction activities with the Owners designate.

- .5 Any work allowed during occupied hours is solely at the Owner's discretion and must be approved by the Owners Representative.
- .6 When work is carried out during an afternoon shift, complete required work and ensure all systems are operational for the next morning.
- .7 Ensure tools and equipment is secured from occupants and the public. Do not leave tools and equipment energized if left unattended.
- .8 Maintain an experienced full time site foreman, who is a sole contact for the School District and who is responsible for co-ordination of all work.
- .9 Maintain supervision over employees. Ensure Owners staff, occupants and the public are not subject to verbal or physical abuse.

1.22 STUDENT AND STAFF SAFETY

- .1 In addition to the requirements above and other requirements of this and other Sections additional measures are to be undertaken to ensure safety on Regional Secondary School property when construction activities take place during student and staff occupied hours.
 - .1 When in areas of the School, other than the Place of Work, Workers are required to report their presence to the Regional Secondary School Security office at each visit and to wear a Regional Secondary School authorized visitor identification badge.
 - .2 Coordinate all construction activities with the Regional Secondary School project manager.
 - .3 Any work allowed during school hours is solely at the Regional Secondary School's discretion and must be approved by the Regional Secondary School project manager.
 - .4 When work is carried out during an afternoon shift, complete required work and ensure all systems are operational for the next morning.
 - .5 Maintain an experienced full-time site foreman, who is a sole contact for the Regional Secondary School and who is responsible for co-ordination of all work.
- .2 Health and safety provisions for adjacent occupied spaces.
 - .1 Ensure tools and equipment are secure from students and the public. Do not leave tools and equipment energized if left unattended.
 - .2 Maintain supervision over employees. Ensure Regional Secondary School staff, students and the public are not subject to verbal or physical abuse.
- .3 Regional Secondary School hours.
 - .1 The Regional Secondary School's operates Monday to Friday from 7:30 to 15:30
 - .2 Coordinate delivery of materials to times acceptable to the Regional Secondary School project manager.
- .4 School Security System.
 - .1 Be responsible for security of the building when working within the building outside of Regional Secondary School occupied hours.
 - .2 Be responsible for the one hundred dollar (\$100.00) call out charge for each false alarm caused by the Contractor.

*Group: On site conditions (sub group: security) (both of them)

Group: On site conditions (sub group: safety)
1.23

.5

Construction Fire Safety Plan (CFSP): Discuss and obtain approval of local Fire Department of a new emergency evacuation plan when renovations alter existing exit routes. Post approved evacuation plan before beginning work.

Exclude or carry CA to allow for temporary and permanent FIRE SAFETY PLAN

Group: On site conditions (sub group: safety)
1.24

CODE OF CONDUCT

- .1 Establish and post a Code of Conduct for all workers on-site with respect to contact with facility occupants and use of existing facilities. The Code of Conduct shall include the following provisions:
 - .1 All facility occupants are to be treated with respect and courtesy.
 - .2 All facility occupants are not to be subjected to foul or disrespectful language.
 - .3 Existing building facilities, including washrooms and telephones, are to be prohibited from use by workers.
 - .4 Owner's property and personal possessions of facility occupants are to be respected by all workers.
 - .5 The Owner has a no smoking policy anywhere on the property.
- .2 All construction personnel must conform to this policy.
- .3 Enforce construction personnel compliance to this policy.

CONSTRUCTION SAFETY PLAN

- .1 Develop written site specific Health and Safety Plan based on hazard assessment prior to commencing any site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
- .2 Where deficiencies or concerns are noted re submit with correction of deficiencies or concerns.
- .3 The Safety Program, at a minimum, meet the requirements of the Workers' Compensation Board of B.C., Occupational Safety and Health, and a company safety manual containing a combination of the following types of information, as applicable:
 - .1 General Safety Policies - Corporate statements.
 - .2 Hazard Assessment Procedures - Checklist on hazards.
 - .3 Safe Work Practices & Procedures - Instructions on safe work.
 - .4 Rules & Regulations - Company rules & government regulations.
 - .5 Personal Protective Equipment Information - Policies & instructions.
 - .6 Maintenance Policies & Information - Policies on maintenance equipment.
 - .7 Training Policies - Policy statements on training regulations.
 - .8 Inspection Policies & Information - Policy statements on regular jobsite inspection.
 - .9 Incident Investigation Policies & Information - Cause & prevention of specific incidents.
 - .10 Emergency Provisions - First aid, reporting and emergency situations.
 - .11 Reports & Management Information - Summary reporting.

1.25 NOISE CONTROL

- .1 Only perform noise and vibration generating work within or adjacent to Owner occupied areas:
- .1 At times permitted by the municipal by-laws and municipal authority.
- .2 **Correct any noise or vibration found to be objectionable to the Owner and to the satisfaction of the Authority Having Jurisdiction and/or to the Owner.**
- .3 **Use noise abatement measures listed below to minimize noise levels.**
- .1 **Utilize effective intake and exhaust mufflers on internal combustion engines and compressors.**
- .2 **Line or cover hoppers, storage bins and chutes near adjacent properties with sound deadening material.**
- .3 **Route construction equipment and vehicles so as to cause the minimum disturbances to the adjacent properties.**
- .4 **Locate stationary equipment to minimize noise impact on the public and adjacent properties.**
- .4 **Be responsible for being aware of the municipal authorities Noise Bylaw and ensuring that all personnel conform to these regulations.**

1.26 FIRE PROTECTION

- .1 Develop and implement a fire prevention program which is to include:
- .1 Fire prevention practices.
- .2 Workers' training on use of fire extinguishers, etc.
- .3 Means of alerting other workers of the emergencies.
- .4 Provide portable fire extinguishers on the site.
- .5 Provide fire truck access to site and facility equipment and connections.
- .2 **Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.**
- .3 Take all necessary precautions to eliminate fire hazards and make periodic inspections to ensure proper preventative measures are being complied with by all personnel working on the site.
- .4 Enforce fire protection methods, good housekeeping, and adherence to Authority Having Jurisdiction and Underwriters' fire regulations and provide ULC approved fire extinguishers, and other fire fighting services and equipment.
- .5 Maintain clear emergency exit paths for personnel at all times.
- .6 Store paint and/or oil covered rags in covered metal containers.
- .7 Comply with Provincial and Municipal fire safety requirements during the period of construction and any other regulations pertaining to fire protection during construction work.

- Group: On site conditions (sub group: safety)**
- .8 Provide additional fire safety measures considered necessary to protect existing facilities from fire where torch cutting and electrical welding are required by the work. Provide a suitable fire extinguisher adjacent to all welding operations.
 - .9 Fires are not permitted on site and take precautions at all times to prevent fire by spontaneous combustion. "No Smoking" signs shall be erected where volatile fumes or liquids are present.

1.27 FIRE PLAN

*Group: On site conditions (sub group: safety)

3rd party costs?

*Group: On site conditions (sub group: safety)

Exclude or carry costs to allow for such

Group: On site conditions (sub group: safety)

- .1 Submit written site specific Fire Plan based on hazard assessment prior to commencing any site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Fire Plan must address project specifications.
 - .1 Submit separate Construction Fire Safety Plan (CFSP) for construction site in accordance with local Authorities Having Jurisdiction.
 - .2 Include fire prevention practices; provision of fire extinguishers; workers' training on use of fire extinguishers, etc.; and means of alerting other workers of the emergencies.
 - .3 After Owner occupancy provide a 24 hour fire watch if the fire alarm or sprinkler systems are temporarily shut down or non-operational during the warranty period.
 - .4 Where deficiencies or concerns are noted re-submit with correction of deficiencies or concerns.
- .2 Provide a Fire Plan indicating exiting provisions as related to construction area(s) and Owner occupied area(s).
- .1 Construction Safety Plans to be acceptable to the Authority Having Jurisdiction, Fire Marshall, Contractors Insurance provider, Owners Insurance provider and in accordance with the British Columbia Fire Code.
 - .2 Coordinate fire safety provisions with safety and security aspects.
 - .3 Keep all required paths of exit travel clear of debris, lit in accordance to the applicable Codes and clearly signed.
 - .4 Update Construction Safety Plans as required.

1.28 HAZARDOUS MATERIAL MANAGEMENT

Group: On site conditions (sub group: safety) (both of them)

- .1 Be responsible for the development and implementation of a hazardous material management program dealing with:
 - .1 Control of spills of hazardous materials.
 - .2 Storage and identification of hazardous wastes.
 - .3 Disposal procedures.
- .2 Workers' training on emergency procedures.
- .3 Provide containers to store hazardous wastes generated on site.
- .4 Store flammable and combustible liquids in approved containers located in a safe, ventilated, temporary construction facility, do not store within permanent facility during construction. Keep quantities to a minimum.
- .5 Store combustible liquids and flammable liquids in conformance with the BC Fire Code.

Group: On

- site conditions** .6 Have appropriate emergency spill response equipment available near the storage area, including personal protective equipment.
- (sub group: safety)** .7 Report spills or accidents immediately to Authority Having Jurisdiction. Submit a written spill report to Authority Having Jurisdiction within 24 hours of incident.
- (both of them)** .8 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.

Part 2 Products

2.1 NOT USED

- .1 Not used

Part 3 Execution

3.1 NOT USED

- .1 Not used

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Identify and manage construction related airborne contaminants in compliance with all municipal, provincial and federal Acts and regulations, including Work Safe BC legislation and regulations.
- .2 The Project is to minimize the amount of airborne contaminants where possible. Where contaminants are unavoidable, implement control measures to protect the health and safety of construction personnel and to prevent residual building contaminants from affecting the indoor air quality over the lifetime of the building.

1.2 REFERENCES

- .1 Sheet Metal and Air Conditioning National Contractors Association IAQ Guideline for Occupied Buildings under Construction 2nd edition ANSI/SMACNA 008•2008

1.3 ENVIRONMENTAL REGULATORY REQUIREMENTS

- .1 Comply with Federal, Provincial and Municipal regulations as applicable.
- .2 Comply with Material Safety Data Sheets for individual products.
- .3 Comply with VOC limits and restrictions of chemicals as required by:
 - .1 Specification sections.
 - .2 SCAQMD.
 - .3 Other standards referenced.

1.4 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-Construction Meetings
 - .1 Conduct a Construction IAQ meeting at project start-up and as required throughout the duration of the project to ensure that IAQ Management Plan objectives are being met.
 - .2 Include subcontractors affected by the Construction IAQ Management Plan.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submittals: Provide in accordance with Section 01 33 00 - Submittal Procedures.

- .2 Product Data
 - .1 Shop Drawings.
 - .2 Samples.

- .3 Test and Evaluation Reports.

- .3 Environmental Protection Plan

- .1 Provide written documentation of methods used.
- .2 Provide plan for protection, containment and remediation of material spills including fuels, oils, coolant, chemicals, coatings, adhesives, hazardous materials both liquids and dry products.

*Group: On site conditions
(sub group: safety)

*Group: On site conditions
(sub group: safety)
(both of them)

- .3 Protect interior environments and materials from contamination by environmentally harmful materials including oils, fuels, and chemicals.
- .4 Clean up methods to conform to environmental regulations for reporting, clean-up, and disposal of contaminated materials.
- .4 Indoor Air Quality Management Plan
- .5 **Construction Indoor Air Quality Management Plan: During Construction - prepare and implement indoor air management plan, construction air filters as specified, meet or exceed the recommended control measures of the Sheet Metal and Air Conditioning National Contractors Association IAQ Guideline for Occupied Buildings under Construction 2nd edition ANSI/SMACNA 008•2008**
 - .1 Submit a Construction Indoor Air Management Plan describing in detail the methods and materials to be used to minimize contamination within the building during construction and prior to occupancy to the most stringent requirements defined by SMACNA IAQ Guidelines and within the Specification.
 - .2 Identify potential airborne contaminants.
 - .3 Identification of available applicable control measures including:
 - .1 HVAC Protection: Shut down the return side of the HVAC system, isolate from the surrounding environment.
 - .2 Source Control: Isolate the use of noxious substances, where their use is unavoidable.
 - .3 Pathway Interruption: Isolate areas of work to prevent contamination of clean or occupied spaces.
 - .4 Housekeeping: Institute cleaning on-going and prior to occupancy. Protect building materials from moisture and dirt, clean coils, filters and fans before start up.
 - .5 Scheduling: Plan construction sequence to reduce absorption of VOCs by porous materials.
 - .6 Control and removal of moisture.
 - .7 Control Indoor Air Quality Management Plan during construction and prior to Occupancy:
 - .1 Accumulation of emissions of VOC's by ventilation including low VOC materials.
 - .2 Moisture and standing water by providing weather protection and within 12 hours of occurring providing drainage, pumping, removal, forced evaporative drying or alternative measures to remove standing water and dry wetted material.
 - .3 Remove interior fibrous or cellulose containing materials, including wood products, gypsum board, ceiling tiles and batt insulation, which have been subject to wetting by water and not completely dried within 24 hours and any material which shows mould growth.
 - .4 Accumulation or contamination of odours, foreign material or construction debris on permanent components.

*Group: On site conditions (temporary equipment)

Temporary heating (CA or carry extra funds)?

Group: On site conditions (temporary equipment)

Extra cleaning costs required

Group: On site conditions (temporary equipment)

- .5 Entry of gas from plumbing lines by capping or sealing unfinished lines and filling traps.
- 8 No smoking is permitted on the site during construction.
- 9 Construction heating equipment: electric or with combustion gas vented to the exterior and combustion air ducted to the appliance. Refer to Section 01 52 00 - Construction Facilities.
- .10 Schedule work and store materials to prevent dry, moisture absorbing products from becoming wet or being exposed to high moisture conditions.
- .11 Prevent or remedy conditions which may lead to growth of moulds during or after construction.
- .12 Schedule deliveries and work to weather seal the exterior envelope prior to commencing interior work with materials that may absorb moisture and result in the growth of moulds.
- .13 Immediately remove any mould contaminated materials.
- .14 Do not store VOC containing materials within the building.
- .15 Prevent contamination of HVAC equipment, grilles, diffusers and ductwork with temporary seals/covers maintained daily. Provide building exhaust to maintain negative building pressure.
- .16 Actively ventilate the building with 1.5 air changes per hour during and 48 hours after odour causing activities:
 - .1 Painting.
 - .2 Using sealants and adhesives.
 - .3 Carpet, sheet and other resilient flooring.
 - .4 Cleaning.
- 5 Other construction activities as may be identified.
- .17 Prior to commencement of installation of interior finishes (paint, T-bar ceilings, flooring) thoroughly clean floors, walls including windows, horizontal ledges including structure, service lines, ductwork and other surfaces to remove construction debris, dust dirt and other foreign materials. Use vacuums with fine particulate filters or exterior exhaust and washing with damp cloths.
- .18 After the installation of interior finishes begins limit exterior access points and at each access point provide mats, gratings or other approved means to prevent dirt and other foreign material from being carried into the building. Clean access points daily.
- .19 After installation of interior finishes begins take measures prevent dust generation within the building with subsequent contamination of other areas and surfaces.
 - .1 Relocate dust generating activities out of the building.
 - .2 Provide mechanical filtration to collect dust generated.
 - .3 Immediately cease dust generating activities and wet clean contaminated areas should they occur.
- .4 Refer to Section 01 74 23 - Final Cleaning for final cleaning and use of low VOC cleaning products.

Part 2 Products

2.1 MATERIALS

- .1 All products to be in compliance with environmental regulatory requirements noted with low VOC's and not contain restricted chemicals.

2.2 EQUIPMENT

- .1 Do not operate equipment which may or will contaminate materials and spaces.
- .2 Type and quality of equipment is to be consistent with air quality objectives of the project.

Part 3 Execution

3.1 VERIFICATION OF CONDITIONS

*Group:
Inspections

- .1 Review with Owner and Consultant current and anticipated conditions and actions being taken at each site meeting.

3.2 FIELD QUALITY CONTROL

- .1 Provide all testing required for verification of indoor air quality.
- .2 Provide all testing of construction materials required to substantiate material in compliance to the Specification.

3.3 DUST CONTROL DURING CONSTRUCTION

- .1 These procedures are to be followed for any work procedure that may result in the creation of airborne concrete dust. Examples of work that can create airborne concrete dust are: cutting, drilling, grinding, or coring.
- .2 Airborne concrete dust must be controlled and cannot enter any areas of an occupied building.
- .3 Methods of carrying out the work are to be consistent with the air quality objective of the project.
- .4 Any of the following methods are acceptable for controlling concrete dust in the workplace:
 - .1 Dry Method
 - .1 Isolate work area if the material is to be cut, ground, drilled or otherwise subjected to a work procedure that may create airborne dust.
 - .2 Shut off the air handling system in the work area.
 - .3 Seal all doors, windows, ventilation ducts and all other openings with polyethylene sheeting and removable tape.
 - .4 Allow only one access way into the work area and, if possible, it should lead directly to the outside or an unoccupied area of the building. Cover opening with a curtained flap constructed of polyethylene sheeting.
 - .5 Cover and seal all walls, and furniture or fixtures that will remain in the work area.

**Group:
Cleaning
and Waste
Management**

- .6 Install a HEPA filtered negative air pressure unit and duct the exhaust to the outside of the building. Install sufficient units to ensure the work area remains under a negative pressure relative to the rest of the building.
 - .7 When doing Work that will create dust, wear appropriate personal protective equipment including: rubber boots, disposable covers made of Tyvek or other non-permeable material and appropriate respiratory protection.
 - .8 Determine style of respirator that is required by the expected levels of dust in the work area.
- .5 Prior to leaving the work area, wash to remove dust from exposed skin, exterior of the respirator and their rubber boots. Leave disposable coveralls in the work area, and place in a plastic bag for disposal.**
- .6 At the completion of the work, allow time for the airborne dust to settle on the plastic sheeting.
 - .7 Carefully remove all of the plastic sheeting, avoiding creation of airborne dust. If required, mist the plastic sheeting with water prior to rolling it up for disposal.
 - .8 Cleanup any dust with HEPA filtered vacuum or by damp wiping.
 - .9 Local Exhaust Method
 - .1 Use a HEPA filtered local exhaust system to control the dust at the source during dry grinding.
 - .2 Attach HEPA filtered vacuum to a dust port on the tool.
 - .3 Shut off air handling system for the work area.
 - .4 Seal the air vents with polyethylene sheeting and cover the door with polyethylene sheeting.
 - .5 Assign a worker to watch the work to ensure the dust is being controlled. If this worker sees any dust from the tool or HEPA Vacuum, immediately stop the work. Do not resume Work until the equipment is functioning properly.
 - .6 Workers must wear disposable coveralls or clothing as specified above that can be washed off before the worker leaves the work area.
 - .7 Wear appropriate respiratory protection and safety eyewear.
 - .8 Empty vacuum and replace filters outside of the building. Test vacuums outside the building after servicing, prior to being used on the job.
 - .10 Wet Method
 - .1 Use water or other fluids to prevent elevated levels of airborne concrete dust.
 - .2 Ensure equipment is compatible with water or other fluid to control the dust.
 - .3 Protect electrical equipment and extension cords with GFCI circuit protection for this method.
 - .4 Control wetting fluid to prevent runoff into other areas of the building and the drainage system. Use dyking and/or filters to protect the drains from concrete dust.
 - .5 Workers must wear disposable coveralls or clothing as specified above that can be washed off before the worker leaves the work area.
 - .6 Wear appropriate respiratory protection and safety eyewear.

- .7 Clean up wet concrete slurry before it is allowed to dry. Place in plastic bags for disposal. If slurry dries, isolate work area and use procedures outlined in the Dry method of this procedure to cleanup all concrete dust.

END OF SECTION

Part 1 General

1.1 REGULATIONS

- .1 Execute the work in accordance with the following requirements:
- .1 British Columbia Building Code, 2018.
 - .2 British Columbia Fire Code, 2018.
 - .3 All other laws, codes, ordinances, regulations, and orders that govern the Work.
 - .4 In conformance with the Authorities Having Jurisdiction.
- .2 In any case of conflict or discrepancy, apply the more stringent regulations.
- .3 Give the required notices and comply with the laws, ordinances, rules, regulations or codes which are or become in force during the performance of the Work and which relate to the Work, to the preservation of the public health and to construction safety.
- .4 Determine detailed requirements of Authorities Having Jurisdiction.
- .5 Pay construction damage deposits levied by municipality in connection with the issuance of a building permit.
- .6 If knowingly performing or allowing work to be performed that is contrary to any laws, ordinances, rules, regulations or codes, be responsible for and correct the violations thereof; and bear the costs, expenses and damages attributable to the failure to comply with the provisions of such laws, ordinances, rules, regulations or codes.

1.2 SUBMITTALS

- .1 Submit all certificates of inspection provided by Authorities Having Jurisdiction to the Consultant during construction and upon completion of the work
- .2 Submit all Professional Engineer certifications of design and letters of assurance as specified in the respective specification sections to the Consultant during construction and upon completion of the work.
- .3 Submit to local Municipality requirements, submit Traffic Management Plan, Construction Management Plan, Contractors Erosion and Sediment Control Plan, acknowledgment of and adherence to environmental protection Bylaw.

1.3 FIRES

- .1 Fires and burning of rubbish on site are not permitted.
- .2 Provide supervision, attendance and fire protection measure.

1.4 PERSONNEL SMOKING

- .1 No smoking is allowed on site.

Part 2 Products

2.1 NOT USED

- .1 Not used

Part 3 Execution

3.1 NOT USED

- .1 Not used

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2 - 2008 – Stipulated Price Contract.

1.2 QUALITY OF WORK

- .1 The Owners Inspection, Testing, and Consultants Field Reviews do not relieve the Contractor of the responsibility to provide materials and perform work in accordance with Contract Documents.
- .2 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Consultant if required Work is such as to make it impractical to produce required results.
- .3 Do not employ anyone unskilled in their required duties. Consultant reserves right to require dismissal from site any workers deemed incompetent or careless.
- .4 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Consultant, whose decision is final.
- .5 Comply with applicable procedures and standards of the certification sponsoring association.

review

*Group: Holdbacks/ Liens

- .1 Perform services under direction of supervisor qualified under certification requirements of sponsoring association. Provide adequate workforce training.
- .6 Provide material, labour and necessary testing for all specified materials, systems, or assemblies.
- .7 Review the materials supplied for conformance to the project specifications.
- .8 Review workmanship in the fabrication shop. Determine it conforms to the Contract Documents
- .9 Review the field erection for conformance with the Contract Documents.

1.3 REVIEW AND INSPECTION

- .1 Refer to CCDC 2 - 2008, GC 2.3
- .2 Allow Owner, Authorities Having Jurisdiction, Testing Agencies and Consultants access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .3 Give timely notice requesting review if Work is designated for special tests, reviews by Consultant, or law of Place of Work.
- .4 If Contractor covers or permits to be covered Work that has been designated for special tests, reviews or approvals before such is made, uncover such Work, have reviews or tests satisfactorily completed and make good such Work at own expense.

Group:
Owner
responsibilities (for both)

- .5 Owner will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such Work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Owner shall pay cost of examination and replacement.

1.4 INDEPENDENT INSPECTION AGENCIES

- .1 Independent Inspection/Testing Agencies will be engaged by Owner for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Owner.
- .2 Provide equipment required for executing inspection and testing by appointed agencies.
- .3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .4 The independent firm will perform tests and other services specified in individual specification sections and as required by the Consultant and/or Owner.
- .5 Testing and source quality control may occur on or off the project site. Perform off-site testing as required by the Owner.
- .6 Reports will be submitted by the independent firm to the Consultant, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
- .7 Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labour as requested.
 - .1 Notify Consultant and independent firm 48 hours prior to expected time for operations requiring services.
 - .2 Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
- .8 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Consultant at no cost to the Owner. Pay costs for retesting and re-inspection.

1.5 ACCESS TO WORK

- .1 Allow inspection/testing agencies access to Work.
- .2 Cooperate to provide reasonable facilities for such access.

1.6 PROCEDURES

- .1 Notify appropriate agency and Consultant minimum of 72 hours in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.
- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.7 REJECTED WORK

- .1 Refer to CCDC 2.
- .2 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Consultant as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- review**
- *Group: Holdbacks/ Liens (all of them)**
- .3 Make good other Contractor's work damaged by such removals or replacements promptly.
- .4 If in the opinion of Consultant it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner may deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which shall be determined by Consultant.
- .5 No reviews or partial payments will be authorized for deficiency items between Substantial Performance and Total Performance unless unusual circumstances occur beyond the Contractor's control.
- review**
- .6 Upon receipt of the Contractor's statement of completion and request for Final Payment, the Consultant will provide one review for each trade as appropriate. Where any work is found to be incomplete and that subsequently requires re-review for reasons within the Contractor's control, the work will be re-reviewed where required. At the Owner's discretion, the Contractor will be charged for the additional time and travel required for the Consultant to provide re-review.

1.8 REPORTS

- .1 Submit one (1) PDF file of inspection and test reports to Consultant.
- .2 Provide copies to Owner and Subcontractor of work being inspected or tested.

1.9 MOCK-UPS

- .1 Prepare mock-ups for Work specifically requested in Contract Documents. Include for Work of Sections required to provide mock-ups.
- .2 Complete mock-ups on site a minimum of 15 working days in advance of material ordering deadline or actual related construction activity, whichever is earlier and call Consultant for field review.
- .3 Allow 48 hours for review of mock-ups by Consultant before proceeding with work.
- Exclude all mock ups, CA to the contract**
- .4 Failure to prepare mock ups in ample time is not considered sufficient reason for an extension of Contract Time or change of specified product and no claim for extension by reason of such default will be allowed.
- .5 Prior to field review provide documentation supporting materials used in mock-ups conforms to Specifications, approved shop drawings and samples. Provide product labels and manufacturer's instructions.
- .6 Construct in locations acceptable to Consultant and as specified in specific Section.

- .7 Remove mock-ups not incorporated into the work at conclusion of Work or when acceptable to Consultant.
- .8 Construct full size mock-ups on the site in locations acceptable to the Consultant. Make changes to the mock-ups as directed by the Consultant. Mock-ups, once accepted, may be used in the finished Work and will serve as a standard against which other Work will be judged.
- .9 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.
 - .1 Coordinate with Consultant where parameters notes are not identified

1.10 EQUIPMENT AND SYSTEMS

- .1 Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.

1.11 COMPLEMENTARY DOCUMENTS

- .1 Drawings, Specifications, and Schedules are complementary each to the other and what is called for by one to be binding as if called for by all. Should any discrepancy appear between documents, that leaves doubt as to the intent or meaning, abide by Precedence of Documents article below or obtain direction from the Consultant.
- .2 Drawings indicate general location and route of conduit and wire/conductors. Install conduit or wiring/conductors and plumbing piping not shown or indicated diagrammatically in schematic or riser diagrams to provide an operational assembly or system.
- .3 Install components to physically conserve headroom, to minimize furring spaces, or obstructions. If care is not exercised to meet these requirements, the Consultant may direct the Contractor to remove and replace or reconfigure the work at the cost of the Contractor.
- .4 Locate devices with primary regard for convenience of operation and usage.
- .5 Examine all discipline Drawings, Specifications, and Schedules and related Work to ensure that Work can be satisfactorily executed. Conflicts or additional work beyond work described to be brought to attention of Consultant.

1.12 COORDINATION AND PROJECT CONDITIONS

- .1 Contractors submitting Bid for the Work shall first examine the site and premises and all conditions thereon and therein as noted in Part 1.1 - Instructions to Bidders. Bidders shall take into consideration such conditions as are reasonably evident that may affect the Work under this Contract. Failure to do so will in no way relieve the Contractor from the necessity of furnishing any products or performing any work that may be required to complete the Work in accordance with the Contract Documents without additional cost to the Owner.
- .2 Coordinate scheduling, submittals, and Work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

- .3 Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- .4 Coordinate space requirements, supports, and installation of mechanical and electrical work that is indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- .5 In finished areas conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- .6 Coordinate completion and clean up of Work of separate sections in preparation for Substantial Completion.
- .7 After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.13 QUALITY ASSURANCE - CONTROL OF INSTALLATION

- .1 Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.
- .2 Comply with manufacturers' written instructions, including each step in sequence.
- .3 Should manufacturers' written instructions conflict with Contract Documents, request clarification from Consultant before proceeding.
- .4 Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- .5 Perform Work by persons qualified to produce required and specified quality.
- .6 Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- .7 Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.14 TOLERANCES

- .1 Monitor fabrication and installation tolerance control of Products to produce acceptable Work. Do not permit tolerances to accumulate.
- .2 Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Consultant before proceeding.
- .3 Adjust Products to appropriate dimensions; position before securing Products in place.

Part 2 Products

2.1 NOT USED

.1 Not used

Part 3 Execution

3.1 NOT USED

.1 Not used

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Canadian Construction Documents Committee (CCDC).
 - .1 CCDC 2 - 2008, Stipulated Price Contract.
- .2 Where the term Standard is referred to in this section it means the documents specified in this clause.
- .3 Conform quality control of metal fabrication to the requirements of the following current standard editions unless otherwise required by this specification:
 - .1 CAN/CSA-S16-01 CONSOLIDATION: Consists of the CSA standard CAN/CSA-S16-01, Limit States Design of Steel Structures along with S16S1-05, Supplement #1 to CAN/CSA-S16-01, Limit States Design of Steel Structures.
 - .2 CSA S136-12: North American Specification for the Design of Cold Formed Steel Structural Members.
 - .3 CSA W47.1 09: Certification of Companies for Fusion Welding of Steel Structures
 - .4 CSA W59-13: Welded Steel Construction (Metal-Arc Welding).
 - .5 CSA W59-18: Welded Steel Construction.
 - .6 CSA W186-M1990: Welding for Reinforcing Bars in Reinforced Concrete Construction.
 - .7 CAN/CSA G40.20-04: General Requirements for Rolled or Welded Structural Quality Steel.
 - .8 CAN/CSA G40.21-04: Structural Quality Steels.
 - .9 British Columbia Building Code.

1.2 QUALITY OF WORK

- .1 Comply with Section 01 45 00 Quality Control requirements.

1.3 TESTING AGENCY

*Group:
Inspections
(both of them)

- .1 The Owner may appoint and pay for the services of a testing agency certified by the Canadian Welding Bureau to the requirements of CSA Standard W178.1-02 for buildings.

.2 If more than 5% re-inspection is required due to faulty workmanship, this re-inspection will be at the Contractor's expense.

.3 The Owner will determine the extent and frequency of testing.

Exclude or put risk onto
steel trade

General Testing

- .1 Review the materials supplied for conformance to the project specifications:
 - .1 Structural Steel to CAN/CSA-G40.21-04(R2009).
 - .2 Bolts to ASTM A307-14 and A325M-14.
 - .3 Welding materials to CSA W48 Series.
- .2 Review personnel to confirm welder's certification for the class of work they are performing.

Clarify exactly what this
means, Steel needs to
price

**Group:
Inspections
(both of them)**

- .3 Review welding procedures used to assure that only qualified procedures are being used.
- .4 Review workmanship in the fabrication shop. Determine it conforms to the project specification.
- .5 Review the field erection for general conformance with the specification.
- .5 Specific Testing
 - .1 Visually examine all welds.
 - .2 Examine all member splices and moment connections by a NDT method.
 - .3 High tensile bolts will be tested in accordance to Clause 23.7 of CAN/CSA S16.
 - .4 **Repair and re-inspect any connection which fails the initial examination. The cost of re-inspection more than 5% shall be borne by the Contractor.**
 - .5 All welds may be examined by a non-destructive testing method.
 - .1 Visual inspection of all shop-welded connections according to CSA W59.
 - .2 Ultrasonic tests of all complete joint penetration (CP) welds according to CSA W59.
- .6 Reporting
 - .1 Provide inspection reports to Owner and other parties as directed.
 - .2 Submit certified results of testing in accordance with CAN/CSA G40.20 properly correlated to the elements being fabricated.
 - .3 Report any non-conformance with the project specifications.
 - .4 Provide final letter under Professional Engineer's seal at end of project confirming that all elements of the project have been inspected and all remedial measures re-inspected and accepted.
- .7 The Consultant may reject at any time during the progress of the work a piece of material for any member which he may find defective or not in accordance with the detailed drawings. This material may be rejected notwithstanding any previous implied acceptance and components so rejected, be replaced at the Contractors expense.

1.4 FABRICATOR TESTING

**Group:
Inspections
(both of them)**

- .1 **The fabricator may at his expense conduct additional testing. Forward results of any testing to the Owner.**
- .2 Co-operate with the testing agencies and provide timely notice when work is ready for testing.
- .3 Advise Owner's testing agency 48 hours in advance of field review and testing dates.
- .4 Allow free access to all parts of the works for the purposes of field review and testing at all times.
- .5 Prior to commencement of work provide a schedule of shop fabrication.
- .6 Testing of all connections and splices not indicated on the design drawings and undertaken by the Owner's testing agency at the fabricators expense.

Part 2 Products

2.1 NOT USED

- .1 Not used

Part 3 Execution

3.1 REVIEWS

- .1 Allow Owner, Authorities Having Jurisdiction, Testing Agencies and Consultants access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2 Give timely notice requesting review if Work is designated for special tests, reviews by Consultant, or law of Place of Work.
- .3 If Contractor covers or permits to be covered Work that has been designated for special tests, reviews or approvals before such is made, uncover such Work, have reviews or tests satisfactorily completed and make good such Work at own expense.
- .4 The Owner will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Owner shall pay cost of examination and replacement.
- .5 Cooperate with testing organization and field review personnel.
- .6 Coordinate test samples with testing agency.

3.2 INDEPENDENT INSPECTION AGENCIES

- .1 Provide equipment required for executing inspection and testing by appointed agencies.
- .2 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .3 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Owner at no cost to Owner. Pay costs for retesting and reinspection.

3.3 ACCESS TO WORK

- .1 Allow access to Work, off site manufacturing and fabrication plants.
- .2 Co-operate to provide reasonable facilities for such access.

3.4 PROCEDURES

- .1 Notify appropriate agency and Consultant in advance of requirement for tests, in order that attendance arrangements can be made.

- .2 Submit adequate quantities of samples and/or materials required for testing. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.
- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store test samples.

3.5 REJECTED WORK

- .1 Refer to CCDC2 - 2008, GC 2.4.
- .2 All materials, systems, or assemblies are to meet the Contract Documents. Replacement and retesting costs to be borne by the Contractor for materials, systems, or assemblies which do not meet the Contract Documents.
- .3 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Owner as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .4 Make good other Contractor's work damaged by such removals or replacements promptly.

3.6 REMEDIAL WORK

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Coordinate adjacent affected Work as required.
- .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Testing of concrete is to conform to the requirements of the following standards unless otherwise required by this specification:
 - .1 CAN/CSA-A23.1-09 Concrete Materials and Methods of Concrete Construction.
 - .2 CAN/CSA-A23.2-09 Methods of Test for Concrete.
 - .3 British Columbia Building Code 2018

1.2 DEFINITIONS

- .1 The Standard: the term "the Standard" includes all reference documents specified in this Section.

1.3 ADMINISTRATIVE REQUIREMENTS

- .1 Coordination
 - .1 Notify appropriate agency at least 4 hours prior notice of requirement for tests, in order that attendance arrangements can be made.
- .2 Scheduling
 - .1 Provide short and long range schedule with appropriate agencies indicating notice of requirement for tests.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submittals: Provide in accordance with Section 01 33 00 Submittal Procedures.
- .2 Furnish test results and mix designs as requested.

1.5 GENERAL TESTING

- .1 Review of all mix designs.
- .2 Review test reports submitted by concrete supplier of the mixing materials for conformance with project specifications.
- .3 Review aggregate for conformance to type N concrete.
- .4 Test chloride ion content in accordance with ASTM D512.

1.6 QUALITY ASSURANCE

- .1 Independent Inspection Agencies
 - .1 **Independent Inspection/Testing Agencies may be engaged by the Owner for purpose of inspecting and/or testing concrete, mortar and grout portions of Work. Cost of such initial services will be borne by the Owner.**
 - .2 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
 - .3 The Testing Agency shall clearly identify and notify the Contractor, Consultant and Owner of material not meeting the Specifications.
 - .4 Immediately notify the Consultant and other project members of low strength tests.

Group:
Inspections

- .2 The testing agency may perform the following:
 - .1 Review mix designs for conformance with specifications, providing written report to the Consultant.
 - .2 Review test reports submitted by concrete supplier for conformance with the material requirements of the Specification.
 - .3 Supply moulds, sample the materials, make and cure test cylinders, and perform compressive strength tests in accordance with CSA A23.2.
 - .1 Make all tests from materials taken from the work.
 - .2 Perform slump tests and air content tests in accordance with CSA A23.2 for each concrete test.
 - .3 If defects are revealed during inspection and/or testing, the appointed agency or Consultant will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Consultant at no cost to Owner. Pay costs for retesting and reinspection.
 - .4 If the Testing Agency becomes aware that concrete is being placed without their being notified, or if insufficient notice is received, the Testing Agency is to notify the Consultant immediately.
 - .5 The testing agency is to report immediately to the Consultant when any procedure is contrary to the specifications and good practice.
 - .6 Should any test indicate below strength results, the Consultant has the right to stop work on the suspect area until subsequent tests are made. The material supplier bears the cost of such required tests. Should all tests indicate below-strength results, remove and replace this work at the Contractor's own expense.

1.7 TESTING FREQUENCY

- .1 Conform to the Standard except for the following:
- .2 Testing is subject to Owner's discretion.
- .3 The Testing Engineer or his representative may be on the job site at any time when concrete mortar and grout are being placed. He will test the material and will reject any material that does not comply with the design mix.

1.8 ACCESS TO WORK

- .1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2 Co-operate to provide reasonable facilities for such access.
- .3 Provide related materials, field labour and facilities.

1.9 PROCEDURES

- .1 Notify appropriate agency at least 4 hours prior notice of requirement for tests, in order that attendance arrangements can be made.

- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.
- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.10 FIELD CURED CYLINDERS

- .1 Conform to the Standard, except store the moulds within the work area. The mould is to be left undisturbed at this location until picked up by the testing agency.

Part 2 Products

2.1 NOT USED

- .1 Not used

Part 3 Execution

3.1 NOT USED

- .1 Not used

END OF SECTION

Part 1 General

1.1 SERVICE AND SYSTEMS INTERRUPTION

- .1 Provide construction temporary power during a power shutdown or service disruption.

1.2 CONTRACTOR TEMPORARY SERVICES

- .1 Services are to be obtained at the Contractor's expense.
.1 The Contractor's use is limited to equipment and service line excess capacity
.2 Pay all costs for temporary equipment and service line installation and removal.

- .2 Provide temporary utilities controls in order to execute work expeditiously.

Group: On site conditions (subgroup: temporary equipment) (for all of them)

.3 Arrange for temporary connection with appropriate utility company or service provider and pay all costs including but not limited to for equipment, installation, maintenance, removal and restoration.

.4 Pay for all utility charges for service.

.5 Provide all required means, methods and operations for temporary provisions.

.6 Remove from site all such temporary work after use. Restore any remaining associated items affected by installation, use or removal.

- .7 Pay for all costs to use new permanent services during construction prior to Substantial Completion.

.8 Water Supply

- .1 Provide temporary water supply to construction area. Provide continuous supply of potable water for construction use.

.9 Temporary Power

- .1 Provide temporary power during construction for temporary lighting, operating of power tools and equipment.

1.3 DEWATERING

- .1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.
- .2 Ensure water leaving site is free from silt and other contaminants.

Clarify as a CA or to allow costs

1.4 TEMPORARY LIGHT

- .1 Provide and maintain temporary lighting throughout project. Ensure level of illumination is not less than 16 lumen per sq ft.

Clarify as a CA or to allow costs

1.5 TEMPORARY COMMUNICATION FACILITIES

- .1 Provide temporary telephone, data, high speed internet hook up, lines and equipment necessary for own use and Wifi for consultants.
- .2 Pay all costs for installation, maintenance, utility costs and removal.
- .3 Permanent telephone and cable service may not be available.

Group: On site

conditions
(subgroup:
temporary
equipment)
(for all of them)

1.6

- .4 Provide and pay for construction site computer system suitable to send & receive e-mail transmissions and print out hard copy of 8-1/2" x 11" and 11" x 17", in colour.

TEMPORARY HEATING AND VENTILATION

- .1 Coordinate Work with Section 01 35 46 Indoor Air Quality Procedures.
- .2 Heat sources shall not introduce moisture into the building, duct exhaust gases directly to the exterior through flues. Direct burner discharge (flueless) heaters are not permitted.
- .3 The permanent heating or ventilation system of the building prior to Substantial Completion may be permitted by the Consultant provided:
- .1 The Consultant declares the building "clean" as defined by LEED® NC 2009 IAQ.
 - .2 Provided no further construction dust contamination will take place.
 - .3 Operation by automatic controls is in place.
- .4 Clarify CA or to carry costs
- .5 Subject to conditions specified in Mechanical.
- .6 Receipt of Contractor's written acceptance of responsibility for Operation and Maintenance and names of qualified equipment operators.
- .7 Receipt of Contractor's written acceptance of responsibility for damage to systems if used.
- .8 Submission of daily logs by qualified equipment operators.
- .9 Date of Substantial Performance and Warranties for mechanical system do not commence until work is substantially completed and entire system is in new condition and is certified by the Consulting Engineer.
- .10 On completion of Work for which permanent mechanical system is used, replace filters and clean the system.
- .11 Pay all costs when using the permanent mechanical system as a source of temporary heat or ventilation during construction except for electric power and natural gas consumption charges as described above.
- .12 Provide temporary heat and ventilation in enclosed areas 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.
- .13 Maintain temperatures of minimum 10°C in areas where construction is in progress. Refer to and comply with individual product manufacturer's and warranty providers minimum pre-installation, substrate, installation and post installation requirements.
- .14 Ventilating:
- .1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
 - .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.

- .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
- .4 Ventilate storage spaces containing hazardous or volatile materials.
- .5 Ventilate temporary sanitary facilities.
- .6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.
- .14 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.
- .15 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

1.7 NEW SERVICES

*Group: On site conditions
(subgroup: temporary equipment)
(for all of them)

- .1 Refer to Section 01 18 13 Utility Service Connections also.
- .2 Coordinate, schedule and arrange for installation and connection of permanent services prior to Substantial Completion as required for construction, start-up, operation and commissioning.
- .3 Permanent services for new work, when available, may be used at Contractors expense in lieu of temporary services provided:
- .4 Receipt of Contractor's written acceptance of responsibility for Operation and Maintenance and names of qualified equipment operators where applicable.
- .5 Receipt of Contractor's written acceptance of responsibility for damage to systems if used.
- .6 Submission of service logs by qualified equipment operators.
- .7 Date of Substantial Performance and Warranties for system do not commence until work is substantially completed and entire system is in as near original condition as possible and is so certified by the Consultant.
- .8 On completion of Work for which permanent system is used, service and clean the system.
- .9 Pay all costs when using the permanent system during construction.

Part 2 Products

2.1 NOT USED

- .1 Not used

Carry CA or allow for costs?

Part 3 Execution

3.1 NOT USED

- .1 Not used

END OF SECTION

Part 1 General

1.1 INSTALLATION AND REMOVAL

- .1 Provide construction facilities in order to execute work expeditiously.
- .2 Remove from site all such work after use.

1.2 HOISTING

- .1 Provide, operate and maintain hoists or cranes required for moving of workers, materials and equipment.
- .2 Employ a qualified operator for operation of hoists and cranes.

1.3 SIGNAGE

- .1 Post signage as follows as frequently as required by hoarding and site layout:
 - .1 Site Office directions.
 - .2 Safety regulations and safety office location.
 - .3 Post notices and take such precautions as required by Authorities Having Jurisdiction.
 - .4 No Trespassing.
 - .5 No Smoking on School Property.
- .6 CAN/CSA Z321 96 (2006): Signs and Symbols for the Occupational Environment.
- .2 Remove signage and make good at completion of project or as directed by the Consultant.
- .3 **Do not display other signage.**

Group: On site conditions

1.4 SCAFFOLDING

- .1 Provide and maintain scaffolding, ramps, ladders, platforms, staging and temporary stairs required for the work.
- .2 Minimize exterior wall scaffolding methods requirements for attachment through the building envelop system and do not remain the fastening system as a permanent exposed item. The attachment locations and methods shall be approved by the Consultant to ensure building envelope requirements are maintained during and after construction.
- .3 Provide engineering for scaffolding by Professional Engineer registered in Province of British Columbia.

1.5 SANITARY FACILITIES

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Except where connected to municipal sewer system, periodically remove wastes from Site.
- .3 New permanent facilities may not be used.
- .4 Keep sanitary facilities clean and fully stocked with the necessary supplies at all times.

1.6 SECURITY

- CA or carry costs?
- .1 Secure or remove all construction equipment from the site every night. The Owner is not responsible for any theft or damage of any Contractor and their Subcontractor's property.
 - .2 Where any special hazard exists from which it is not possible to protect the public by other means, employ watchmen/security company to prevent the public from entering the danger zone at any time of the day or night.
 - .3 Maintain adequate security at the site including the provision of a watchman at the Contractor's discretion and expense.
 - .4 Provide for full time security/fire watch when construction personnel are not on site during the following times:

Group: On site

condisitions

(subgroup:

safety)

(for the top half
highlights)

- .5 Protect work from theft, vandalism and unauthorized entry.
- .6 Initiate security program at project mobilization.
- .7 Maintain security program throughout construction period until Owner final occupancy.
- .8 Subcontractors shall make their own arrangements to ensure the security of their own equipment, materials and work, in cooperation with the Contractor.
- .9 Maintain continuous integrity of secured perimeters at all times.
- .10 Secure all motorized equipment after construction hours in a manner to prevent unauthorized operation.

1.7 FIELD OFFICES AND SHEDS

- Group: On site
condisitions
- (subgroup:
parking) (for the
bottom half
highlights)
- .1 Provide and maintain during progress of Work, adequately lighted, heated office with space for filing and layout of Contract Documents, normal site office staff, consultant meetings and project site meetings.
 - .2 Provide adequate first aid facilities and an accident prevention program to the requirements of the WorkSafeBC

1.8 CONSTRUCTION PARKING

- .1 Parking is limited on the site.
- .2 Provide and maintain adequate access to project site.
- .3 Make deliveries directly to the construction laydown area. Operate vehicles making deliveries or removals from the site in a safe and responsible manner.
- .4 Parking will be permitted on site only in consultation with the school manager and when it does not disrupt performance of Work. When site space is not adequate, arrange additional off-site parking at no cost to the Owner.
- .5 Restrict entrance of persons and vehicles into project site.
- .6 Prevent vehicles at any time from:
 - .1 Causing traffic interruptions.

1.9 PROTECTION OF BUILDING FINISHES

- .1 Provide protection for new finished and partially finished building finishes and equipment during performance of Work.
- .2 Provide necessary screens, covers, hoardings as required.
- .3 Be responsible for damage incurred due to lack of or improper protection.

1.10 MATERIALS STORAGE

- Group: On site conditions (subgroup: storage)**
- .1 **Provide and maintain, in a clean and orderly condition, lockable weatherproof sheds for storage of materials.**
 - .2 Locate materials not required to be stored in weatherproof sheds on site in a manner to cause the least interference with work activities.

Part 2 Products

2.1 NOT USED

- .1 Not used

Part 3 Execution

3.1 NOT USED

- .1 Not used

END OF SECTION

Part 1 General

1.1 INSTALLATION AND REMOVAL

- .1 Provide temporary controls in order to execute Work expeditiously.
- .2 Remove from site all such work after use.

1.2 CONSTRUCTION SITE ENCLOSURE

- .1 Erect full perimeter, temporary metal fence type barricades and site enclosure:
 - .1 Minimum 1830 mm in height.
 - .2 With controlled access without openings other than controlled access points.
 - .3 Securely anchored to the ground, and strong enough to withstand abuse.
- .2 Provide lockable truck entrance gates and pedestrian door as applicable traffic restrictions on adjacent streets.
- .3 Erect and maintain pedestrian walkways including roof and side covers, complete with signs and electrical lighting as required by law.
- .4 Provide barriers around trees and plants designated to remain as specified in technical sections, as shown on drawings, and arborist report.
- .5 Protect site enclosure from damage by equipment and construction procedures.
- .6 Provide fire access as required by local Authorities Having Jurisdiction.

1.3 DUST TIGHT BARRIERS

- Group: On site conditions (subgroup: temporary construction) (all of them)**
- .1 Provide dust tight barriers and screens or partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.
 - .2 Maintain and relocate protection until such work is complete.

1.4 INTERIOR HOARDING

- .1 Provide interior area separation hoarding between construction areas at different stages of construction to maintain indoor air quality protocols.
 - .2 Interior hoarding area separations to consist of steel stud framing with polyethylene dust control sheet.
 - .1 Seal polyethylene sheet to adjoining surfaces with removable tape and or foam filler.
 - .2 Installation methods shall not damage finishes.
 - .3 Maintain a negative pressure within the contaminated construction zone in relationship to higher finished areas of the building to prevent the migration of dust, fumes, vapours etc. into the higher finished areas of the building.

1.5 LANDSCAPE PROTECTION AREA

- .1 Restrict access to landscaped area of the site.
- .2 Construct fencing to details.

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- .3 Equipment usage and construction methods may be restricted if found to be damaging to the existing trees by the Landscape consultant.
- .4 Access is prohibited from areas within the tree drip line and restricted to within two (2) meters of required Civil work. Prevent access to other areas by vehicles or workers.
- .5 Limit access for selective tree cutting and removal. Limit equipment usage to prevent damage to remaining landscaping.
- .6 Limit access to the landscaped area for fencing to work related workers and equipment.
- .7 Limit equipment usage and access to prevent damage to remaining landscape.

1.6 WEATHER ENCLOSURES AND BUILDING COMPONENT PROTECTION

- .1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.

Group: On site conditions
(subgroup: storage)

- .2 Schedule construction activity or make provisions to protect exterior wall materials and building construction in general as noted below:
 - .1 Prevent water ingress into exterior wall framing and building prior to installation of cladding by:
 - .1 Completing exterior wall cladding systems.
 - .2 Hoarding incomplete cladding sections and openings of exterior wall to prevent water ingress.
 - .3 Completing roof cladding & drainage systems.
 - .2 Provide 'dry' heat source and ventilation with flue gases vented to exterior.
 - .3 Prevent exposure of exterior wall air retarder membranes, substrates to U.V. light for more than 30 calendar days by:
 - .1 Completing exterior wall cladding systems.
 - .2 Hoarding incomplete cladding sections of exterior wall to prevent exposure to sun.
 - .4 Prevent deterioration of exterior wall build-up component from exposure to wind by:
 - .1 Securing material in place with overlaying wall components. Additional fasteners through the membranes will not be an acceptable method.
 - .2 Hoarding incomplete cladding sections.
 - .5 Install temporary roof drainage and roof air/vapour retarder membrane prior to beginning installation of materials and equipment below.

1.7 SITE STORAGE/LOADING

- .1 Confine the Work and the operations of employees to limits indicated by the Contract Documents. Do not unreasonably encumber the premises with Products.
- .2 Do not load or permit to be loaded any part of the Work with a weight or force that will endanger the Work.

1.8 PROTECTION FOR OFF SITE AND PUBLIC PROPERTY

- .1 Protect surrounding private and public property from damage during performance of Work.

- .2 Be responsible for damage incurred.
- .3 Maintain access to adjacent private property at all times.
- .4 Make good damaged property to original condition or better.

1.9 PROTECTION OF APPLIED FINISHES

- .1 Provide protection for finished and partially finished surfaces and equipment during performance of Work.
- .2 Provide necessary screens, covers, and hoardings.
- .3 Be responsible for damage incurred due to lack of or improper protection.

1.10 PROTECTION OF SURROUNDING WORK

- .1 Provide protection for finished and partially finished Work from damage.
- .2 Protect the work and adjoining work at all stages of operations and maintain the protection until the work is completed. Remove and replace at own expense any work and materials damaged, that cannot be repaired or restored to like new due to inadequate protection being provided.
- .3 If during the Work, any existing work is damaged, replace without cost.
- .4 Protect surfaces of completed Work exposed to view from staining, disfigurement and all other damage by restriction of access or by use of physical means suitable to the material and surface location and establish with each Subcontractor the suitability of such protection in each case.
- .5 Supervise closely all installation of roofing and waterproofing membranes and during the time they are temporarily protected or exposed, to ensure that no damage occurs to them before completion of the project.

Part 2 Products

2.1 NOT USED

- .1 Not used

Part 3 Execution

3.1 NOT USED

- .1 Not used

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Uniform Traffic Control Devices for Canada, (UTCD), 2014, distributed by Transportation Association of Canada.
- .2 Municipal guidelines and regulations enforceable in Place of the Work.

1.2 ACCESS TO SITE

- .1 Obtain permits required.
- .2 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.
- .3 Provide controlled site access.
- .4 Coordinate on-site and off-site work with Authority Having Jurisdiction, service providers, Utilities and other off-site contractor(s).
- .5 Refer to Authorities Having Jurisdiction for requirements for off site traffic management, truck movement and construction parking, and obtain required permits from the Authorities Having Jurisdiction.
- .6 Do not close or obstruct streets, sidewalks, lanes or other public rights of way.
- .7 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect the public.
- .8 Maintain adequate traffic control procedures during operations, including delivery and off-loading of materials, on or adjacent to streets, sidewalks, lanes, public rights of way and parking areas available to the public.
- .9 During progress of the Work maintain adequate means of egress from the Project in the event of fire or other emergency.
- .10 Do not store materials in a manner that will impair means of egress of emergency vehicles.

1.3 OWNER AREA OCCUPANT SAFETY, POST OCCUPANCY

- .1 Construction Traffic
 - .1 Ensure all drivers are aware vehicles being driven on School District property as listed below:
 - .2 Limit vehicles being driven on School District property to a maximum speed of 8 kilometres per hour.
- .2 Accompanied vehicles backing into the Contractors construction area by a flag person.

1.4 INFORMATIONAL AND WARNING DEVICES

- .1 Provide and maintain signs and other devices required to indicate construction activities or other temporary and unusual conditions resulting from Project Work which requires road user response.
- .2 Supply and erect signs, delineators, barricades and miscellaneous warning devices as required.

- .3 Continually maintain traffic control devices in use by:
 - .1 Checking signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.
 - .2 Removing or covering signs which do not apply to conditions existing from day to day.

1.5 PROTECTION OF PUBLIC TRAFFIC

- .1 Comply with requirements of Acts, Regulations and City Bylaws and Guidelines in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out Work or haul materials or equipment.
- .2 Do not close any lanes of road without approval of Authority Having Jurisdiction. Before re-routing traffic erect suitable signs and devices in accordance with instructions contained in Part D of Uniform Traffic Control Devices for Canada.
- .3 Provide and maintain road access and egress to property fronting along Work under Contract unless other means of road access exist that meet approval of Authority Having Jurisdiction.

1.6 CONTROL OF PUBLIC TRAFFIC

Group: onsite conditions

- .1 ~~Provide competent flag persons, trained in accordance with, and properly equipped as required by Authority Having Jurisdiction.~~

1.7 FIRE ROUTES

- .1 Maintain access to property including overhead clearances for use by emergency response vehicles.

Part 2 Products

2.1 NOT USED

- .1 Not used

Part 3 Execution

3.1 NOT USED

- .1 Not used

END OF SECTION

Part 1 General

1.1 DEFINITIONS

- .1 Erosion: Deterioration, displacement, or transportation of land surface by wind or water, intensified by land-clearing practices related to construction activates.
- .2 Rain or Rain Storm: An event defined causing the pooling of water on road or other impervious surfaces.
- .3 Sediment: Particulate matter transported and deposited as a layer of solid particles within a body of water.
- .4 Snow Melt: An event in snow conditions when the temperature is above 0°C (32°F) or when environmental conditions cause snow on the ground to melt.

1.2 SUBMITTALS

- .1 Provide requested information in accordance with Section 01 33 00 Submittal Procedures.
- .2 Provide ten (10) working days before date established for commencement of the Work.
- .3 Erosion and Sedimentation Control:
 - .1 Specific to the site that conforms to the most restrictive of:
 - .1 Local Authorities Having Jurisdiction.
 - .2 In accordance with good practise.
 - .3 In conformance with Civil documents.
 - .2 Meet the following objectives:
 - .1 Prevent loss of soil during construction by storm water runoff.
 - .2 Prevent loss of soil during construction by wind erosion.
 - .3 Prevent sedimentation of storm sewer or receiving streams.
 - .4 Prevent polluting the air with dust and particulate matter.
 - .3 Monitor activities and procedures.

1.3 GENERAL

- .1 Comply with the most restrictive conditions of this Section and Civil Documents.
- .2 The effectiveness of the silt control system is directly dependent upon the onsite construction procedures. At all times be aware of how work and procedures may affect the siltation control system and modify site work practises, procedures and timing as necessary to ensure silts and other deleterious materials do not leave the site.
- .3 Construct siltation control facilities on the site before clearing or earthworks begin.
- .4 Constructed, erect, and maintain initial, temporary site silt fencing, silt basins and screening of existing manholes, catch basins and other drains prior to any clearing, stripping or excavation and prior to construction of any required long term construction basins.
- .5 Construct silt control works to achieve required clarity of discharge. Take such additional steps as necessary to achieve acceptable discharge.
- .6 Cover all stockpiles with tarps and surround with silt fencing.

- .7 Construct equipment wash down areas as may be required by construction methods, soils Civil consultant and Local Authorities Having Jurisdiction to prevent soil being carried onto public roadways by construction equipment.

- .8 **The Owner may arrange and pay for monitoring of the system and testing of discharged water by an independent agency.**

**Group:
inspections**

Part 2 Products

- .1 Materials as noted on Civil Drawings.

Part 3 Execution

3.1 CONSTRUCTION

- .1 Refer to Civil Drawings.
- .2 Test completed works before any on site run-off is directed into the silt control system.
- .3 Notify Authorities Having Jurisdiction that works are complete and ready for inspection if required.
- .4 Provide weather resistant site signage instructing site personnel regarding requirements for control of discharge of water from the site and prevention of soil contamination of public roads.
- .5 Provide granular on-site vehicle access roads and maintain granular material to provide consistent performance.
- .6 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.
- .7 Do not pump water containing suspended materials into waterways, sewer or drainage systems.
- .8 Control disposal or runoff of water containing suspended materials or other harmful substances.
- .9 Limit operation of vehicles on site to paved surfaces or temporary gravel surfaces in order to avoid disturbing soil.
- .10 Prevent cleared topsoil and excavated earth stockpiled on site from being eroded by rain storm, snow melt or wind.

3.2 OPERATION

- .1 Ensure operations are operated, maintained, fenced, cleaned as necessary to ensure safe, efficient effective operation.
- .2 Supplement sedimentation ponds by additional on site silt mitigation devices, controls and operations and procedures as required.
- .3 Do not permit surface or sub-surface water to accumulate in excavations or crawl space areas. If such conditions develop or are encountered, control and dispose of the water by means of temporary pumps, piping, drainage lines, ditches, dams or other suitable means.

3.3 MUNICIPAL STORM WATER

- .1 Protect catch basins, drains, culverts and other points of entry into municipal storm water collection systems.

3.4 INSPECTION

- .1 Each Week: Inspect for erosion and sediment control measures, to ensure proper functions are not damaged.

1.1 POLLUTION CONTROL

- .2 Maintain temporary erosion and pollution control features.
- .3 Prevent extraneous materials from contaminating air beyond application area, by providing temporary enclosures.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. **Provide dust control for temporary roads.**

Group: onsite
conditions
(safety)

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

- .1 Within the text of the specifications, reference may be made to the following standards, of the most recent Edition in force at time of Bid:
- | | | |
|-----|-------|---|
| .1 | ACI | American Concrete Institute. |
| .2 | AISC | American Institute of Steel Construction |
| .3 | ANSI | American National Standards Institute. |
| .4 | ASTM | American Society of Testing and Materials |
| .5 | AWMAC | Architectural Woodwork Manufacturer's Association of Canada |
| .6 | BCBC | British Columbia Building Code |
| .7 | CEC | Canadian Electrical Code (published by CSA) |
| .8 | CEMA | Canadian Electrical Manufacturer's Association |
| .9 | CGSB | Canadian General Standards Board |
| .10 | CISC | Canadian Institute of Steel Construction |
| .11 | CLA | Canadian Lumbermans' Association |
| .12 | CPCA | Canadian Painting Contractor's Association |
| .13 | CRCA | Canadian Roofing Construction Association |
| .14 | CSA | Canadian Standards Association |
| .15 | FM | Factory Mutual Engineering Corporation. |
| .16 | IEEE | Institute of Electrical and Electronic Engineers |
| .17 | IGMAC | Insulating Glass Manufacturer's Association of Canada |
| .18 | IPCEA | Insulated Power Cable Engineers Association. |
| .19 | LEED® | Leadership in Energy and Environmental Design |
| .20 | MPDA | Master Painter and Decorator's Association |
| .21 | MPI | Master Painter's Institute |
| .22 | NAAMM | National Association of Architectural Metal Manufacturers |
| .23 | NBC | National Building Code |
| .24 | NEMA | National Electrical Manufacturer's Association |
| .25 | RCABC | Roofing Contractors Association of British Columbia |
| .26 | TTMAC | Terrazzo, Tile and Marble Association of Canada |
| .27 | ULC | Underwriter's Laboratories of Canada |

1.2 REFERENCES

- .1 Within text of each Specification section, reference may be made to reference standards. Conform to these reference standards, in whole or in part as specifically requested in specifications.
- .2 Conform to the most stringent or restrictive Standard requirements went multiple Standards are noted.

- .3 Conform to or exceed the minimum applicable standards of the Canadian Government Specifications Board (CGSB) the Canadian Standards Association (CSA) or the National Building Code of Canada (N.B.C.).
- .4 Reference is made to The Master Municipal Specifications as issued by the Consulting Engineers of British Columbia, Municipal Engineer's Division. Whenever Master Municipal Specifications are referred to, they shall be the edition current on the date of the call for Bids for this Contract and they shall be considered to be part of this Contract insofar as they apply.
- .5 If there is question as to whether products or systems are in conformance with applicable standards, the School District reserves right to have such products or systems tested to prove or disprove conformance. Cost for such testing will be borne by Owner in event of conformance with Contract Documents or by Contractor in event of non-conformance.
- .6 Materials and workmanship to comply with recognized Canadian construction standards those of Provincial and /or Canadian trade association, wherever possible. Wherever standards are applicable, workmanship to be to best industry standards.
- .7 Select materials and systems that are compatible with the various building environments. Use assembly and materials that will minimize life cycle costs and provide a service life consistent with expected building life.

1.3 MATERIAL QUALITY

- .1 Refer to CCDC 2-2008 GC 3.8.2.
 - .1 Products are to be new and undamaged unless specifically noted as being salvaged from existing and being reused.
 - .2 The manufacturing processes for supplied materials to manufacture the product may utilize recycled raw material content as per the manufacturer's published documentation.
 - .3 Products may not contain salvaged, refurbished or otherwise re-used components not reduced to a raw material state.
 - .4 Products, materials, equipment and articles incorporated in the Work shall be new, not damaged or defective, and of the best quality compatible with specifications for the purpose intended. If requested, furnish evidence as to type, source and quality of Products provided.
- .2 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Field review does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at Contractors expense and be responsible for delays and expenses caused by rejection.
- .3 Should any dispute arise as to the quality or fitness of products, the decision rests strictly with the Owner based upon the requirements of the Contract Documents.
- .4 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.

1.4 AVAILABILITY

- .1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items.
- .2 If delays in supply of products are foreseen, notify Consultant of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .3 In event of failure to notify Construction Manager at commencement of Work and should it subsequently appear that Work may be delayed for such reason, the Owner reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.5 TRANSPORTATION AND HANDLING

- .1 Schedule materials to arrive on site as required for immediate unloading, hoisting and installation.
- .2 Transport and handle products in accordance with manufacturer's written instructions.
- .3 Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and Products are undamaged.
- .4 Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.
- .5 Receive Owner's materials and equipment required to complete the project, including the distribution from point of unloading to points of storage and installation.
- .6 Pay costs for transportation of products required in the performance of Work.

1.6 STORAGE, HANDLING AND PROTECTION

- .1 Handle and store products in a manner to prevent damage, adulteration, deterioration and soiling and in accordance with the most restrictive of:
 - .1 Specifications.
 - .2 Manufacturer's written instructions.
 - .3 Referenced standards.
 - .4 Warranty/guarantee requirements.
- .2 Store cementitious products clear of earth or concrete floors, and away from walls.
- .3 Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- .4 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .5 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact.
- .6 Do not remove from packaging or bundling until required in Work or until required to acclimatize to controlled environmental conditions at the Place of Work.

Review against site layout,
possible extra costs to allow

CA or carry costs?

- .7 Store products subject to damage or deterioration from weather in weatherproof enclosures
- .8 Store products on flat, solid supports and keep clear of ground or floor.
- .9 Cover and slope products suitable for exterior storage to shed moisture.
- .10 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .11 Arrange storage of products to permit access for field review. Periodically review to verify products are undamaged and are maintained in acceptable condition.
- .12 Remove and replace damaged products at Contractors expense.

1.7 ENVIRONMENTAL CONTROL

- .1 Maintain environmental conditions to prevent damage, wetting, deterioration and soiling and in accordance with the most restrictive of:
 - .1 Specifications.
 - .2 Manufacturer's written instructions.
 - .3 Referenced standards.
 - .4 Warranty/guarantee requirements.
- .2 Environmental control includes:
 - .1 Off site fabrication, shipping and on-site conditions.
 - .2 Preventing dampness or wetting of absorptive materials or materials and products not intended for exterior exposure.
 - .3 Temperature control within minimum and maximums.
 - .4 Humidity control within minimum and maximums.
 - .5 Ventilation to avoid absorption of harmful gases by materials to be are already installed.
 - .6 Substrates for products to be installed to, products to be installed, products already installed.
 - .7 Existing improvements affected by Work of the Contract.
- .3 Store and protect materials to prevent deterioration due to weather or uncontrolled indoor environmental conditions.
- .4 Store and protect materials to prevent wetting and potential mold growth due to weather or uncontrolled indoor environmental conditions.
- .5 Refer to product manufacturer's and guaranty or warranty providers written instructions regarding environmental conditions:
 - .1 For storage on site.
 - .2 For acclimation times and conditions.
 - .3 For pre-installation, installation and post installation requirements.

1.8 MANUFACTURER'S INSTRUCTIONS

- .1 Unless otherwise indicated in Specifications or Engineered shop drawings, install and erect products in accordance with manufacturer's written instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify Consultant in writing, of conflicts between Specifications and manufacturer's instructions with the earliest of no less than 20 working days prior to shipping to site.

Part 2 Products

2.1 IDENTIFICATION

- .1 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.
- .2 Where trade or firm names have been used in the Contract Documents, they are intended as an indication of quality and appearance only; goods of equal quality and appearance may be substituted subject to the Owners approval in writing.
- .3 Inform the Consultant of a conflicting installation. Install as directed.

2.2 Fastenings

- .1 Provide metal fastenings and accessories in same texture, colour, and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .4 Use heavy hexagon heads to attach equipment unless otherwise specified.
- .5 Bolts may not project more than one diameter beyond nuts.
- .6 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.
- .7 Interior exposed fasteners to be chrome plated or stainless steel with finishing (cup) washers.
- .8 Use Type 304 or 316 stainless steel and bi-metal fasteners for exterior exposure, exterior wall cavities, pressure treated wood and other corrosive locations.
- .9 Size and space appropriate type of anchors within their factored design pullout load limit or shear capacity and ensure they provide positive permanent anchorage without damage to the supporting structure or the supported element. Wood, or any other organic material plugs are not acceptable.
- .10 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .11 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

Part 3 Execution

3.1 WORKMANSHIP

- .1 Workmanship shall be the best quality, executed by workers experienced and skilled in the respective duties for which they are employed.
- .2 Do not employ any unfit person or anyone unskilled in their required duties.
- .3 Decisions as to the quality or fitness of workmanship in cases of dispute rest solely with the Consultant whose decision is final.

3.2 TOLERANCES

- .1 Monitor fabrication and installation tolerance control of Products to produce acceptable Work.
- .2 Do not permit tolerances to accumulate beyond effective or practical limits.
- .3 Comply with manufacturers' tolerances. In case of conflict between manufacturers' tolerances and Contract Documents, request clarification from Consultant before proceeding.
- .4 Adjust Products to appropriate dimensions; position and confirm tolerance acceptability, before permanently securing Products in place.

3.3 CO-ORDINATION

- .1 Prior to construction of any material or component coordinate work associated and surrounding work to ensure final installation of all such related and subsequent work will comply with intent of Contract Documents. Notify Consultant promptly of any conflicts.
- .2 Ensure co-operation of workers in laying out the Work. Maintain efficient and continuous supervision.
- .3 Be responsible for coordination and placement of openings, sleeves and accessories.

3.4 PROTECTION OF WORK IN PROGRESS

- .1 Protect Work completed or in progress.
- .2 Work damaged or defaced due to failure in providing such protection is to be removed and replaced, or repaired, as directed by the Consultant, at no increase in contract price.
- .3 Prevent overloading of any part of the Project.
- .4 Do not cut, drill or sleeve any load bearing structural member, unless specifically indicated, without written approval of Consultant.

3.5 AMBIENT CONDITIONS

- .1 Install odorous materials including sealants and adhesive materials in open spaces with ventilation.
- .2 Ventilate enclosed spaces.
- .3 Maintain recommended temperature and humidity before, during and after installation.

3.6 SERVICES AND EQUIPMENT

- .1 Services and Equipment.
 - .1 No services, plant, equipment or motorized device installed as a permanent part of the contract may be used for construction purposes save by specific agreement with the Consultant and Owner concerning conditions of use and compensation for wear and tear.
- .2 Owner's Equipment.
 - .1 Make Work ready to receive the Owner's equipment, fixtures and devices where indicated on the Drawings.
 - .2 Preparation includes all necessary roughing-in, conduit, piping, depressions, trimming, openings, drains, inserts and the like, as required.
- .3 Temporary and Trial Usage of Equipment.
 - .1 Owner is permitted temporary or trial use of electrical and mechanical equipment or any other equipment being provided under this contract before final acceptance of the project, for such reasonable time as the Consultant considers sufficient for proper testing.
 - .2 Make good any damage or breakdown due to faulty materials or workmanship.

3.7 CUTTING AND REMEDIAL WORK

- .1 Refer to Section 01 45 00 Quality Control.
- .2 Refer to GC 3.12 CUTTING AND REMEDIAL WORK.

END OF SECTION

Part 1 General

1.1 SUBSURFACE CONDITIONS

- .1 Promptly notify Consultant in writing if discovered surface or subsurface conditions at Place of Work differ materially from those indicated in Contract Documents.
- .2 Advise the Consultant of a reasonable assumption of probable conditions when determined.
- .3 After prompt investigation, should Consultant determine that conditions do differ materially, instructions will be issued for changes in Work as provided in Change Directives or Change Orders.

Part 2 Products

2.1 NOT USED

- .1 Not used

Part 3 Execution

3.1 EXAMINATION

- .1 Inspect existing conditions, including elements or adjacent Work subject to irregularities, damage, movement, including Work during cutting and patching.
- .2 After uncovering, inspect conditions affecting performance of the Work.
- .3 Beginning of cutting or patching means acceptance of existing conditions.

3.2 PREPARATION

- .1 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
- .2 Provide protection from elements for areas which may be exposed by uncovering work; maintain excavations free of water.

3.3 LOCATION OF EQUIPMENT & FIXTURES

- .1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.
- .2 Locate equipment, fixtures and distribution systems in accordance with manufacturer's recommendations to provide:
 - .1 Minimum interference with functionality.
 - .2 Good flexibility for modifications.
 - .3 Good access for intended use and maintenance.
 - .4 Maximum useable space for safety access and maintenance and applicable code requirements.

3.4 CONCEALMENT

- .1 Conceal pipes, ducts, and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise. Furr around with same materials as adjacent wall and/or ceiling finishes where pipes or ducts cannot be concealed within wall thickness.
- .2 Before installation, inform the Consultant if there is a contradictory situation. Install as directed by Consultant.

3.5 FITTING

- .1 Perform cutting, fitting and patching as required to make work fit together as intended.

END OF SECTION

Part 1 General

1.1 SHORING DESIGN – EXCAVATIONS AND CONCRETE FORMWORK

- .1 Refer to Geotechnical Investigation Report.
- .2 Shore excavations in compliance with requirements of WorkSafe BC, Geotechnical Investigation Report and Engineering design by this Section to suit specific site conditions.
- .3 Provide shoring design for no less than all concrete formwork supporting suspended slabs and foundation walls and building walls exceeding 3000 mm in height.

1.2 INDEPENDENT ENGINEERING

- .1 Provide Professional Engineering as required for:
 - .1 Excavation shoring.
 - .2 Underpinning.

1.3 SETTING OUT OF WORK

- .1 Assume full responsibility for and execute complete layout of work to locations, lines and elevations indicated.
- .2 Provide devices needed to lay out and construct work and to facilitate Consultants inspection of work.
- .3 Supply stakes and other survey markers required to lay out the work.

Part 2 Products

- .1 Documentation in accordance with Section 01 33 00 Submittal Procedures.

Part 3 Execution

3.1 GENERAL

- .1 Submit sealed Professional Engineers drawings for Owner's record.
- .2 Submit written field reviews, sealed by Professional Engineer to Consultants promptly as the field reviews are made.
- .3 Immediately comply with any requirements noted in field review by Engineer.

END OF SECTION

Part 1 General

1.1 PUBLICITY

- .1 All publicity relating to this Project and the Work is subject to the prior approval of the Owner and the Consultant, and no mention of the Project in advertising or articles in any publication will be permitted unless previously approved by the Owner and the Consultant. Publicity or advertising implying endorsement of a product by the Owner or the Consultant will not be permitted.

1.2 SUBMITTALS

- .1 Submit written request in advance of cutting or alteration which affects:
 - .1 Structural integrity of any element of Project.
 - .2 Integrity of weather-exposed or moisture-resistant elements.
 - .3 Efficiency, maintenance, or safety of any operational element.
 - .4 Visual qualities of sight-exposed elements.
 - .5 Work of Owner or separate contractor.
- .2 Include in request:
 - .1 Identification of Project.
 - .2 Location and description of affected Work.
 - .3 Statement on necessity for cutting or alteration.
 - .4 Description of proposed Work, and products to be used.
 - .5 Alternatives to cutting and patching.
 - .6 Effect on Work of Owner or separate contractor.
 - .7 Written permission of affected separate contractor.
 - .8 Date and time work will be executed.

1.3 MATERIALS

- .1 Required for original installation.
- .2 Change in Materials: Submit request for substitution in accordance with Section 01 25 00 Substitution Procedures.

1.4 PREPARATION

- .1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
- .2 After uncovering, inspect conditions affecting performance of Work.
- .3 Beginning of cutting or patching means acceptance of existing conditions.
- .4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
- .5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

1.5 EXECUTION

- .1 Execute cutting, fitting, and patching to complete Work.
- .2 Fit several parts together, to integrate with other Work.
- .3 Uncover Work to install ill-timed Work.
- .4 Remove and replace defective and non-conforming Work.
- .5 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
- .6 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .7 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .8 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .9 Restore work with new products in accordance with requirements of Contract Documents.
- .10 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .11 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with fire stopping material, full thickness of the construction element.
- .12 Refinish surfaces to match adjacent finishes: For continuous surfaces refinish to nearest intersection; for an assembly, refinish entire unit.
- .13 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

Part 2 Products

2.1 NOT USED

- .1 Not used

Part 3 Execution

3.1 NOT USED

- .1 Not used

END OF SECTION

Part 1 General

1.1 REGULATORY REQUIREMENTS

- .1 Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.

1.2 STORAGE, DELIVERY, AND HANDLING

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

Part 2 Products

2.1 CLEANING MATERIALS

- .1 Cleaning Agents and Materials: VOC content of 0 unless not otherwise available; fragrance free.
- .2 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

Part 3 Execution

3.1 GENERAL

- .1 Remove waste material as it accumulates on a regular basis. Keep the new construction 'broom clean' of dirt and construction debris.
- .2 Provide adequate waste containers for construction debris.
- .3 Keep exterior work areas clean and free from construction waste.
- .4 Prevent accumulation of wastes which create hazardous conditions.
- .5 Provide adequate ventilation during use of volatile or noxious substances.

3.2 PROGRESSIVE CLEANING

Group: onsite
conditions
(subgroup:
safety)

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by other Contractors.
- .2 Remove waste materials from site at regularly scheduled times.
- .3 Do not burn waste materials on site.
- .4 Clear snow and ice from area of construction, bank or pile snow in designated areas only.
- .5 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris. Containers:
 - .1 Provide on-site steel framed, hinged lid containers for collection of waste materials and debris.
 - .2 Provide and use clearly marked, separate bins for recycling.

Allow costs as a CA or carry
costs for snow
removal/winter conditions

- .7 Remove waste material and debris from site and deposit in waste container at end of each working day.
- .8 Clean interior areas prior to start of finish work, and maintain areas free of dust and other contaminants during finishing operations. Continue cleaning including vacuuming on an as-needed basis until building is ready for Substantial Completion and again before occupancy.
- .9 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .10 Provide adequate ventilation during use of volatile or noxious substances. Use of enclosure ventilation systems is not permitted for this purpose.
- .11 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .12 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

END OF SECTION

Part 1 General

1.1 CONSTRUCTION WASTE MANAGEMENT PLAN

- .1 Develop, establish, document and implement a Construction Waste Management Plan including:
 - .1 Material type segregation and storage facilities.
 - .2 Storage methods.
 - .3 Environmental protection.
 - .4 Security.
 - .5 Safety.
 - .6 Fire protection.
 - .7 All trade personnel education.
 - .8 All trade waste materials.

1.2 REGULATORY STANDARDS

- .1 Comply with municipal, provincial and federal government regulations.
- .2 BC Waste Management Act and Special Waste Regulation.
- .3 Identify and separate hazardous wastes for disposal in accordance with government regulations.
- .4 Provide separate waste containers for individual waste types to facilitate and maximise recycling and salvage while minimizing landfill disposal of waste.

Part 2 Products

2.1 NOT USED

- .1 Not used

Part 3 Execution

3.1 REGULATORY REQUIREMENTS

- .1 Comply with all applicable codes and regulations.
- .2 Implement the Construction Waste Management Plan at the commencement of site activity.
- .3 Identify and separate hazardous wastes for disposal in accordance with government regulations.
- .4 Instruct all personnel on the site of the Construction Waste Management Plan and on its use
- .5 Review the Construction Waste Management Plan at monthly meetings with all onsite personnel.
- .6 Modify plan to correct unforeseen conditions.

END OF SECTION

Part 1 General

1.1 NOT USED

- .1 Not used

Part 2 Products

2.1 CLEANING PRODUCTS.

- .1 Use 0 VOC, fragrance free and natural cleaning products conforming to manufacturer's written instructions for both materials being cleaned and cleaning materials.

Part 3 Execution

3.1 CLEANING AND INDOOR AIR QUALITY MANAGEMENT DURING CONSTRUCTION

- .1 Prevent accumulation of emissions of VOC's by ventilation including low VOC materials.
- .2 Prevent accumulation or contamination of odours, foreign material or construction debris on permanent components.
- .3 Prevent entry of gas from plumbing lines by capping or sealing unfinished lines and filling traps.
- .4 Prevent or remedy conditions which may lead to growth of moulds during or after construction.
- .5 Immediately remove any mould contaminated materials.
- .6 Do not store VOC containing materials within the building.
- .7 Prevent contamination of HVAC equipment, grilles, diffusers and ductwork with temporary seals/covers maintained daily.
- .8 Actively ventilate the building with 1.5 air changes per hour during and 48 hours after odour causing activities:

Group: .1 Painting.

Cleaning and Waste Management (both of them) .2 Using sealants and adhesives.
.3 Carpet, sheet and other resilient flooring.
.4 Cleaning.
.5 Other construction activities as may be identified.

.9 **Prior to commencement of installation of interior finishes (paint, t-bar ceilings, flooring) thoroughly clean floors, walls including windows, horizontal ledges including structure, service lines, ductwork and other surfaces to remove construction debris, dust dirt and other foreign materials. Clean using vacuums with fine particulate filters or exterior exhaust and/or washing with wet cloths.**

.10 **After the installation of interior finishes begins exterior limit access points and provide each access point with mats, gratings or other approved means to prevent dirt and other foreign material from being carried into the building. Cleaned access points daily.**

- .11 After installation of interior finishes begins, prevent dust generation within the building with subsequent contamination of other areas and surfaces.
 - .1 Relocate dust generating activities out of the building.
 - .2 Provide mechanical filtration to collect dust generated.
 - .3 Immediately cease dust generating activities and wet clean contaminated areas should they occur.

3.2 PROJECT CLEANLINESS

- .1 Clean interior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.

3.3 CLEANING

- .1 Subject to total completion of dust generating or odour generating activities clean immediately prior to the first of either full activation of air systems as approved by the Consultant.
- .2 Clean including but not be limited to the following:
 - .1 Remove all dust from finished surfaces.
 - .2 Clean all finished surfaces of foreign materials, marks etc.
 - .3 Remove all protective wraps and papers.
- .3 Remove waste products and debris and leave the Work clean and suitable for Commissioning, Sustainable Design Air Flush and inspections for Substantial Completion.
- .4 At completion of construction power wash all outdoor storage and work areas.

3.4 CLEANING PRIOR TO ACCEPTANCE

- .1 Remove waste products and debris and leave Work clean and suitable for occupancy.
- .2 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .3 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.

Group: Cleaning and Waste Management

3.5 OWNERS FLOOR WAXING

- .4 Flush all storm mains, clean all catch basins, sumps, sump manholes and oil interceptors.
- .5 Replace filters on HVAC equipment.

- .1 Schedule and turn over to the Owner's staff completed floor areas to allow for the Owners waxing of floors.
- .2 Construction personnel will not be allowed into turned over areas for a minimum of 2 working days after completion of waxing.
- .3 A minimum of eight (8) working days with evenly distributed floor areas is to be scheduled for Owner's waxing of floors.

3.6 FINAL PRODUCT CLEANING

- .1 Execute final cleaning prior to turn over to Owner.

- .2 Clean interior and exterior glass, all surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

- Group:** .3 Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- Cleaning and Waste Management** .4 **Replace temporary construction filters of operating equipment.**
- .5 Clean site; sweep paved areas, rake clean landscaped surfaces.
 - .6 Remove waste and surplus materials, rubbish, and construction facilities from the site.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-2008, Stipulated Price Contract.

1.2 INSPECTION, REVIEW AND DECLARATION

- .1 Contractor's Inspection: Conduct an inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .1 Notify Consultant in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
 - .2 Request Consultant's review.
- .2 Consultant's Review:
 - .1 Consultant and Contractor will perform review of Work to identify obvious defects or deficiencies. Correct Work accordingly.
- .3 Completion: Submit written certificates that tasks have been performed as follows:
 - .1 Work: Completed, reviewed and inspected for compliance with Contract Documents.
 - .2 Defects: Corrected and deficiencies have been completed.
 - .3 Equipment and systems: Tested, adjusted and balanced and are fully operational.
 - .4 Certificates required by authorities having jurisdiction: Submitted.
 - .5 Operation of systems: Demonstrated to Owner's personnel.
 - .6 Work: Complete and ready for final review.
- .4 Final Review:
 - .1 When items noted above are completed, request final review of Work by Consultant.
 - .2 When Work is incomplete according to Consultant, complete outstanding items and request re-review.
- .5 Declaration of Substantial Performance:
 - .1 When all life-safety requirements are met and Consultant considers deficiencies and defects corrected and requirements of Contract substantially performed, make
- .6 Commencement of Lien and Warranty Periods:
 - .1 Date of Owner's acceptance of submitted declaration of Substantial Performance to be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.
- *Group:
Holdbacks/
Liens .7 Final Payment:
 - .1 When Consultant considers final deficiencies and defects have been corrected and it appears requirements of Contract have been performed, make application for final payment.
 - .2 Refer to CCDC 2-2008. If Work is deemed incomplete by Consultant, complete outstanding items and request re-review.

.8 Payment of Holdback:

- .1 After issuance of Certificate of Substantial Performance of Work, submit application for payment of holdback amount in accordance with contractual agreement.

Part 2 Products

2.1 NOT USED

- .1 Not used

Part 3 Execution

3.1 NOT USED

- .1 Not used

END OF SECTION

Part 1 General

1.1 SUBMISSION

- .1 Prepare instructions and data using personnel experienced in maintenance and operation of described products.
- .2 Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Consultant's review.
- .3 Copy will be returned with Consultant's comments within 15 work days.
- .4 Revise content of documents as required prior to final submittal.
- .5 Prior to Substantial Performance of the Work, submit to the Consultant, final electronic copy, final hard copies of Operating and Maintenance manuals, and record drawings in English.
- .6 Submit an updated Fire Safety Plan to the Fire Department for review and approval prior to occupancy inspection.
- .1 A copy of the Fire Safety Plan shall be stored in a Fire Safety Plan Box next to each fire alarm annunciator panel. Consult with the Fire Dept for the approved box and lock.
- .7 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.
- .8 If requested, furnish evidence as to type, source and quality of products provided.
- .9 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.
- .10 Pay costs of transportation.
- .11 Consultant shall allow for one site visit to review deficiencies. If all deficiencies are not rectified, pay costs for additional Consultant visits.
- .12 Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- .13 Rectify any outstanding deficiencies encountered after occupancy and during the guarantee period as specified under the Contract Documents and after review by Consultant.
- .14 Performance Assurance: submit all warranties/guarantees, affidavits, maintenance manuals.
- .15 Review maintenance manual contents (operating, maintenance instructions, record drawings, spare parts, materials, etc.) for completeness.
- .16 Attend "end-of-work" testing, commissioning, and break-in or start-up demonstrations.
- .17 Review and testing reports to verify conformance to the intent of the Documents and that changes, repairs, or replacements have been completed.
- .18 Meet with Mechanical and Electrical Consultants to co-ordinate completion testing approvals.

Group: On site conditions (safety)

- .19 Review condition of equipment that has been used in the course of the Work to ensure turn over at completion in "as new condition" and is fully operational with warranties, dated and certified from time of Substantial Performance of the Work.
- .20 Arrange and coordinate instruction of Owner's staff in care, maintenance, and operation of building systems by Suppliers or Subcontractors.
- .21 When partial occupancy of uncompleted project is required by Owner, coordinate Owners uses, requirements, access, with Contractor's requirements to complete project.
- .22 Provide ongoing review, review and attendance to building callback, maintenance and repair problems during the warranty periods.
- .23 Review inspection and testing reports to verify that the findings conform to the intent of the documents and that changes, repairs or replacements have been completed.
- .24 Expedite and complete deficiencies and defects identified by the Consultant.
- .25 Submit required documentation such as statutory declarations, Workers' Compensation certificates, warranties, certificates of approval or acceptance from regulating bodies.

1.2 PROFESSIONAL ENGINEERING SCHEDULES

- .1 Submit Final Field Review and Schedule S-C in accordance with the Province of British Columbia for:
 - .1 Professional design services or certifications by a design professional as specified in technical sections.
 - .2 Seismic restraint.
 - .3 Delegated designs are required for elements designed by a specialty professional.
- .2 Prepare required submittals and present to Consultant within sufficient time to allow for Consultant's detailed review and acceptance.

1.3 OPERATION AND MAINTENANCE MANUALS

- .1 **Submit one digital draft review copy of Operation and Maintenance Manuals 4 weeks prior to Substantial Completion. Submit one final hard copies and two final USB flash drive of Operating and Maintenance Manuals (O & M Manuals).**
- .2 Provide separate Architectural, Mechanical, and Electrical manuals. Electronic copy to be organized with index into similar categories.
- .3 Hardcopy: Vinyl, hard covered, 3 'D' ring, loose leaf 216 x 279 mm (8 ½" x 11") with spine and face pockets. When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder on spine.
- .4 Cover hardcopy: Identify each binder with type or printed title 'Project Record Documents'; list title of project title, location, date and project number and identify subject matter of contents.
- .5 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .6 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

- .7 Each Operation and Maintenance Manuals to contain the following:
- .1 Cover sheet showing Project Title, location, date and project number.
 - .2 Table of Contents. Arrange content by systems, under Section numbers and sequence of Table of Contents.
 - .3 List names, telephone numbers, and addresses of Project Manager, Contractor, Consultants, and relevant Sub-contractors.
 - .4 Summary table listing the following information for each entry: specification section, manufacturer's name, supplier or sub-trade name, and warranty or guarantee period.
 - .5 B.C. Land Surveyor survey submissions hard copy prints in manuals.
 - .6 Product Data: mark each sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information.
 - .7 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
 - .8 Parts lists and list of equipment and nameplate information including make, size, capacity, manufacturer's model and serial number, service depot, and Incorporating manufacturer's instructions.
 - .9 Complete painting and flooring samples for all materials.
 - .10 Operating instructions.
 - .11 Connection and control schematics where required.
 - .12 Maintenance instructions and preventative maintenance schedules for equipment, including lubricating instructions and schedules.
 - .13 List of maintenance materials, special tools, or spare parts left on site.
 - .14 Manufacturer's warranties and guarantees and extended warranties as specified.
 - .15 Copies of required approvals and certificates, including inspection reports of Authorities Having Jurisdiction.
 - .16 Maintenance instructions and schedules for roofing.
 - .17 Hardware list and maintenance instructions.
 - .18 Finish schedule including paint, floor, wall, and ceiling materials and colours.
 - .19 Maintenance instructions & schedules for interior floor, wall, and ceiling finishes.
 - .20 Schedule of warranty list for all materials and equipment.
 - .21 Coordinate building room numbers with equipment numbering systems.

1.4 RECORD DRAWINGS AND SAMPLES

- .1 In addition to requirements in General Conditions, maintain at the site for Consultant one record copy of:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Change Orders and other modifications to the Contract.
 - .5 Reviewed shop drawings, product data, and samples.
 - .6 Field test records.

- .7 Inspection certificates.
- .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Consultant.

1.5 RECORDING ACTUAL SITE CONDITIONS

- .1 Record information on set of black line opaque drawings, and in copy of Project Manual.
- .2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: legibly mark each item to record actual construction, including:
 - .1 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
 - .2 Field changes of dimension and detail.
 - .3 Changes made by change orders.
 - .4 Details not on original Contract Drawings.
 - .5 References to related shop drawings and modifications.
- .5 Specifications: legibly mark each item to record actual construction, including:
 - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
 - .2 Changes made by Addenda and change orders.
- .6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.
- .7 At completion of the Work, employ consultants to transfer all deviations, including those called up by addenda, revisions, clarifications, shop drawings and change order, to a set of white prints. Each as-built print shall bear the Contractor's identification, the date of record and the notation, "We hereby certify that these drawings represent the work 'as-built'." The Contractor's signature shall be placed below that notation.
- .8 Submit one (1) hardcopy and one (1) electronic copy, in consultant's original drawing program and version layering systems, of Record Drawings for Architectural, Mechanical, Plumbing and Electrical Divisions of the work.
 - .1 Match Bid Documents sheet size.

- .9 Review Record Drawing contents for completeness prior to submission.
- .10 Submit documents to Consultant at Substantial Completion.

1.6 EQUIPMENT AND SYSTEMS

- .1 Include for Each Item of Equipment and Each System description of unit or system, and component parts.
 - .1 Give function, normal operation characteristics, and limiting conditions.
 - .2 Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour coded wiring diagrams.
- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences.
 - .1 Include regulation, control, stopping, shut-down, and emergency instructions.
 - .2 Include summer, winter, and any special operating instructions.
- .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .6 Provide servicing and lubrication schedule, and list of lubricants required.
- .7 Include manufacturer's printed operation and maintenance instructions.
- .8 Include sequence of operation by controls manufacturer.
- .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .10 Provide installed control diagrams by controls manufacturer.
- .11 Provide Contractor's coordination drawings, with installed colour coded piping diagrams.
- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .14 Additional requirements: As specified in individual specification sections.

1.7 MATERIALS AND FINISHES

- .1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

- .3 Moisture-protection and Weather-exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Additional Requirements: as specified in individual specifications sections.

1.8 SPARE PARTS

- .1 Provide spare parts, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site; place and store in location coordinated with Owner.
- .4 Receive and catalogue items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

1.9 MAINTENANCE MATERIALS

- .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site; place and store in location coordinated with Owner.
- .4 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

1.10 MAINTENANCE SERVICE

- .1 Furnish service and maintenance of components as indicated in specification sections and during the warranty period.
- .2 Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
- .3 Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.
- .4 Do not assign or transfer maintenance service to any agent or Subcontractor without prior written consent of the Owner.

1.11 SPECIAL TOOLS

- .1 Provide special tools, in quantities specified in individual specification section.
- .2 Provide items with tags identifying their associated function and equipment.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.

1.12 DELIVER, STORAGE, HANDLING AND PROTECTION

- .1 Deliver, store, handle, and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.

1.13 WARRANTIES AND BONDS

- .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
- .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
- .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work.
- .4 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Performance is determined.
- .5 Verify that documents are in proper form, contain full information, and are notarized.
- .6 Co-execute submittals when required.
- .7 Retain warranties and bonds until time specified for submittal.
- .8 Provide notarized copies.
- .9 Execute and assemble transferable warranty documents from Subcontractors, suppliers, and manufacturers.
- .10 Include warranties in Operation and Maintenance Data binders.
- .11 For items of Work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of warranty period.
- .12 **Provide ongoing review, inspection and attendance to building call back, and maintenance, and repair problems during the warranty periods.**

**Group:
Warranty**

Part 2 Products

2.1 NOT USED

- .1 Not used

Part 3 Execution

3.1 NOT USED

- .1 Not used

END OF SECTION

Part 1 General

1.1 CERTIFICATES

- .1 Obtain and pay for certificates of approval and all other necessary permits, inspections, and re-inspections associated with installation of or changes to the equipment.

1.2 **WARRANTY ON NEW EQUIPMENT**

- .1 Warranty new equipment for a period of twelve (12) months after Substantial Performance of the Work. This warranty includes replacement or repair of items that fail or cause improper operation unless caused by improper use of the equipment or by willful damage. Submit written confirmation of the warranty and the effective dates of this guarantee with the final invoice for the project.

1.3 **WARRANTY ON RE-USED EQUIPMENT**

- .1 Maintained and warrant the equipment that is being re-used on the same basis as the new equipment as specified elsewhere. Inspect existing equipment thoroughly with due allowance for existing wear or obsolescence. Clean equipment thoroughly before being put back in operation. Clean and paint equipment that may be found to be corroded or rusted.
- Group:
Warranty
(all three of
them)**
- .2 Take possession of all replaced equipment, and remove it promptly from the site, except for any items that the Owner may designate in advance as being required for spare parts or other reasons. In this case, the building maintenance staff will take possession and remove those items promptly.

1.4 **WARRANTIES AND GUARANTIES**

- .1 Provide warranties and guaranties with 'Holy Cross Reginal Secondary' named as beneficiary. For equipment and products , or components thereof, bearing a manufacturer's warranty or guaranty that extends for a period of time beyond the Contractor's warranty and guaranty, Contractor shall so state in the warranty or guaranty.
- .2 Provisions for Special Warranties : Refer to Contract General Conditions for terms of the Contractor's special warranty of workmanship and materials .

1.5 **DISCLAIMERS AND LIMITATIONS**

- .1 Manufacturer's disclaimers and limitations on product warranties and guaranties shall not relieve Contractor of responsibility for warranty and guaranty requirements for the Work that incorporates such products , nor shall they relieve suppliers , manufacturers and installers required to countersign special warranties with Contractor.

1.6 **RELATED DAMAGES AND LOSSES**

- .1 When correcting warranted Work that has been found defective, Contractor s hall remove and replace other Work that has been damaged as a result of such defect or that must be removed and replaced to provide access for correction of warranted Work.